HONOAPIʻILANI HIGHWAY IMPROVEMENTS PROJECT,
WEST MAUI: UKUMEHAME TO LAUNIUPOKO

Appendix 3.10 – Flora and Fauna, Endangered Species - Supplemental Information and Correspondence

November 2025

Prepared for

Honoapiʻilani Highway Improvements

Prepared by

wsp

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Contents

HT Harvey & Associates Biological Survey Report

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Honoapiʻilani Highway Improvement Project
Biological Survey Report

Project #4692-02

Prepared for:

WSP USA

1001 Bishop Street, Suite 2400
Honolulu, HI 96813

Prepared by:

H. T. Harvey & Associates

November 2023

91-1020 Kai Loli Street • Ewa Beach HI 96706 • 808.499.9092 • www.harveyecology.com

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List of Preparers

Scott Terrill, Principal-in-Charge

Shahin Ansari, Senior Plant Ecologist

Gregory Spencer, Senior Wildlife Biologist

Chuck Chimera, Botanist

Ilana Nimz, Wildlife Biologist

Section 1.0 Introduction

1.1 Project Description

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaiʻi Department of Transportation (HDOT), is planning the Honoapiʻilani Highway Improvements Project. The proposed project is in West Maui, in the areas served by the existing Honoapiʻilani Highway between milepost 11 and milepost 17 (Figure 1). Honoapiʻilani Highway, which is part of Maui's Belt Road system, is a two-lane principal arterial highway that provides the sole access between communities along the west coast of Maui and the rest of the island. The proposed southeastern terminus at milepost 11 is in Ukumehame, in the vicinity of Papalaua Beach Park, and the northwestern terminus of the project is at milepost 17 in Launiupoko, where Honoapiʻilani Highway currently intersects the southern terminus of the Lāhainā Bypass. This approximately six-mile long and 3/4-mile-wide Project Area is composed predominantly of a coastal plain that includes the ahupuaa of Ukumehame, Olowalu, and Launiupoko. Offshore, the Olowalu reef area, which extends from Ukumehame to Launiupoko, hosts about 1,000 acres of some of the healthiest and oldest living corals within the main Hawaiian Islands (MHI). The proposed project does not include work on the existing highway except where the new project joins the existing highway at the northern and southern connections points and potentially at connector roads to ensure continued access to residences, businesses, and public beaches. Additionally, there is no in-stream work planned for this project.

Project Alternatives

A Preferred Alternative has not yet been identified. Four draft "Build Alternatives" have been identified (Figure 2) and are being evaluated in the Draft Environmental Impact Statement (DEIS) currently underway. Each alternative involves the construction of a new highway, which is mainly along a new alignment, further inland from the ocean. Build Alternative 1 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 coastal or makai concept. This alignment has been "modified" to apply American Association of State Highway and Transportation Officials (AASHTO) design standards, bypass erosion areas, and avoid cultural resources. This alternative is just mauka (mountain side or inland) of most inundation areas in Launiupoko and Olowalu and maximizes use of the existing right-of-way (ROW). Build Alternative 2 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 "middle" concept (R.M. Towill Corporation 2005). The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. Build Alternative 3 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 mauka concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. Build Alternative 4 was also adapted from the County of Maui's Pali to Puamana Parkway 2005 mauka concept. The alignment has been "corrected" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. The route through Olowalu town, which distinguishes this alignment, is based on landowner input provided in 2007. This alignment meets the 55 miles per hour (mph) design speed (with speed signs to be posted at 45 mph), while minimizing curves. The alignments converge at several points and there are two distinct areas where the alignments all differ from one another: one in Olowalu and the other in

Ukumehame. The preferred alternative may be selected from two proposed alternatives, one in each of the two differing areas.

None of the Build Alternatives discussed below involve work in the ocean. Additionally, there is no in-stream work planned for this project, but they may require bridges over the streams. All project alternatives will incorporate Best Management Practices (BMPs) as prescribed by FHWA, U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) and other agencies participating in the review and approval of the proposed project. It is also noted that no night work is anticipated during construction, and construction duration is anticipated to be no longer than two years. However, should night work be required, additional coordination will be conducted with USFWS and the Hawaiʿi Department of Land and Natural Resources (DLNR) to agree upon any other appropriate conservation measures.

1.2 Biological Studies – Purpose and Scope

The objectives of this biological study were to:

- Conduct a reconnaissance-level wildlife survey to detect and record the wildlife species (birds and mammals) within the study area.
- Conduct a reconnaissance-level botanical survey to identify and document vegetation communities and plant species within the study area.
- Identify and document biological issues of concern, including the presence of any taxa state or federally listed as threatened or endangered, candidate species for listing, or sensitive habitats.
- Identify the potential impacts of implementing the Project and conservation measures that may be considered for inclusion into the planning and design phase if any listed taxa, candidate species for listing, or sensitive habitats are found.

As mentioned in Section 1.1 HDOT and FHWA are currently preparing a DEIS to evaluate the four alternative highway alignments. All four alternative alignments will, for the most part, be built inland of the existing highway, away from the existing coastline and projected sea level rise exposure areas. Each alternative alignment is being designed as a 140-foot-wide cross section including the median, two-lane roadway and with sufficient ROW width to accommodate up to four lanes in the future. To account for ROW variability, the Biological Study Area (BSA) for this assessment was defined as a 150-foot-wide swath centered on each of the four alignments.

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Figure 1. Project Vicinity
Honoapiilani Highway (4692)
September 2023

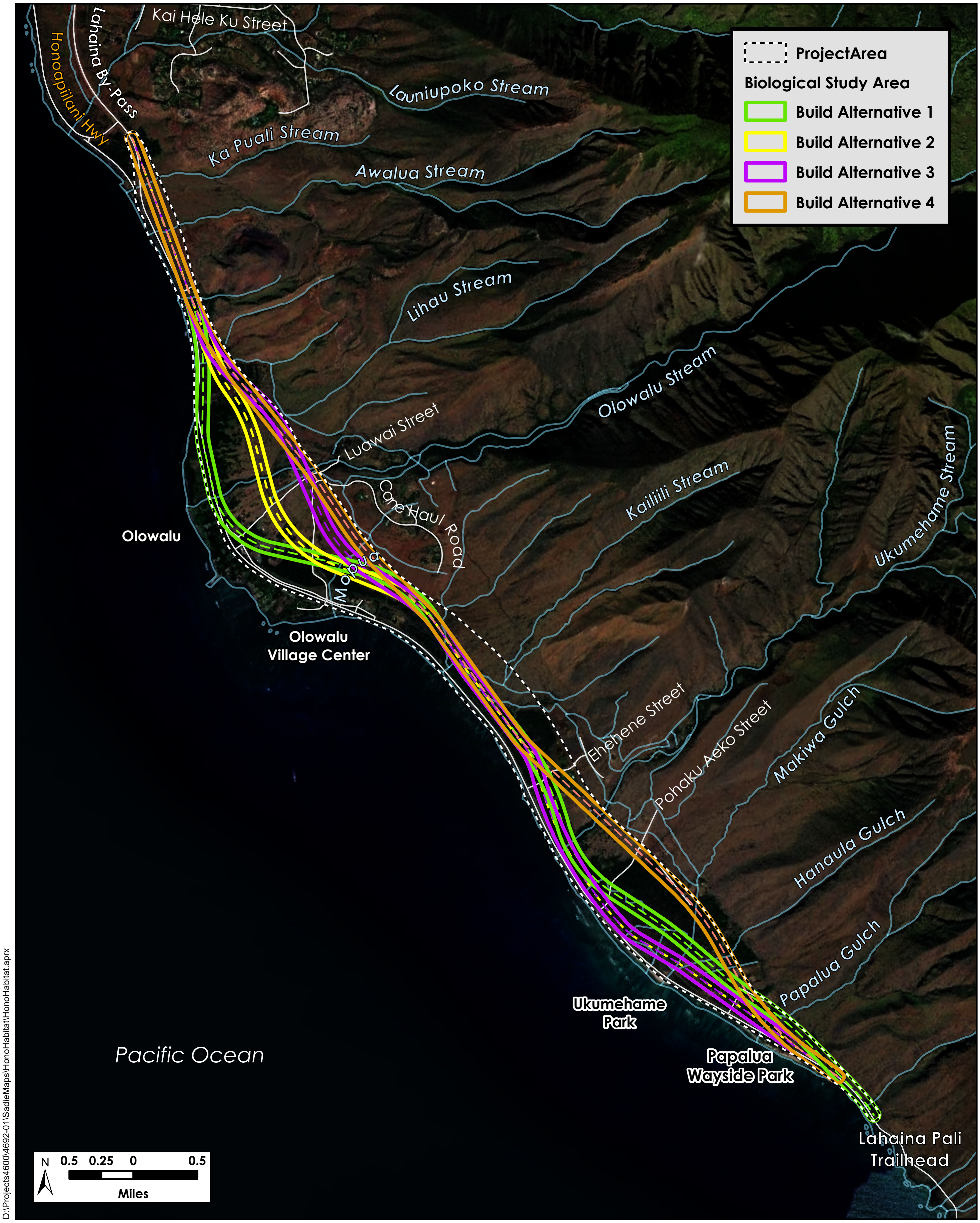

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Figure 2. Biological Study Area
Honoapiilani Highway (4692)
September 2023

1.3 Background Information

The climate at the Project Area is typical of leeward West Maui – warm subtropical with average temperatures (°F) over a given year ranging from the low 60s to upper 80s. Situated on the leeward lowlands of West Maui, the entire Project Area is very dry and according to Giambelluca et al. (2013), receiving mean annual rainfall levels of approximately 30 inches with most of the annual precipitation occurring during the winter months from November through March and the least amount of precipitation during the summer. Typically, the predominant trade winds blow from east to west; this pattern changes during the winter months when meteorological conditions shift in response to approaching North Pacific cold fronts, causing winds to become more westerly ("kona winds") and delivering increased precipitation to leeward areas. Severe storms have historically been infrequent in this region of Maui.

The Project Area generally consists of undeveloped land, historic agricultural uses, open space, rural residential, and state conservation land uses. The commercial and tourist center of Lāhainā is about 4 miles north of the northern end of the Project Area. Toward Lāhainā to the north and west of the Project Area, the land use is more residential along and mauka (inland) of Lāhainā Bypass. To the south and east, no developed land uses are along Honoapiʿilani Highway until the central Maui community of Māʿalaea. The Project Area is rural in character and comprises the mostly open lands along with historic settlements in Olowalu and newer low-density residential development mauka of the existing highway corridor at the base of the mountains. Olowalu and Ukumehame areas were heavily influenced by the development of large-scale plantation agriculture that dramatically changed and still influences much of the existing landscape in the Project Area. Mauka (inland) of the Project Area there are limited residential uses, cultural sites, and reserve areas, and sparse residential uses. Into the mountains, land use is predominantly undeveloped open space as part of the West Maui Nature Reserve and recently approved DLNR Wildlife Reserve.

Section 2.0 Methods

The BSA for the flora and fauna studies consisted of a 150 feet swath centered around each Build Alternative (Figure 2). Prior to the field survey, H. T. Harvey & Associates' biologists reviewed aerial photographs and topographic maps of the BSA and conducted a thorough literature review to identify any ecological concerns and biological resources present in the BSA and its vicinity. In particular, we reviewed the resource list of threatened and endangered species in USFWS's Information for Planning and Consultation database (USFWS 2023a), which lists species either known or expected to be within or near the BSA (Appendix A). In addition, other species of concern in the vicinity of the BSA were identified during informal preconsultation meetings with USFWS staff (Appendix B). H. T. Harvey & Associates biologists also conducted a project site visit with U. S. Fish & Wildlife staff on March 22, 2023 to help familiarize staff with the scope of this highway realignment project and document any concerns that they might identify with regard to species and habitats.

A reconnaissance-level survey of the BSA was conducted on the following dates in 2023: January 2, 3, 4, 5, 6 and 7; March 21, 22, 23, 24, and 25; April 28; May 1, 9, 14, 16, and 22; and July 13 and 18. Sunny skies with mild trade winds prevailed during the survey. Two botanists and one wildlife biologist (hereafter referred to as biologists) conducted the survey together. The biologists walked the accessible areas of the BSA and documented the vegetation communities, plants, birds, and mammals observed. A handheld Global Positioning System device preloaded with spatial data (e.g., BSA boundary) was used to navigate during the survey and record field observations. In general, rocky outcrops, shaded areas, and topographic depressions, which are more likely to support native plant species, were surveyed more extensively.

The wildlife biologist recorded observations of birds and mammals in the BSA. Visual and auditory detection, as well as secondary indicators (e.g., nests) were used to identify the bird species present. To survey for birds, 10-minute point counts were made from 21 locations in the BSA; the data was mostly gathered between 6:00 a.m. to 11:00 a.m. The 21-point count locations were spread out to cover different representative habitats in the BSA (Figure 3). Point count surveys included tallying all birds seen or heard by a single observer from a fixed point over a period of 8 minutes. Binoculars (e.g., Eagle Optics 10×50) were used to assist with visual identifications. In addition to these focused point-count surveys, incidental detections of birds were recorded throughout the duration of the survey. An avian species list was compiled, which includes common and scientific names of the individual species, the legal regulatory status, the average number of individuals detected per count station, and how many count stations were occupied. The last two metrics were used to provide a qualitative relative abundance of observed bird species.

The only native Hawaiian terrestrial mammal, the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), is known to occur on Maui (Tomich 1986, DLNR 2015a). For the purpose of this biological study, it is assumed that Hawaiian hoary bats may use the Project Area and therefore, surveys to identify or quantify their presence were not conducted. Observations of non-native mammal species in the BSA were made incidentally. These were based on visual and auditory detection, coupled with visual observation of scat, tracks, and other animal signs. An inventory was kept of all vertebrate species observed and heard during the survey.

Hawaiʻi does not have native amphibians and terrestrial reptiles. Furthermore, because the Project is entirely terrestrial, marine turtles (*Chelonia mydas* and *Eretmochelys imbricata*) are not anticipated to experience any direct exposure due to Project activities.

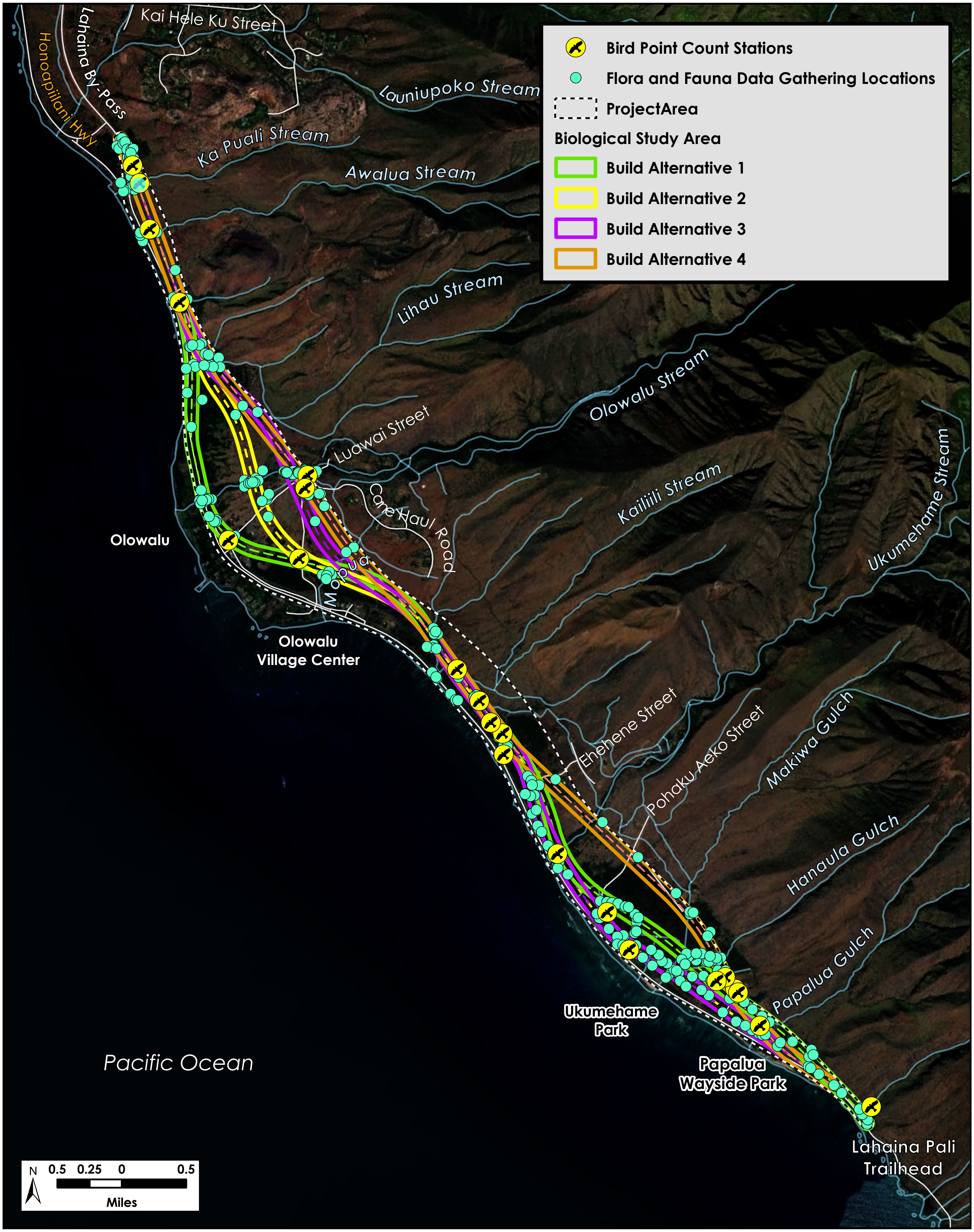

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Figure 3. Data Gathering Locations
Honoapiilani Highway (4692)
September 2023

Section 3.0 Results

3.1 Flora

The taxa recorded during the reconnaissance-level survey are indicative of the season (i.e., spring) and the environmental conditions at the time of the survey. No rare native Hawaiian plant species or taxa that are state or federally listed as threatened, endangered, or taxa that are candidates for listing were observed in the Project Area. Table 1 provides a list of the plant species observed and their relative abundance in the Project Area. A total of 56 plant taxa were found, of which eight (~14%) are native (indigenous) and 48 (~86 %) are either Polynesian introduced or alien species (Wagner et al. 1999, Imada 2019).

Table 1. Plant Species Observed in the Honoapiʻilani Highway Improvement Project Biological Study Area

Family	Scientific Name	Common Name	Status[1]	Relative[2] Abundance
Aizoaceae	*Sesuvium portulacastrum*	Akuiluli	Native	Common
Amaranthaceae	*Amaranthus viridis* L.	Slender amaranth	Alien	Common
	Chenopodium murale	Nettleleaf goosefoot	Alien	Uncommon
Anacardiaceae	*Mangifera indica* L.	Mango	Alien	Rare
Areceaea	*Cocos nucifera* L.	Coconut	Pol	Uncommon
	Washingtonia robusta H. Wendl.	Mexican fan palm	Alien	Uncommon
Asteraceae	*Bidens alba*	Florida beggartick	Alien	Uncommon
	Pluchea indica (L.) Less.	Indian fleabane	Alien	Abundant
	Pluchea x fosbergii Cooperr. & Galang	Marsh fleabane	Alien	Abundant
	Tridax procumbens L.	Coat buttons	Alien	Uncommon
	Xanthium strumarium	cocklebur	Alien	Common
	Zinnia peruviana (L.) L.	Zinnia	Alien	Rare
Bataceae	*Batis martima*	Pickleweed	Alien	Abundant
Bromeliaceae	*Ananas comosus* L. Merr	Pineapple	Alien	Rare
Convolvulaceae	*Ipomoea triloba* L.	Little bell	Alien	Uncommon
	Merremia tuberosa (L.) Rendle	Woodrose	Alien	Common
Cucurbitaceae	*Cucumis dipsaceus* Ehrenb. Ex Spach	Wild cucumber	Alien	Uncommon
	Momordica charantia L.	Bitter melon vine	Alien	Common
Cyeraceae	*Cyperus rotundus*	Purple nutsedge	Alien	Uncommon
Euphorbiaceae	*Euphorbia hirta* L.	Hairy spurge	Alien	Uncommon
Fabaceae	*Chamaecrista nictitans*	Partridge pea	Alien	Uncommon
	Crotalaria pallida	Smooth rattlepod	Alien	Uncommon
	Desmanthus pernambucanus	Slender mimosa	Alien	Uncommon
	Leucaena leucocephala (Lam.) de Wit	Haole koa	Alien	Abundant

Family	Scientific Name	Common Name	Status[1]	Relative[2] Abundance
	Macroptilium atropurpureum (DC.) Urb.	Vining cow pea	Alien	Common
	Peltophorum pterocarpum (DC.) K.Heyne	Copper pod	Alien	Rare
	Pithecellobium dulce(Roxb.) Benth.	Opiuma	Alien	Abundant
	Prosopis pallida (Humb. & Bonpl. Ex Willd.)	Kiawe	Alien	Abundant
	Samanea saman (Jacq.) Merr.	Monkey pod	Alien	Common
Goodeniaceae	*Scaevola taccada* (Gaertn.) Roxb.	Naupaka	Native	Rare
Heliotropiaceae	*Heliotropium amplexicaule* Vahl	Heliotrope	Alien	Uncommon
Lamiaceae	*Leonotis nepetifolia* (L.) R.Br.	Lion's ear	Alien	Uncommon
Malvaceae	*Abutilon grandifolium* (Willd.) Sweet	Hairy abutilon	Native	Rare
	Abutilon incanum (Link) Sweet	Hoary abutilon	Alien	Uncommon
	Sida fallax	ʻilima	Native	Uncommon
	Sida rhombifolia L.	Cuban jute	Alien	Rare
	Thespesia populnea (L.) Sol. Ex Corrêa	Milo	Native	Rare
	Waltheria indica L.	Uhaloa	Native	Common
Moraceae	*Artocarpus altilis* (Parkinson ex Z) Fozberg	Breadfruit	Pol	Rare
Myrtaceae	*Syzygium cumini* (L.) Skeels	Java plum	Alien	Common
Nyctaginaceae	*Boerhavia sp.*	Alena	Alien	Uncommon
	Bougainvillea spectabilis Willd.	Bougainvillea	Alien	Uncommon
Passifloraceae	*Passiflora foetida* L.	Love in a mist	Alien	Uncommon
Poaceae	*Cenchrus ciliaris*	Buffel grass	Alien	Abundant
	Cenchrus ciliaris L.	Buffel grass	Alien	Abundant
	Cenchrus echinatus	Sandbur	Alien	Rare
	Chloris gayana Kunth	Rhodes grass	Alien	Abundant
	Cynodon dactylon (L.) Pers.	Bermuda grass	Alien	Common
	Digitaria abyssinica (Hochst. Ex. A.Rich.) Stapf	Finger grass	Alien	Common
	Eragrostis amabilis	lovegrass	Alien	Common
	Megathyrsus maximus	Guinea grass	Alien	Abundant
Portulacaceae	*Portulaca oleracea*	pigweed	Alien	Rare
Santalaceae	*Santalum ellipticum*	Sandalwood	Native	Rare
Solanaceae	*Nicotiana glauca* Graham	Tree tobacco	Alien	Rare
Sapindaceae	*Dodonaea viscosa*	ʻaʻaliʻi	Native	Rare
Zygophyllaceae	*Tribulus terrestris* L.	Puncture vine	Alien	Uncommon

[1] **Status Notes:** alien = introduced or alien (all those plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact [i.e., Cook's arrival in the islands in 1778]). Native = species that occur naturally in the Hawaiian Islands including indigenous species that have a wider distribution outside of Hawaiʻi.

[2] **Qualitative Relative Abundance of Observed Species in Study Area:** A = abundant—forming a major part of the vegetation in the Biological Study Area. C = common—widely scattered throughout the Biological Study Area or locally abundant in a portion of it. U = uncommon—scattered sparsely throughout the Biological Study Area or occurring in a few small patches. R = rare—only a few isolated individuals in the Biological Study Area.

In general, the vegetation of the BSA can be characterized as a mix of coastal dry community (sensu Gagne and Cuddihy 1999). During most of the year, these community types, which are typical of the leeward sides of most of the MHI, intercept little rainfall to maintain forest cover and are generally open to semi-open shrublands or woodlands. The vegetation throughout the Project Area has been heavily modified by pre-historic and modern human activities and is now largely dominated by alien species (Table 1). Fifteen habitat or vegetation types were identified in the BSA (Figure 4). Detailed below is the distribution and composition of these vegetation communities within the BSA starting from the northern Lāhainā side to the southern end where all the proposed Build Alternatives merge with the existing alignment near the Pali (Figure 4).

3.1.1 Vegetation – Olowalu Area

3.1.1.1 North of Olowalu Peninsula – Lāhainā Bypass to Near Lihau Stream

The northern half of the Project Area is a stretch of about three miles from the Lāhainā Bypass through the Olowalu Peninsula. All four Build Alternatives overlap for about 0.61 mile from the Lāhainā Bypass end to just north of Lihau Stream; here the vast majority of the vegetation was Buffel Grass Dominated Grassland (Figure 4, Photo 1). Scattered amongst this vast almost monotypic expanse of buffel grass (*Cenchrus ciliaris*) were scattered shrubs of haole koa (*Leucaena leucocephala*) and kiawe (*Prosopis pallida*) trees (Photo 1).

About two acres in the northeast corner of the Project Area can be characterized as Alien Dominated Mixed Woodland. A mix of kiawe, opiuma (*Pithecellobium dulce*), and Mexican fan palms (*Washingtonia robusta*) formed the canopy species with thickets of *Pluchea* spp.—marsh fleabane (*Pluchea × fosbergii*) and Indian fleabean (*Pluchea indica*) in the understory (Figure 4, Photo 2). On the opposite southwestern corner, the Project Area overlaps the existing Honoapiʻilani Highway with Roadside Scrub Vegetation, which was composed of a variety of small, prostrate herbaceous weeds such as alani (*Boerhavia repens*), little bell (*Ipomoea triloba*), and puncture vine (*Tribulus terrestris*); and grasses such as buffel grass, Bermuda grass (*Cynodon dactylon*), and swollen finger grass (*Chloris barbata*).

In the stretch from the Olowalu Residential Recycling and Refuse Center to Lipau Stream, where the four Build Alternatives continue to overlap, the Project Area is composed of Haole Koa-Guinea Grass Shrubland (Figure 4, Photos 3 and 4). This vegetation type was somewhat patchy with some areas being either predominantly guinea grass or short (~2-4 feet) haole koa shrubs while other areas with a mix of these species. Other commonly seen shrubs here included uhaloa (*Waltheria indica*), castor bean (*Ricinus communis*), and *Pluchea* spp. Tall Mexican fan palms, kiawe and opiuma trees were also seen scattered in this shrubland.

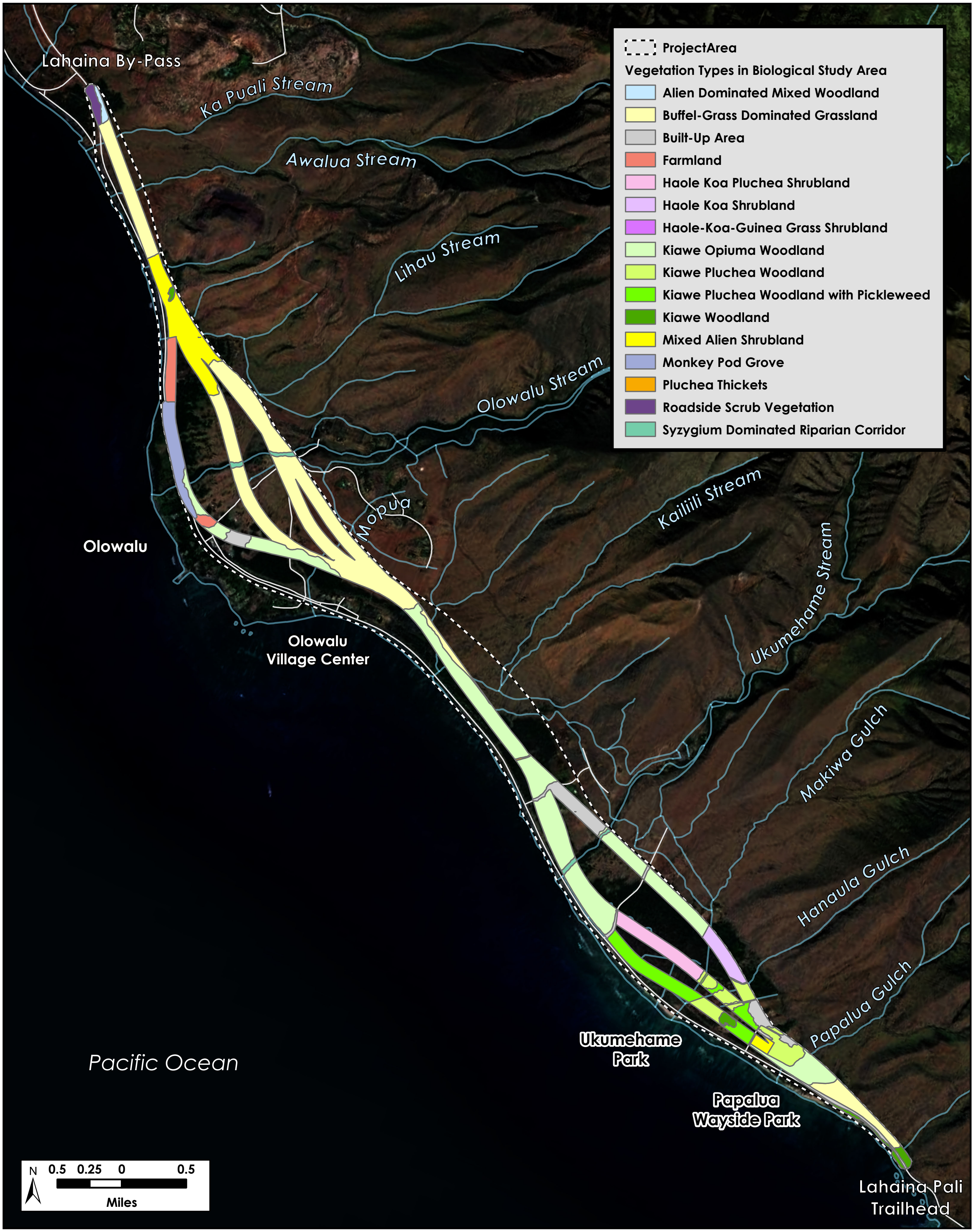

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Figure 4. Habitat/Vegetation Types
Honoapiilani Highway (4692)
September 2023

Photo 1. Grassland Habitat Overlapping All Four Proposed Build Alternatives in the Western Stretch of the Biological Study Area Between Lāhainā End and Lihau Stream

Photo 2. Alien Dominant Mixed Woodland Overlapping in the Northwest Corner of the Biological Study Area Ovelapping all Four Build Alternatives

Photo 3. Mixed Alien Shrubland Ovelapping all Four Build Alternatives in the Vicintiy of Olowalu Residential Recycling and Refuse Center

Photo 4. Mixed Alien Shrubland Ovelapping all Four Build Alternatives in the Vicintiy of Lipau Stream

In the central eastern portion of this Haole Koa Guinea Grass Shrubland, there is about 0.7 acres stand of kiawe trees. This Kiawe Woodland (Figure 4) overlapped what appeared to be an abandoned and dry ditch in the east-west direction that was once probably fed by a tributary of Lihau Stream. Each of the four Build Alternatives in this northernmost stretch of the Project Area cross three intermittent streams: Ka Puali, Awalua, and Lipau. Vegetation in the bed and banks of these narrow and mostly dry stream gulches was predominantly haole koa, kiawe, and buffel grass.

3.1.1.2 Olowalu Peninsula – Near Lihau Stream to Vicinity of Kailiili Stream

South of Lihau Stream, in the remaining 2.41 miles of the northern half of the Project Area, the proposed Build Alternatives start to separate and are distinguishable as four distinct alignments through the Olowalu Peninsula. For the most part, Build Alternative 1 overlaps the existing highway and the vegetation types observed here were: Farmland, Monkey Pod Grove, and Kiawe-Opiuma Woodland (Figure 4). Build Alternative 1 passes through Olowalu Village Center with businesses and some residences and the vegetation in this stretch is highly disturbed. Large monkey pods (*Samanea saman*) as avenue trees line both sides of the existing highway alignment that passes through the Village Center forming a Monkey Pod Tunnel (Photo 5). Weedy species such as vining cow pea (*Macroptilium atropurpureum*) and guinea grass were abundant behind the row of these trees.

Photo 5. Monkey Pod Tunnel - Row of Monkey Pod (*Samanea saman*) Trees in Build Alternative 1 Through the Olowalu Village Center

A stretch of cultivated lands characterized here as Farmland vegetation occur to the north as well as to the south of this Monkey Pod Tunnel (Figure 4). While the Farmland to the north appeared to be limited to growing vegetable species (Photo 6), the Farmland to the south of the tunnel and in closer proximity to the businesses had a variety of fruit and ornamental species such as bananas (*Musa* sp.), pineapple (*Ananas* sp), breadfruit (*Artocarpus altilis*), papaya (*Carica papaya*), and bougainvillea (*Bougainvillea* sp.) (Photo 6).


Photo 6. Farmland with Cultivated Crop and Ornamental Species Overlapping Build Alternative 1 in the Northern Part (Left Picture) and Southern Parts of the Olowalu Peninsula

The Olowalu Stream and a narrow riparian corridor on the banks of this perennial stream intersect Build Alternative 1 just north of the Olowalu Village Center (Figure 4). Above (and east of) the Olowalu Stream bridge and the existing highway, the riparian corridor was dominated by java plum and opiuma trees while dense thickets of guinea grass and haole koa along with a variety of weedy species such as hairy abutilon (*Abutilon grandifolium*) and bitter melon vine (*Momordica charantia*) were present behind the row of monkey pod trees below (and west of) the bridge and the existing highway (Photo 7).

A stretch of Build Alternative 1 that is mauka (or to the east) of the monkey pod trees and between the Olowalu Stream and the businesses in the Olowalu Village Center can be characterized as Kiawe Opiuma Woodland (Figure 4). This vegetation type also occurred in the long stretch between the southern Farmland area and Mapua Stream except in two acres that mostly was Built Up area (Figure 4, Photo 8). The large kiawe and opiuma trees in some portions of this woodland were dense stands with barely any understory vegetation, while in the other areas these trees were scattered with mostly weedy grasses and other herbaceous species such as lion's ear (*Leonotis nepetifolia*), hairy spurge (*Euphorbia hirta*), slender amaranth (*Amaranthus viridis*), wild cucumber (*Cucumis dipsaceus*), and the indigenous uhaloa in the understory. The southernmost stretch of Build Alternative 1 in the Olowalu Peninsula is composed of Buffel Grass Dominated Grassland (Figure 4).

A stretch of about 0.3 miles of Build Alternative 2, just south of (the northern tributary of) Lipau Stream, the vegetation continues to be Mixed Alien Shrubland (Figure 4). A variety of short (about 2-6 feet) statured shrubs of kiawe, opiuma, haole koa, *Pluchea* spp., and castor bean, were characteristic of this vegetation type (Photo 9). Love in a mist (*Passiflora foetida*) vines were abundant here and draped over the shrubs. Uhaloa was also abundant with some scattered shrubs of the native ʻilima (*Sida fallax*).

Other than an approximately six-acre patch of Kiawe Opiuma Woodland, vegetation in the remaining stretch of Build Alternative 2 in the Olowalu Peninsula can be characterized as Buffel Grass Dominated Grassland (Figure 4). Other than scattered trees of species such as kiawe, opiuma, and scattered shrubs of species such as haole koa and uhaloa the vegetation in this vegetation was largely a continuous and dense stand of dry buffel grass (Photo 10).

Photo 7. Dense Thickets of Guinea Grass (*Megathyrsus maximus*) Haole Koa (*Leucaena leucocephala*) West of the Olowalu Stream Bridge in Build Alternative 1

Photo 8. Kiawe Opiuma Woodland Overlapping Build Alternative 1 Near the Olowalu Village Center (Left Picture) and Around Luawai Street (Right Picture)


Photo 9. Mixed Alien Shrubland Overlapping Build Alternative 2 in Northern Portion of the Olowalu Peninsula


Photo 10. Buffel Grass Dominated Grassland Overlapping Build Alternative 2 in Olowalu Peninsula

Starting from Lihau Stream, for a stretch of about 1000 feet in the northern portion of the Olowalu Peninsula, both Build Alternatives 3 and 4 are composed of Mixed Alien Shrubland (Figure 4, Photo 11). The composition of the vegetation type here is like that described in the paragraph above for Build Alternative 2. In addition, there was a grove of coconut trees toward the southern end of this vegetation type, which appeared to have been planted by the private landowner to the east (Photo 11). The remaining approximately 1.4 miles of Build Alternatives 3 and 4, which mostly overlap in the Olowalu Peninsula, are composed of Buffel Grass Dominated Grassland (Figure 4, Photo 12).

As in Build Alternative 1, the Olowalu Stream also intersects with the Project Area overlapping Build Alternatives 2, 3, and 4 (Figure 4). In these three Build Alternatives there was a narrow riparian corridor dominated by java plum trees (Photo 13). Opiuma and kiawe trees were also common along the banks and the herbaceous with guinea grass abundance in the understory.

Photo 11. Coconun Grove in the Eastern Corner of the Mixed Alien Shrubland Overlapping Build Alternatives 3 and 4 in the Olowalu Peninsula

Photo 12. Buffel Grass Dominaed Grassland Overlapping Build Alternatives 3 and 4 in the Olowalu Peninsula

Photo 13. Representative Olowalu Stream Riparian Corridor Dominated by Java Plum (*Syzygium cumini*) Trees and Guinea Grass (Megathyrsus maximus) that Overlaps Build Alternatives 2, 3, and 4

3.1.2 Vegetation – Ukumehame Area

3.1.2.1 Kailiili Stream to Ehehene Street

The southern half of the Project Area is a stretch of about 3.13 miles starting from the southern end of Olowalu Peninsula, in the vicinity of Kailiili Stream, to the southernmost merge point with the existing Honoapiʿilani Highway near the Lāhainā Pali Trailhead. (Figure 2). Here, all four Build Alternatives overlap for a stretch of about 0.61 miles, between Kailiili Stream to just north of Ehehene Street (Figure 2).

There were several crisscrossing dirt paths in this 0.61-mile stretch and the western portion, in particular, was highly disturbed with many places being used as dumpsites and homeless encampments. Three vegetation types were seen here: Kiawe Opiuma Woodland, Buffel Grass Dominated Grassland, and Pluchea Thicket with most of the Project Area covered by the Kiawe Opiuma Woodland vegetation type. Toward the southern part there is a ditch that intersects this Woodland in an east west direction. Pluchea Thicket – composed of monotypic stand of *Pluchea* shrubs covers both banks of this narrow ditch (Figure 4, Photo 14). The Kiawe Opiuma Woodland surrounding the ditch was much denser than farther to the north where mostly dry buffel grass was abundant under the scattered kiawe and opiuma trees (Photos 15 and 16).

Photo 14. Pluchea Thicket Along the Southern Bank of the Ditch Just North of Ehehene Street that Intersects all Four Build Alternatives

In the northeastern area, in the vicinity of the Kailiili tributaries, the Kiawe Opiuma Woodland transitions upland into a vast expanse of Buffel Grass Dominated Grassland (Figure 4, Photo 17). The terrain here is undulating, and the presence of rocks and boulders was characteristic of the Grassland. Shrubs of the native species such as uhaloa and ʿilima, as well as a few individuals of the hairy abutilon were usually seen in relatively rocky areas and where the buffel grass was not as dense.

Photo 15. Kiawe Opiuma Woodland Representative of the Area Just North of Ehehene Street Overlapping All Four Build Alternatives

Photo 16. Kiawe Opiuma Woodland Representative of the Project Area Just South of the Olowalu Peninsula where All Four Alternatives Overlap

Photo 17. Buffel Grass Dominated Grassland in the Northeastern Stertch of the Proejct Area in the Vicinityo of Kailiili Stream Tributaries

3.1.2.2 Vicinity of Ehehene Street to Sedimentation Basin

Just north of Ehehene Street, the proposed alignments start to separate. Approximately 1.66 miles from Ehehene Street to the northern border of HDOT's sedimentation basin in Ukumehame, Build Alternatives 1 and 2 continue to overlap while Build Alternatives 3 and 4 for the most part follow distinct alignments that are more inland (and east) of the first two (Figure 2). Several different vegetation types were seen in this 1.66 miles stretch of the Project Area. Kiawe Opiuma Woodland vegetation type continued to overlap Build Alternatives 1 and 2 in the Project Area here between Ehehene and Pohaku Aeko Streets (Figure 4). The woodland here was composed of tall dense thickets of opiuma trees, which in most places were dominant in the canopy than the kiawe trees (Photo 18). Ukumehame Stream intersects the Project Area in this stretch and was dominated by java plum trees along its banks (Photo 19).

South of Pohaku Aeko Street, for a stretch of about 800 feet, the vegetation overlapping Build Alternatives 1 and 2 can be characterized as Kiawe Pluchea Woodland (Figure 4). This relatively open woodland mostly had scattered kiawe as canopy trees with the understory dominated by scattered shrubs of *Pluchea* spp. Several kiawe trees appeared to be dead in the woodland. (Photo 20). Sandy soils covered the westernmost stretch of the habitat type and salt crust was also visible in many places in the Woodland in part of the Project Area. Haole koa shrubs were mixed in with the *Pluchea* spp. Ground vegetation in the woodland here was patchy with open areas of bare dirt. Herbaceous species such as pickleweed (*Batis maritima*), salt bush (*Atriplex suberecta*), radiate finger grass (*Chloris* spp.), and the native akulikuli (*Sesuvium portulacastrum*) were common in this woodland.


Photo 18. Kiawe Opiuma Woodland in the Project Area Overlapping Build Altenatives 1 and 2 Between Ehehene and Pohaku Aeko Streets


Photo 19. Monkey Pod Tunnel - Row of Monkey Pod (*Samanea saman*) Trees in Build Alternative 1 Through the Olowalu Village Center

Photo 20. Kiawe Pluchea Woodland with Several Dead Kiawe Trees in the Project Area Overlapping Build Alternatives 1 and 2 to the South of Pohaku Aeko Street

Moving further south along Build Alternatives 1 and 2 for a stretch of about 0.3 miles, the vegetation in the Project Area can be characterized as Kiawe Pluchea Woodland with Pickleweed (Figure 4). This vegetation type overlaps some of the northwestern corner of the Ukumehame Firing Range. There were several ditches in this stretch of the Project Area that intersect the Build Alternatives and also one ditch that ran north-south. These ditches, bed and banks were covered with thickets of pickleweed (Photo 21). The ground vegetation surrounding the ditches and under the canopy of the mostly dead kiawe trees was also predominantly pickleweed mixed in with salt bush, and several weedy grass species such as guinea grass, buffel grass, and radiate finger grass. Haole koa shrubs were also common in the Kiawe Pluchea Woodland with Pickleweed vegetation type.

Three distinct vegetation types were seen in the Project Area overlapping Build Alternatives 1 and 2 in the approximately 0.3 mile stretch from Ukumehame Firing Range to the road next to (north of) the HDOT sedimentation basin that leads to the County of Maui Firing Range facility (Figure 4). There are about 1.6 acres of Kiawe Woodland in the center just south of the County of Maui firing range. Pluchea shrubs were common in the area to the north of this woodland and the vegetation here can be described as Kiawe Pluchea Woodland while the vegetation to the south and surrounding most of this woodland was an open habitat with scattered kiawe trees, *Pluchea* shrubs, and dense cover of pickleweed patches as the ground cover – this vegetation can be described as Kiawe Pluchea Woodland with Pickleweed (Photo 22).

Photo 21. Kiawe Pluchea Woodland with Pickleweed in Project Overlapping Build Alternatives 1 and 2 in the Vicinity of Ukumehame Firing Range

Photo 22. Kiawe Pluchea Woodland (Left) and Kiawe Pluchea Woodland with Pickleweed (Right) in the Project Area Overlapping Build Alignments1 and 2 South of the Maui County Firing Range

Inland of Build Alternatives 1 and 2, vegetation in the Project Area overlapping Build Alternative 3 was mostly composed of Haole Koa Pluchea Shrubland. The ground vegetation in the dense shrubland was sparse and mostly composed of weedy grass species such as radiate finger grass, guinea grass, and buffel grass. Large portions in the shrubland had dead haole koa surrounded by otherwise healthy trees and the cause of this phenomenon was not obvious in the field (Photo 23). The other two vegetation types in the remaining stretch of the Project Area overlapping Build Alternative 3 in the vicinity of Ukumehame Firing Range were Kiawe Pluchea Woodland and Kiawe Pluchea Woodland with Pickleweed (Figure 4) with similar composition as described above for Build Alternative 1.

Photo 23. Haole Koa Pluchea Shrubland in the Project Area Overlapping Build Alternative 3 in the Vicinity of Ukumehame Firing Range

The most inland Build Alternative 4 in the Project Area in the Ukumehame region, passes through privately owned lots in the north, that were under construction, and the Ukumehame Firing Range in the southern part; these areas have been described here as Built-Up areas (Figure 4). In this stretch, Kiawe Opiuma Woodland overlaps the Project Area along a paved road that runs through the residential lots being developed (Photo 24). This paved transitions to unpaved dirt road and the vegetation surrounding this dirt road was composed of dense Haole Koa Shrubland (Photo 24). The portion of the Project Area here that overlaps the Ukumehame Firing Range is composed of Kiawe Pluchea Woodland with similar composition of species as described above for the other three Build Alternatives.

Photo 24. Kiawe Opiuma Woodland (Left) and Haole Koa Shrubland (Right) in the Project Area Overlapping Build Alternative 4 in the Vicinity of Ukumehame Residential Subdivision

3.1.2.3 Sedimentation Basin to the Pali

Near the northern end of the HDOT sedimentation basin next to the Ukumehame Firing Range, to the southern end of the Project Area by the Pali, all four Build Alternatives once again overlap. Vegetation in the northern portion of the sedimentation basin can be described as Mixed Alien Shrubland (Figure 4). In September, this portion of the sedimentation basin was mostly bare dirt with little to no vegetation. However, after the rains in March, it was covered with variety of alien shrubs such as castor, pluchea, haole koa, smoothe rattle pod (*Crotalaria pallida*), with cocklebur shrubs being the most abundant (Photo 25). The central part of the sedimentation basin as well as the vegetation to its east here can be described as Kiawe Pluchea Woodland. The composition of the understory was mostly dominated by pluchea shrubs (Photo 26). The southern portion of the sedimentation basin overlaps the braided stream system in the Papalaua gulch that funnels water into the basin. The vegetation here and along the western berm of the sedimentation basin can be described as Kiawe Opiuma Woodland. The vegetation here is sparser with numerous alien species in the understory of scattered kiawe and opiuma trees (Photo 27). The native ʿaʿaliʿi shrubs were seen in this habitat in the floodplain of the streams.

Photo 25. Mixed Alien Shrubland in the Northern Part of the Sedimentation Basin in Ukumahame

Photo 26. Kiawe Pluchea Woodland Overlapping the Central Portion of the Sedimentation Basin
Note: Understory in the north here was composed of dense thickets of *Pluchea* spp. while toward the south was mostly composed of guinea grass.

Vegetation in the final stretch of the Project Area, west of the Papalaua gulch to where the Build Alternative meets up with the existing highway near the Pali, was Buffel Grass Dominated Grassland (Photo 28). Naive ʿilima shrubs were commonly seen in this grassland habitat (Photo 29).

Photo 27. Kiawe Opiuma Woodland in the Southern Portion of the Sedimentation Basin

Photo 28. Buffel Grass Dominated Grassland Representative of the Southern Most Part of the Project Area Overlapping All Build Alternatives

Photo 29. Ilima (*Sida fallax*) Shrubs were Common in the Grassland

3.2 Fauna

3.2.1 Birds

During the surveys, skies were mostly sunny, with less than 25% cloud cover, light winds less than 10 mph, and no precipitation. Point-count surveys were conducted in all representative habitat types discussed in Section 3.1. including along natural streams, wetlands, and man-made canals. Bird calls and sounds were more difficult to detect at locations close to the existing Honoapiʻilani Highway due to high traffic noise. Point count surveys identified 301 individuals representing 16 species (Table 2).

Table 2. Avian Species Observed in the Honoapiʻilani Highway Improvement Project Biological Study Area

Scientific Name	Common Name	Status[1]	Average per Count Station (n=21)	Proportion of Stations Occupied	Qualitative Relative Abundance[2]
Acridotheres tristis	Common myna	X	2.38	0.57	Common
Branta sandvicensis	Hawaiian goose (Nēnē)	ES, I, M	0.19	0.05	Rare
Bubulcus ibis	Cattle egret	X, IW, M	0.10	0.10	Rare
Cardinalis cardinalis	Northern cardinal	X, M	1.00	0.52	Common
Carpodacus mexicanus	House finch	X, M	1.29	0.67	Common
Estrilda astrild	Common waxbill	X	1.14	0.19	Common
Francolinus pondicerianus	Grey francolin	X	0.62	0.43	Uncommon
Gallus gallus	Red junglefowl	X	0.33	0.24	Rare
Geopelia striata	Zebra dove	X	1.00	0.52	Common
Himantopus mexicanus knudseni	Hawaiian stilt	ES, I, M	0.19	0.05	Rare
Mimus polyglottos	Northern mockingbird	X, M	0.10	0.10	Rare
Nycticorax nycticorax hoactli	Black-crowned night-heron	I, M	0.05	0.05	Rare
Paroaria coronata	Red-crested cardinal	X, M	0.81	0.43	Uncommon
Passer domesticus	House sparrow	X	0.48	0.19	Rare
Streptopelia chinensis	Spotted dove	X, IW	0.38	0.19	Rare
Zenaida macroura	Mourning dove	X, M	0.19	0.10	Rare
Zosterops japonicus	Warbling whiteeye	X, IW	4.29	0.86	Abundant

[1] Status
ES = state or federally listed as Threatened or Endangered
I = indigenous (native to the Hawaiian Islands and elsewhere)
IW = State (HAR 12-124, Exhibit 5) or Federal (18 U.S.C. 42) injurious wildlife species
X = introduced or alien (non-native species)
M= Listed as a Migratory Bird Treaty Act Protected Species (10.13 List)

[2] Abundance indices based on the proportion of point count stations where species were observed, as follows: Abundant = ≥ 0.75; Common = 0.50-0.74; Uncommon = 0.25-0.49; Rare = ≤ 0.24

Two Endangered Species Act (ESA) listed bird species were observed a few times in the BSA: Hawaiian goose or nēnē (*Branta sandvicensis*) and Hawaiian stilt or aeʻo (*Himantopus mexicanus knudseni*). These species were observed during and outside of the point-count stations. On January 3, 2023, nēnē and Hawaiian stilts were seen for the first time during this study at the Ukumehame Firing Range (Photo 30). Four nēnē were seen loafing near the classroom building in Ukumehame Firing Range and in a shallow muddy pond (Photos 30 and 31) that appeared to have been recently formed due to the heavy rains. Two of the four nēnē were banded individuals. Three Hawaiian stilts were seen feeding and loafing at the same ponded location next to the nēnē (Photo 30). Nēnē and Hawaiian stilts were also seen again on January 4 at this same location in Ukumehame Firing Range (Photo 32). Two additional nēnē (a total of six individuals) were seen again at the same location in Ukumehame Firing Range on March 22 and April 28, 2023. The birds were seen loafing near the classroom building.

One individual nēnē was also seen loafing in the open grassy area in Ukumehame subdivision at the intersection of Pohaku Aeko Street and Paekii Place (Photo 33). This individual was also a banded bird. Although we did not see any nēnē in the Olowalu area, we learned that nēnē are often seen here in the grasslands here, and particularly near the water reservoir (outside of the Project Area) (Larse pers. com. 2023). A second siting of the Hawaiian stilt was made on March 23, 2023 when conducting wetland delineation at a ditch in Ukumehame. A single individual was seen feeding in the ponded ditch.

Photo 30. Nēnē (*Branta sandvicensis*) and Hawaiian Stilt or aeʻo (*Himantopus mexicanus knudseni*) at Ukumehame Firing Range on January 3, 2023

Photo 31. Nēnē (*Branta sandvicensis*) Resting Under the Shade of the Classroom Building in Ukumehame Firing Range on January 3, 2023

Photo 32. Hawaiian Stilt or aeʿo (*Himantopus mexicanus knudseni*) at Ukumehame Firing Range on January 4, 2023

Photo 33. Nēnē (*Branta sandvicensis*) in the Grassy Area at the Intersection of Pohaku Aeko Street and Paekiii Place in the Ukumehame Subdivision on March 23, 2023

One indigenous species, the Black-crowned night heron (*Nycticorax nycticorax*), was observed at Ukumehame Stream, perched on a branch above the flowing water. The typical habitat for this species is streams, lowland ponds and estuaries, so it has the potential to occur in other areas along Honoapiʻilani where stream flow and ponding is present.

No native or indigenous birds were observed exhibiting nesting behavior and no nests were documented during the surveys.

The most common and abundant avian species across all habitat types in the BSA was the warbling white-eye (*Zosterops japonicus*), an introduced species. They were most common in trees in the kiawe opiuma woodland habitats, or in the occasional trees that occur in the grassland habitats. The birds were vocal and observed flying between trees in small groups. The warbling white eye is on the State of Hawaiʻi Injurious Wildlife list and is known to be harmful to agriculture, aquaculture, or indigenous wildlife or plants, or to constitute a nuisance or health hazard (DLNR 2015a).

Northern Cardinals (*Cardinalis cardinalis*) and House Finches (*Haemorhous mexicanus*) were also common across all habitat types and seen at 10 of 17-point count stations. Both were observed in trees or woodland habitat types dominated by trees. The common waxbill (*Estrilda astrild*) was considered common, but were only seen at three of the point-count stations. This species tends to flock in sizable groups, and smaller groups of the waxbills were only seen infrequently. Common mynah (*Acridotheres tristis*) and Zebra doves (*Geopelia striata*) were also seen frequently across most habitat types, but preferred trees or electrical wires for perching. Gray francolins (*Francolinus pondicerianus*) were regularly heard calling in the grassland habitats.

3.2.2 Mammals

Four feral mammal species. or signs indicating their presence. were observed during the biological survey. Most common were signs of Axis deer (*Axis axis*), which are an invasive ungulate species in Hawaiʿi. Deer tracks and droppings were abundant in the wetland area at the Ukumehame Firing Range, and deer bones were also found throughout the BSA. Wallows of feral pig, scat and evidence of rooting were seen in the BSA, but no pigs were seen. One mongoose (*Herpestes javanicus*) was observed along the roadway. Several presumably feral cats (*Felis catus*) were observed in the dry grass areas. We did not incidentally observe any Hawaiian hoary bats during this field study.

Section 4.0 Biological Resources Discussion and Recommendations

4.1 Flora

This study did not find any botanical concerns in the BSA. It is unlikely that the proposed Project would result in a substantial adverse effect on any plant species that is state or federally listed as threatened or endangered, a candidate species for listing, a rare native plant species, or a native plant species of concern. The BSA encompasses a highly disturbed area, and all but 7 plant species — ʻilima (*Sida fallax*), iliahialoe (*Santalum ellipticum*), ʻaʻaliʻi (*Dodonaea viscosa*), hoary abutilon (*Abutilon incanum*), akulikuli (*Sesuvium portulacastrum*), milo (*Thespesia populnea*), and naupaka (*Scaevola taccada*) found in the BSA are non-native. Removal of any of these 7 plant species is not expected to have an adverse effect on species' populations locally or regionally as these native species are known to have a widespread distribution on Maui as well as in the State (Wagner et al. 1999).

The USFWS Information for Planning and Consultation (IPaC) database (USFWS 2023a) lists nine plant species that may occur on or near the BSA; these are ʻenaʻena (*Pseudognaphalium sandwicensium* var. *molokaiense*), awiwi (*Schenkia sebaeʻoides*), Carter's Panicgrass (*Panicum fauriei* var. *carteri*), Dwarf Naupaka (*Scaevola coriacea*), Ihi (*Portulaca villosa*), Koʻoloaʻula (*Abutilon menziesii*), Ohai (*Sesbania tomentosa*) and two Round-leaved Chaff-flower (*Achyranthes splendens* var. *rotundata*).

- *Pseudognaphalium sandwicensium* var. *molokaiense* or ʻenaʻena is a perennial herb in the Asteraceae family. Its stems are very densely white woolly pubescent over the entire plant, with stems prostrate to sometimes erect, 4-12 inches long (Wagner et al. 1999). It occurs on the strand and consolidated dunes of western Molokaʻi and west Maui and was historically known from ridges on Molokaʻi at Alanuipuhipaka and from Lānaʻi and Oʻahu, in 15 populations. Currently, the four populations on Molokaʻi total fewer than 300 individuals and one population on west Maui is approximately 20 individuals in Kahakuloa between Puʻukoaʻe and Puʻukāhuliʻanapa, over 12 miles to the northeast of the project area. No critical habitat has been designated for this species. Threats to ʻenaʻena include browsing by deer and goats, competition with invasive weeds, and possibly off-road vehicles (USFWS 2021a).
- *Schenkia sebaeʻoides* or awiwi is an erect, 2-8 inches tall, glabrous, annual herb in the gentian family (Gentianaceae). It is scattered and rare in volcanic or clay soil in dry, rocky, coastal sites from scattered localities on Kauaʻi, Oʻahu, Molokaʻi, Lānaʻi, and west Maui (Wagner et al. 1999). Currently there were over 100 individuals observed over the last five years on Kauaʻi, Oʻahu, Molokaʻi, Lānaʻi, and Maui, but thousands have been estimated. Accurate population numbers are difficult to determine due to rarity of observations, dependency on precipitation, and the plant's annul life cycle (Medeiros et al. 2000). Although final critical habitat has been designated for *Schenkia sebaeʻoides,* it does not

overlap with the project (USFWS 2016). The closest critical habitat for awiwi is over 11 miles to the northeast and consists of 147 acres of State land and 26 acres of privately owned land, from Kahakuloa Head to Waihee Point on the northeastern coast of west Maui (USFWS 2016). Threats to awiwi include browsing and trampling from ungulates, competition from invasive plants, drought, fire, damage from off-road vehicles, trampling by people, reduced viability due to low population numbers, and climate change (USFWS 2019).

- *Panicum fauriei* var. *carteri* or Carter's Panicgrass is a low, tufted annual grass that is a 0.8 to 11.8 inches tall in the Poaceae family (Wagner et al. 1999). It is known from the islands of Oʻahu, Molokaʻi, and Maui. In 2018, there were estimated to be five occurrences of *Panicum fauriei* var. *carteri* on the Kalaupapa Peninsula on Molokaʻi, totaling fewer than 100 individuals. Currently, one population exists at the Kūkaʻiwaʻa Peninsula on Molokaʻi with approximately 150-300 individuals. Mokoliʻi islet on Oʻahu, was surveyed extensively in 2018, and no individual plants remain. On Maui, a newly discovered population on private land was monitored, and contained approximately 75 individuals. In addition, there are currently two populations near Māliko Bay on Maui, one population with 50 individuals and another with approximately 800-900 individuals (USFWS 2023b). Critical habitat was designated in a single unit consisting of the entire islet of Mokoliʻi (Chinaman's Hat) and on the island of Oʻahu, totaling about 13 acres, and does not overlap with the project area (USFWS 1983). The main threats to Carter's Panicgrass are nonnative plants, introduced ungulates, rodents, nonnative insects, fire, or other catastrophic events (e.g., erosion, tsunami, etc.), direct human disturbance, climate change, and inadequate regulatory mechanisms (USFWS 2023b).

- *Scaevola coriacea* or Dwarf Naupaka is a prostrate perennial herb in the Goodeniaceae (goodenia) family, with stems barely woody in older portions, and with succulent, obovate or spatulate leaves (Wagner et al. 1999). It is endemic to Niʻihau, Kauaʻi, Oʻahu, Lānaʻi, Maui, Hawaiʻi, and two offshore islets off Maui and Molokaʻi (USFWS 1997), but is currently only found on Maui and offshore islets off Maui and Molokaʻi. Currently, there are 5 wild populations totaling 85 individuals, and 11 outplanted populations totaling 47 individuals. The 2 largest wild populations are both located on Maui, and account for 72 of the wild individuals (Plant Extinction Prevention Program 2020). In addition, seven wild individuals of *S. coriacea* occur on ʻŌkala Islet and 2 wild individuals on Moku Hoʻoniki Islet, both islets off of Molokaʻi (USFWS 2021b). No critical habitat has been designated for this species. Threats to Dwarf Naupaka include degradation of habitat by ungulates, invasive plants, drought, fire, development and off-road vehicles, herbivory or predation from rodents, insects and slugs, reduced viability due to low population numbers, and climate change (USFWS 2021b).

- *Portulaca villosa* or Ihi is a perennial succulent herb in the Portulacaceae (purslane) family, with a fleshy to woody, tuberous taproot (Wagner et al. 1999). It naturally occurs on dry, rocky, clay, lava, or coralline reef sites, from sea level up to 5,250 feet elevation, on Nihoa, Kaʻula, and has been documented from all the main islands except Niʻihau and Kauaʻi (Wagner et al. 1999). *Portulaca villosa* was known from all of the islands of Maui Nui (Lānaʻi, Molokaʻi, Maui, and Kahoʻolawe), including two offshore islets. There are estimated to be 300 to 500 wild individuals of *Portulaca villosa* on Nihoa in the Northwestern Hawaiian Islands (NWHI) but only 15 on Molokaʻi and 10 on the island of Hawaiʻi (USFWS 2021c). On both east and west Maui, populations were scattered along the southern side of the island and one individual was last observed at Līhau (west Maui) in 2007 (USFWS 2021c). The only recently confirmed population among the islands of Maui Nui is within Kalaupapa National Historic Park on Molokaʻi (15 individuals) and one translocated population within Haleakala National Park near ʻOheʻo (Maui) (USFWS 2021c). No critical habitat has been designated for this species. Threats to Ihi include destruction and degradation of habitat by ungulates, destruction and degradation of habitat by established ecosystem-altering invasive plants, by fire, landslides and rockfalls, herbivory and predation by feral ungulates, reduced viability and low numbers, hybridization with other *Portulaca* species, and climate change (USFWS 2021c).

- *Abutilon menziesii* or Koʻoloaʻula is a long-lived perennial shrub up to 6(-10) feet tall in the Malvaceae (mallow) family. It is uncommon and local in dry forest, from 650-1706 feet elevation, on Oʻahu, Lānaʻi, East Maui, and Hawaiʻi (USFWS 2023c, Wagner et al. 1999). Currently, there are two wild populations on Oʻahu, three wild populations on Lānaʻi, and three wild populations on Maui. On east Maui, wild individuals may still occur at Puʻuokali and Kalialinui Gulch with the last counts of 200 and 8 individuals (respectively) in 2018, but an historic occurrence on west Maui could not be relocated. Another occurrence was found in a nearby area at Pōhākea and is estimated to total 15 to 30 individuals (USFWS 2023c). No critical habitat has been designated for this species. Threats to Koʻoloaʻula include degradation and destruction of habitat by feral ungulates, by competition and degradation of habitat from established ecosystem altering invasive plant species, drought, agricultural and urban development, climate change, fire, predation and herbivory by ungulates, rodents, and invertebrates, lack of adequate hunting regulations, lack of adequate biosecurity legislation and reduced viability due to low numbers (USFWS 2023c).
- *Sesbania Jtomentosa* or Ohai is a long-lived perennial shrub with decumbent or sprawling branches up to 46 feet long, or sometimes a small erect tree from 8-20 feet tall, in the Fabaceae (pea) family (Wagner et al. 1999). It formerly occurred widely in lower elevation, dry habitats on all the main islands and at least on Necker and Nihoa of the NWHI, but now, because of destruction of lowland habitats, is restricted to remnant populations on sandy beaches, dunes, soil pockets on lava, and along pond margins (only Mana, Kauaʻi), from sea level to 2700 feet elevation (Wagner et al. 1999). In the previous 5-year review for 2015, there were estimated to be 1,600 to 2,000 individuals of *Sesbania tomentosa* in the MHI, with an additional estimate of as many as 5,500 distributed on the NWHI of Nihoa and Mokumanamana. Wild individuals currently occur only on Nihoa, Mokumanamana (Necker), Kauaʻi, Oʻahu, Molokaʻi, Maui, and Hawaiʻi (USFWS 2021d). On west Maui, there were 18 wild individuals reported from Honanana and 65 wild individuals reported from Poʻelua (Papanalahoa Point) in 2019, and on east Maui in 2016, the population at Kanaio consisted of 24 seedlings and two saplings and later the same year there were 11 mature and 25 immature plants (Plant Extinction Prevention Program 2016). There is final critical habitat for this species, but the proposed project area does not overlap the critical habitat. The closest critical habitat for *Sesbania*

tomentosa occurs approximately 0.8 miles upslope of the project area on State land, and 43 acres of privately owned land, from Panaewa to Manawainui on the western and southern slopes of west Maui (USFWS 2016). Threats to Ohai include degradation and destruction of habitat by feral ungulates, by competition and degradation of habitat from established ecosystem altering invasive plant species, agricultural and urban development, drought, fire, overutilization by collection, predation and herbivory by rodents, and invertebrates, human disturbance from hiking and trail maintenance, off-road vehicles, reduced viability due to low numbers, and climate change (USFWS 2021d).

- *Achyranthes splendens* var. *rotundata* or Round-leaved Chaff-flower is a short-lived perennial shrub, 1.6-6.5 feet tall, in the Amaranthaceae (amaranth) family (Wagner et al. 1999). Scattered populations have been documented to occur in low elevation, open, dry forest remnants, and open thickets, on talus or rocky slopes, and on coralline plains, 0-98 (-1640 on Maui) feet elevation, known from the western coast of Oʻahu; Kalaupapa, Molokaʻi; near Manele and Maunalei Gulch, Lānaʻi; West Maui, and Kula, East Maui (Wagner et al. 1999). Currently, *Achyranthes splendens* var. *rotundata* only occurs on Oʻahu, with some reintroduced plants on Molokaʻi (USFWS 2020a). In 2012, 17 critical habitat units in the coastal, lowland dry, and dry cliff ecosystems were designated for *Achyranthes splendens* var. *rotundata* on Oʻahu, which does not overlap with the proposed project area (USFWS 2012). Threats to Round-leaved Chaff-flower include habitat conversion for industrial and agricultural developments, deposition of trash and construction material into exclosures, degradation and destruction by drought, degradation and destruction of habitat, and competition by nonnative invasive plants, climate change degradation or loss of habitat, and mortality of wild and reintroduced individuals due to predation by insects and due to insect farming by ants (USFWS 2020a).
- *Vigna o-wahuensis* (no common name) is a short-lived, slender twining perennial vine in the Fabaceae (pea) family (Wagner et al. 1999). It is found primarily in dry grassland and shrubland, 32-4,500 feet elevation, on the islands of Hawaiʻi, Maui, Kahoʻolawe, and Molokaʻi, with historic occurrences on Lānaʻi, Oʻahu, and Niʻihau (USFWS 2020b, Wagner et al. 1999). Currently, between 180 and to as many as 500 wild individuals of *Vigna o-wahuensis* occur within Pohakuloa Training Area on the island of Hawaiʻi, only 12 individuals on Molokaʻi, approximately 10 individuals on Maui, and possibly one individual remaining on Kahoʻolawe (USFWS 2020b). In 2016, critical habitat was designated for *Vigna o-wahuensis* on the islands of Maui, Molokaʻi, and Kahoʻolawe, none of which overlaps with the proposed project area (USFWS 2016). The nearest critical habitat on Maui consists of 356 acres of State land at Kamanamana on the southern coast of East Maui, which is over 17 miles away from the proposed project area (USFWS 2016). Threats to *Vigna o-wahuensis* include ungulate destruction and degradation of habitat, ungulate herbivory, competition from invasive plants, drought, fire, climate change, slug herbivory, rodent predation and herbivory, and game bird predation (USFWS 2020b).

In conclusion, no threatened, endangered, or rare plants were observed in the BSA. The BSA is highly disturbed with a history of vegetation disturbance and landscape level modification. The BSA has an almost 100 percent cover of non-native and invasive plants and contains other direct threats to the nine endangered plants described above, such as feral ungulates, rodents, non-native snails and slugs, fire, and is regularly subject to drought. Based on these findings, it is highly unlikely that the Project Area contains the nine endangered plant taxa identified in the IPaC resource list (and none were detected during the surveys for this report) and therefore no mitigation measures are proposed at this time.

4.2 Fauna

The USFWS IPaC database (USFWS 2023a) lists 11 threatened or endangered animal species that are either known or expected to be on or near the BSA; these are—Hawaiian hoary bat; four Hawaiian waterbird taxa—Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), Hawaiian duck (*Anas wyvilliana*), and the threatened Hawaiian goose or nēnē (*Branta sandvicensis*); three Hawaiian seabirds—Hawaiian petrel (*Pterodroma sandwichensis*), Band-rumped-storm-petrel (*Hydrobates castro*), and the threatened Newell's shearwater (*Puffinus newelli*); one reptile—the green sea turtle or honu (*Chelonia mydas*), and one insect—Blackburn's sphinx moth (BSM) (*Manduca blackburni*). Other than the nēnē and Hawaiian stilt, none of the other nine endangered animals were observed in the BSA during this study This section addresses the likelihood of impact of Project activities on the listed species identified in the IPaC database for this Project.

The IPaC resource list does not identify any rare or native migratory bird species in the Project Area. The Northern cardinal (*Cardinalis cardinalis*) and the House finch (*Carpodacus mexicanus*) seen during this field study are species protected under the Migratory Bird Treaty Act, but they are common on Maui as well as on other MHI (DLNR 2015a). Thus, it is unlikely that the proposed Project would have an adverse impact on the population of these species.

4.2.1 Mammals

4.2.1.1 Hawaiian Hoary Bat

Although the Hawaiian hoary bat was not surveyed for during this reconnaissance-level survey, there are numerous records for this species on Maui (Tomich 1986, DLNR 2015a). Hawaiian hoary bats are known to roost in large (typically greater than 15-foot-tall) dense-canopy trees, sometimes at the edges of water bodies, such as streams and lakes (USFWS 1998). Hawaiian hoary bats may hunt for flying insect prey along roadways, gulches, and open areas and occasionally roost in large, dense-foliage trees such as those within the Project Area. There are numerous large trees in the Project Area that could potentially provide suitable day roosting habitat for Hawaiian hoary bats and the possibility that they are present within or utilize the Project Area cannot be ruled out. H. T. Harvey & Associates recommends Project activities that involve removal of large (> 15 feet) trees should, if possible, be conducted outside of the June 1 to September 15 bat breeding season. It is also recommended that to the greatest extent possible, large trees such as those in the Olowalu area are preserved in place. USFWS recommended general project guidelines to avoid and minimize impacts to Hawaiian hoary bats are included in Appendix B. If the project sponsors (HDOT and FHWA) include implementation of USFWS guidance as part of the environmental commitments of the Project then, these conservation measures coupled with the availability of suitable roosting elsewhere (outside of the Project Area) would minimize and avoid adverse impact to the population of Hawaiian hoary bat whether locally or on Maui.

4.2.1.2 Hawaiian Monk Seal

Hawaiian monk seals (*Neomonachus schauinslandi*) are endemic to the Hawaiian Archipelago. They are protected under the Marine Mammal Protection Act and were first listed under the ESA as endangered in 1976. They are found and breed throughout the NWHI and the MHI although the vast majority are in the NWHI (National Marine Fisheries Service [NMFS] 2007, Carretta et al. 2023). Hawaiian monk seals spend roughly 2/3 of their time in marine waters. They forage in benthic habitats and offshore in waters up to 500 m deep (most typically between 0 and 200 m) in a wide range of habitat types, including sea mounts, banks, marine terraces and reefs (Parrish et al. 2002, Parrish 2004). Hawaiian monk seals are generalists and forage on a wide range of prey, including teleosts, cephalaopods, and crustaceans. Terrestrial habitats are used to haul-out, with preferred haul-out areas that include sandy beaches, sand spits or low shelving rock reefs where they can rest, pup, molt and have social interactions. Haul-out habitats are generally near adequate foraging habitat; however, virtually all substrates could be used (NMFS 2007).

Critical habitat for the Hawaiian monk seal was first designated in 1986 and was most recently updated in 2015 (NMFS 2015). In the MHIs designated critical habitat exists in marine habitats between the 200-m depth contour line through the water's edge and 5 m onto terrestrial environments from the shoreline (p. 50926 *in* NMFS 2015). The essential features of critical habitat include areas for haul-out, nursery grounds for pupping and nursing, and marine foraging areas. The waters and beach fronting (but outside of) this Honoapiʿilani project area and the BSA are part of the Hawaiian monk seal marine and terrestrial critical habitat (NMFS 2015). No surveys were specifically conducted for Hawaiian monk seals and no inadvertent sightings of the Hawaiian monk seal were made during this study. However, Hawaiian monk seals have been sighted by others in Maui including in waters and on beach areas fronting the Honoapiʿilani project area (Hawaiʿi News Now 2017, Hawaiian Paddle Sports 2023, Marine Animal Identification Network 2023). Sedimentation caused by inland development, in general is identified as a concern impacting Hawaiian monk seal marine and terrestrial habitats (National Marine Sanctuary Foundation 2018). In recent years, diseases such as toxoplasmosis and leptospirosis particularly carried from inland water runoff has been noted as a cause of death in Hawaiian monk seals in the MHI (National Marine Sanctuary Foundation 2018). No in-water stream work is proposed for this project, and if the project implements conservation measures recommended by NOAA NMFS (NOAA 2023, FHWA 2023) then the project can avoid and minimize impacts to the Hawaiian monk seal.

4.2.2 Birds

Two endangered waterbirds, Hawaiian stilt and nēnē were seen multiple times within the Project Area during the reconnaissance-level surveys for this Project. Nēnē have been observed with goslings at the Ukumehame Firing Ranch (Appendix B).

4.2.2.1 Hawaiian Stilt (aeʿo)

The aeʿo was listed under the ESA as an endangered species on October 13, 1970 (USFWS 1970). A five-year status review was completed in 2010 (USFWS 2010). Critical habitat has not been designated for the stilt. Hawaiian stilts are currently found on all the main islands except Kahoʿolawe.

The stilt nesting season normally extends from mid-February through August, with peak nesting varying among years (Robinson et al. 1999). Stilts usually lay three to four eggs that are incubated for 23 to 26 days. Stilts are opportunistic feeders that use a variety of aquatic habitats but are limited by water depth and vegetation cover (USFWS 2011). Hawaiian stilts are known to use ephemeral lakes, anchialine ponds, prawn farm ponds, marshlands, and tidal flats. This species prefers to nest on freshly exposed mudflats interspersed with low growing vegetation (USFWS 2011). Nesting also occurs on islands in freshwater or brackish ponds.

Threats are similar for most Hawaiian waterbird species. The primary causes of the decline of the Hawaiian waterbirds were initially over-hunting in the late 1800s and early 1900s and has been exacerbated by loss of wetland habitat, predation by introduced animals, disease, and environmental contaminants (USFWS 2011). Significant amounts of Hawaiian wetlands have been lost due to human activities, including filling and draining for agriculture, houses, hotels, and golf courses (USFWS 2011). Many of the remaining wetlands are degraded by altered hydrology, invasive species, human encroachment, and contaminants (USFWS 2011). Hydrologic alterations of wetlands, including flood control and channelization, often make wetland habitat less suitable by altering water depth and timing of water level fluctuations (USFWS 2011). The depletion of freshwater aquifers can cause salt-water intrusion into coastal ground water, altering the salinity of affected wetlands, and reducing habitat suitability (USFWS 2011).

Introduced alien predators are a primary factor limiting Hawaiian waterbird populations. Indian mongoose (*Herpestes auropunctatus*), cats (*Felis catus*), dogs (*Canis lupus familiaris*), rats (*Rattus sp.*), cattle egret (*Bubulcus ibis*), Black-crowned night heron (*Nycticorax nycticorax*), non-native fish, and bull frog (*Rana catesbeiana*) are all presently found within wetlands and pose a serious threat to Hawaiian waterbird reproductive success by taking eggs, young birds, and even adults (USFWS 2011).

There is suitable habitat for Hawaiian stilts in the vicinity of the Project Area, as evidenced by the incidental observation of this species during the field surveys. Hawaiian stilts were observed to be either feeding or loafing and no nests were found. Although, given the availability of potentially suitable habitats, nesting within the Project Area cannot be ruled out, USFWS recommends general project guidelines to avoid and minimize impacts to Hawaiian waterbirds, including Hawaiian stilts, and these are included in Appendix B. H. T. Harvey & Associates recommends that these guidelines be adopted during the planning, design, and implementation of this Project to avoid and minimize impacts to Hawaiian stilts. We also recommend that, to the greatest extent possible, the Project should preserve suitable habitat such as wetlands, streams, and open water features in their natural condition to further avoid and minimize impacts to Hawaiian stilts. HDOTs commitment to adhere to USFWS guidance concerning conservation measures (Appendix C) aimed at safeguarding the Hawaiian stilt population and their habitat, combined with the fact that suitable habitat also occurs elsewhere on Maui (e.g. Kealia Pond National Wildlife Refuge), would indicate that Project activities are not likely to adversely affect the Hawaiian stilt population locally or on Maui.

4.2.2.2 Nēnē

The Hawaiian goose, or nēnē (*Branta sandvicensis*), is a federally and state listed Threatened Species, native to Hawaiʻi. A recent statewide population estimate was 2,855 individuals with 1,095 on the island of Hawaiʻi, 616 on Maui, 35 on Molokaʻi, 1,107 on Kauaʻi, and 2 individuals on Oʻahu (USFWS 2018). Nēnē were once widely distributed among the MHI (Hawaiʻi, Maui, Lānaʻi, Molokaʻi, Kauaʻi, and Kahoʻolawe).

Nēnē are non-migratory with daily flights typically in early morning and late afternoon. Their flight is typically slow, and at an altitude of less than 100 m (Banko et al. 1999). They have an extended breeding season with eggs being laid from August to April (Banko et al. 1999). Nesting typically peaks in December, with the majority of the goslings hatching in December and January (USFWS 2004, 2018) and most nēnē in the wild primarily nest between October and March (USFWS 2004). Nēnē nest on the ground in a shallow scrape in the shade of dense shrubs or other vegetation. A nēnē clutch typically contains three to five eggs, and incubation ranges from 29 to 32 days. Once hatched, the young may remain in the nest for 1 to 2 days; all hatchlings depart the nest after the last egg is hatched (USFWS 2004, 2018). Goslings are flightless for 10 to 12 weeks and adults are flightless for a period of 4 to 6 weeks during their molt, which occurs about the same time. During this period when adults and goslings remain flightless, between February to May, both are extremely vulnerable to predators such as cats, dogs, and mongoose. During June to September, after molting and fledging, family groups frequently congregate in post-breeding flocks, often far from nesting areas (USFWS 2004, 2018). Nēnē reach sexual maturity at 1 year of age, but usually do not form pair bonds until the second year. Females are highly philopatric (loyal to their place of birth) and nest near their natal area, while males more often disperse (USFWS 2018).

Nēnē appear to exhibit seasonal movements in response to foraging opportunities, shifting to grasslands during periods of low native browse and berry production and when wet conditions produce grass with high-water content and resultant higher protein content. Nēnē grazing appears to be opportunistic (Banko et al. 1999). It is speculated that the nēnē adaptability to changes in the availability of grazing food allows them to survive in marginal habitats (Banko et al. 1999). Historical reports from the island of Hawaiʻi indicate that nēnē bred and molted primarily in the lowlands during winter months and moved upslope in the hotter and drier summer months (USFWS 2004, 2018). Reproductive success is relatively low in upland habitats on the islands of Hawaiʻi and Maui, higher in mid-elevations, and is very successful in lowland habitats on Kauaʻi. The Kauaʻi Island population is presently the largest in the State (USFWS 2018).

Although the endangered Hawaiian coot (*Fulica alai*), Hawaiian duck (*Anas wyvilliana*), and Hawaiian common gallinule (*Gallinula galeata sandvicensis*) were not seen during this biological survey, it should be noted that the Hawaiian coot does occur on Maui. The Hawaiian duck is considered rare, and very difficult to distinguish from mallard hybrid taxa which have genetically "swamped out" Hawaiian ducks on most islands other than Kauaʻi. Birds reported as Hawaiian ducks on Maui are likely Mallard-Hawaiian duck hybrids, and currently pure Hawaiian ducks are considered restricted to Kauaʻi and (via reintroductions) the island of Hawaiʻi. Hawaiian ducks were re-established on the islands of Oʻahu and Maui through captive propagation and release programs, but populations now almost entirely comprise hybrids with introduced Mallard. The Hawaiian common gallinule (*Gallinula galeata sandvicensis*) generally occurs in wetland habitats below 125 meters (410 feet) elevation on the islands of Kauaʻi and Oʻahu, and although there have been reports from Keʻanae Peninsula on Maui and from the island of Hawaiʻi, as far as we know, there is no documentation to support the identification of the reported gallinules on Maui (two reports in June 2013). On Kauaʻi, the largest populations of Hawaiian common gallinules occur in the Hanalei and Wailua river valleys, but they also occur in irrigation canals on the Mana Plains of western Kauaʻi and in taro fields. On Oʻahu, the species is widely distributed with most birds found between Haleʻiwa and Waimanalo; small numbers occur at Pearl Harbor and the leeward coast at Lualualei Valley. Historically, the Hawaiian common gallinule formerly occurred on all the MHI except for Lānaʻi and Kahoʻolawe. The apparent absence of this species, or extreme rarity, on Maui makes it very unlikely to occur in the project area.

General measures provided by USFWS to avoid and minimize impacts to endangered Hawaiian waterbirds are included in Appendix C.

4.2.2.3 Seabirds

No specific night-time surveys were conducted to for seabirds in the Project Area. The endangered Hawaiian petrel (*Pterodroma sandwichensis*) and the threatened Newell's Shearwater (*Puffinus newelli)* are known to have a limited breeding distribution on Maui (DLNR 2015a, Spencer et al. in press). The band-rumped-storm-petrel (*Hydrobates castro*) may, at times, be detected in the vicinity of Maui, typically offshore, but thus far are not known to nest on the island. All three of these seabirds are inland nesting species that favor deep valleys, ridges, and mountainous areas. Movement of these seabirds over land, both inland and seaward, usually occurs nocturnally. These species may traverse over the Project Area at night during the breeding, nesting, and fledging seasons (March 1 to December 15). Both the Hawaiian petrel and the Newell's shearwater are known to be affected by sources of artificial light, which can distract the birds and cause them to become grounded. This phenomenon is referred to as "fallout" and it particularly affects fledglings that are leaving the nest for the first time on their way to sea.

A fourth seabird species, the Endangered Short-tailed albatross (*Phoebastria albatrus*), largest of the three North Pacific albatrosses, is a highly pelagic species and rare visitor to Hawaiian waters that is considered unlikely to be encountered anywhere in the vicinity of the Project Area. The Short-tailed albatross is considered endangered throughout its range and no critical habitat has been designated for the species. In the North Pacific, Short-tailed albatross is known to have nested on islands in Japan and Taiwan. Midway Atoll, near the western end of the NWHI, the only area within U.S. jurisdiction where short-tailed albatross has attempted to breed (averaging one pair per year) is a National Wildlife Refuge managed by the USFWS for the conservation of seabirds and other fish and wildlife and their habitats (USFWS 2008). Lack of suitable habitat, the pelagic foraging behavior and the absence of any data to suggest their occurrence in the vicinity of Maui. The only records of Short-tailed Albatrosses from the Southeastern Hawaiian Islands (as of 2017) involved birds on Kauaʻi, among Laysan Albatrosses, at Pacific Missile Range Facility on March 28, 2000 and flying over Kilauea

Point National Wildlife Refuge on March 4, 2006 (Pyle and Pyle 2017). No Short-tailed Albatrosses had been reported from Hawaiian waters as of 2017, and there are no records for the main islands or surrounding waters listed in eBird as of October 2023 (eBird 2023). This status indicates that the Short-tailed albatross is extremely unlikely to be adversely affected by the Project.

If the proposed Project activities will involve night time work then lighting should be configured to be "dark sky friendly", in compliance with Hawaiʻi Revised Statute § 201-8.5, and may require only the use of full cut off or appropriately shielded lights and reducing or turning off non-essential outdoor lighting during the seabird fledgling season from September 15 to December 15. General measures provided by USFWS to avoid and minimize impacts to endangered seabirds are included in Appendix B.

4.2.3 Reptiles

4.2.3.1 Hawaiian Green Sea Turtle or Honu

The Hawaiian green sea turtle or honu is identified as the Central North Pacific Distinct Population Segment (DPS) and is listed as threatened. The IPaC database (USFWS 2023a) identifies honu as either known or expected to be in or near the Project Area. The range of this Central North Pacific DPS includes the entire Hawaiian archipelago where they complete their lifecycle feeding in the MHI and nesting mainly in the NWHI.

All proposed alignments of the Project are inland from the existing highway and do not overlap beach or coastal habitats used by honu. Furthermore, map guides published by NOAA Pacific Island Fisheries Science Center do not identify the shoreline adjacent to the Project Area as preferred basking or nesting areas for honu (Parker and Balazs 2015). Therefore, it is unlikely that the Project activities would impact honu. USFWS recommended general project guidelines to avoid and minimize impacts to Hawaiian green sea turtles are included in Appendix B. Implementation of these conservation measures should be considered if Project activities (e.g. staging during construction) are likely to occur along the beach; either along or south of the existing highway.

4.2.3.2 Hawksbill Sea Turtle or Honuʻea

The hawksbill sea turtle was classified as endangered in 1970 (USFWS 1970). Critical habitat has been designated for the species but includes only nesting islands in Puerto Rico (NMFS and USFWS 1998). Hawksbill turtles are one of the rarest of the seven extant species of marine turtles and their scarcity has been recognized by the government of the U.S. and other nations, as well as by international resource management institutions. After being listed as endangered, the official U.S. Recovery Plans were subsequently developed for the species in both the Pacific and Atlantic Oceans (NMFS and USFWS 1998). When the U.S. Recovery Plan for Pacific hawksbill populations was developed in 1998, limited information existed on hawksbills in Hawaiʻi and thus the species received limited recognition (NMFS and USFWS 1998).

Small numbers of hawksbill sea turtles (probably no more than 20 nesting females annually) nest in Hawaiʻi, primarily along the southeastern coast of the island of Hawaiʻi, with small numbers reported on Maui, Molokaʻi, and Oʻahu (Seitz et al. 2012). Population trends are not well understood, but the results of tagging of adult females suggest that recruitment of new nesters continues (Seitz et al. 2012). Hawksbill sea turtles also are present in the NWHI in small numbers, although nesting has not been confirmed (Van Houtan et al. 2012). The nesting season extends from April through February, with peak egg laying occurring from late July through mid-September (Seitz et al. 2012). Nesting females in Hawaiʻi lay up to six clutches of eggs per year (mean of 3.3 clutches), with a mean clutch size of 175 eggs (Seitz et al. 2012).

Even though no Hawksbill sea turtles were observed in the BSA during the reconnaissance level surveys performed in January, March, and July 2023, it is possible the species at times may visit the nearshore reefs along the coast adjacent to the Project Area. However, map guides published by NOAA-PIFSC do not identify the beaches between Ukumehame and Olowalu as important basking or nesting sites for Hawksbill sea turtles (Parker and Balazs 2015). In the event that Hawksbill sea turtles are seen anywhere in the vicinity of the Project Area, H. T. Harvey & Associates recommends that HDOT consult with USFWS for further guidance. USFWS recommended general project guidelines to avoid and minimize impacts to sea turtles are included in Appendix B.

4.2.4 Fish

The Atlas of Hawaiian Watersheds & Their Aquatic Resource (Parham et al. 2008) indicates the following species in association with Ukumehame and Olowalu Stream, respectively.

Ukumehame Stream

Common name	Scientific name
ʻOʻopu nākea	*Awaous guamensis*
ʻOʻopu akupa	*Eleotris sandwicensis*
Hawaiian ʻoʻopu	*Lentipes concolor*
Āholehole	*Kuhlia* spp.
ʻOʻopu nopili	*Sicyopterus stimpsoni*

Olowalu Stream

Common name	Scientific name
ʻOʻopu nakea	*Awaous guamensis*
Hawaiian ʻoʻopu	*Lentipes concolor*
ʻOʻopu nopili	*Sicyopterus stimpsoni*

Hawaiian gobies are amphidromous in many Hawaiian streams, their larval life stages occur in marine habitats and adults occupy either freshwater or brackish habitats. The freshwater and brackish habitats they occupy are species specific, some species cannot climb waterfalls (*Eleotris sandwicensis* and *Stenogobius hawaiiensis*), and some can (*Awaous guamensis* and *Lentipes concolor*, *Sicyopterus stimpsoni*) affecting where in a stream system they occur. The Aholehole is a coastal shallow water species that can also occur in tide pools and estuaries. Threats affecting all Hawaiian gobies include habitat degradation resulting from water diversion, stream channelization, dams, pollution, and the introduction of exotic species and parasites (DLNR 2015b).

Within the scope of this biological survey, no directed effort to characterize the fish community composition was conducted because no in-water work is planned in the Project Area. Although the biologists were watchful for the presence of fish in streams, none were documented.

4.2.5 Crustaceans

Mountain shrimp, or Opaekalaole (*Atyoida bisulcate*) is a spineless shrimp that grows to about two inches in length. The species is known to occur on Maui. The species feeds by filtering small food items from the water column in fast stream flow habitats and scavenging material from the bottom in slower flow environments. Reproduction is year-round with females carrying up to 3000 eggs on their swimmeret legs. The incubation period is about two months. After hatching, larvae are washed downstream into the ocean where they spend a few months developing to a size of about five millimeters (one-fifth of an inch) long before they return to stream habitats to mature. Peak recruitment coincides with the rainy season. They are excellent climbers, climbing artificial structures and waterfalls of moderate size. Numbers are typically high in good quality streams, although due to stream quality degradation over the years due to alterations and changes in flow regimes, the abundance of *Atyoida bisulcate* appears to have correspondingly declined (DLNR 2015b). The species has been documented in both Ukumehame Stream and Olowalu Stream (Hawaiʿi Division of Aquatic Resources 2008).

Key threats to *Atyoida bisulcate* include habitat degradation and pollution from development and agriculture, stream channelization, and diversions which reduce stream flow and in-stream obstructions can prevent their movement upstream. Within the scope of this Project Area, no directed effort to survey for *Atyoida bisulcate* was conducted, and none were documented incidentally during the present study.

4.2.6 Insects

The order Hymenoptera is large and diverse. It is best known because of the social behavior of ants, bees, and wasps. Hawaii's native Hymenoptera fauna, however, comprises non-social bees and wasps. Several species of the genera *Hylaeus* (Colletidae) are common and relatively abundant. The native *Hylaeus,* or yellow-faced bees, are important pollinators for many native plants. The 63 species in the bee genus *Hylaeus* occur on all the MHI and Nihoa. They nest in hollow stems, holes in trees, under bark, in crevices, or in burrows in soil. Potential threats include non-native bees (*Ceratina* spp.) found in the native coastal habitats used by *Hylaeus* species, and competition with the European honeybee (*Apis mellifera*) for nectar and pollen. Confirmed threats include introduced ants (Formicidae) which compete with *Hylaeus* for nesting sites, and the big-headed ant (*Pheidole megacephala*) and Argentine ant (*Linepithema humile*) which prey on the native bees. Since *Hylaeus* bees pollinate native plants, their loss would be detrimental to recovery of native plants (DLNR 2015b). Within the scope of this Project Area, no directed effort to survey for *Hylaeus* was conducted, although the biologists were watchful for any indications of their presence. None were documented during the present study.

The Orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*), a relatively small slender damselfly, has been documented outside of, but not far from the Project Area. Males are red on the head, thorax, and tip of the abdomen, and black across most of the abdomen; females are patterned similarly but with pale brown instead of red. Adults are found in the vicinity of standing pools or slow-moving stream sections that serve as breeding sites, usually not straying far from the breeding habitat. It occurs primarily in lowland areas, and is one of the most adaptable native damselflies, capable of breeding in brackish anchialine ponds, basal spring wetlands, pools in slow-moving streams, and artificial water bodies. Threats include habitat loss or degradation caused by development, stream diversion and alteration, and alien aquatic plants in addition to depredation by non-native predators, including invasive fish, frogs, ants, birds, and reptiles. Within the scope of this Project Area, no directed effort to survey for *Megalagrion xanthomelas* was conducted, although the biologists were watchful for any indications of their presence. None were documented during the present study.

Eggs and larvae of the BSM have been observed on host plants between August and May with substantial variation in the larval length throughout this "season" (USFWS 2005, Rubinoff and San Jose 2010). The primary constituent elements required by BSM larvae for foraging, shelter, and maturation are the two documented host plant species in the genus Nothocestrum (*N. latifolium* and *N. brevifolium*) (USFWS 2005). Neither of these primary constituent elements required by BSM larvae was found in the Project Area. BSM larvae are also known to feed on tree tobacco plants and have been documented on commercial tobacco, eggplant, tomato, and the indigenous popolo. Although a few tree tobacco plants and one plant of the indigenous popolo were found in the Project Area, no BSM eggs or larvae and no signs of feeding damage indicative of the presence of the BSM moth were found. Although it is unlikely that Project activities will have an adverse impact on BSM adults or larvae, ongoing threats include habitat loss and degradation due to ranching, introduced plants and animals, human development, and wildfire. Given that the species inhabits dry habitats, natural variation in rainfall can result in reduced food availability and negatively affect BSM populations.

Tree tobacco is a weedy species that readily recruits in disturbed environments and is widespread on Maui and therefore it is not out of the realm of possibility for more plants to recruit in the Project Area and serve as host to BSM. The USFWS recommended general measures to avoid and minimize impacts to BSM and are included in Appendix B. H. T. Harvey & Associates recommends these conservation measures be adopted into the planning, design, and construction phases of the Project to avoid any potential impacts to BSM.

4.3 Invasive Species

A potential impact of implementing the Project is the introduction and spread of invasive species during the construction phase. There are several invasive species that occur on Maui but are restricted in distribution and are targeted for containment or eradication (e.g. fountain grass [*Cenchrus setaceus*], little fire ants [*Wasmannia auropunctata*], and coqui frogs [*Eleutherodactylus coqui*]) as well as invasive species that are not yet present on Maui (e.g. Coconut rhinoceros beetle [*Oryctes rhinoceros*] on Oʻahu) but that could be introduced or inadvertently spread to or from the Project Area. H. T. Harvey & Associates recommends that the Project plan and design incorporate specifications that will result in the adoption of BMPs to minimize the introduction and spread of invasive species in the Project Area. These BMPs may include the following:

- All construction equipment and vehicles should arrive at the work site for the first time in clean condition and free of: any soil; plants or plant parts, including seeds; insects, including eggs; and reptiles and amphibians, including their eggs. Similarly, all construction equipment and vehicles should be cleaned after use in the Project Area and before leaving the site. This would be particularly important for equipment movement between the Project Area and the other islands.

- All materials imported to the Project Area, including gravel, soil, rock, and sand, should be certified weed free. Invasive species found on stockpiled materials should be removed either chemically or mechanically.
- Only weed-free seed mixtures should be used for hydroseeding and hydromulching on the Project Area. A qualified botanist should inspect the seeded areas a minimum of 60 days after the hydroseed/hydromulch is applied. Any species of plant other than those intended to be in the hydroseed/hydromulch should be removed. In particular, plant species that are not known to occur on Maui and those that are actively being controlled on the island should be removed.
- To the extent feasible the Project should use native plants for revegetation or landscaping purposes. Potential native plants that are ecologically suitable for landscaping at the Project Area include species such as naupaka kahakai (*Scaevola taccada*), akia (*Wikstroemia uva-ursi*), pohinahina (*Vitex rotundifolia*), koaiʻa (*Acacia koaia*), hala (*Pandanus tectorius*), kou (*Cordia subcordata*), papala (*Charpentiera obovata*), ʻaʻaliʻi (*Dodonea viscosa*), ulei (*Osteomeles anthyllidifolia*), and alahee (*Psydrax odorata*). If native plants do not meet landscaping objectives, plants with a low risk of becoming invasive may be substituted. Additional information on selecting appropriate plants for landscaping can be obtained from the Plant Pono website (http://www.plantpono.org/) and following County of Maui Planting Guidelines (https://www.mauicounty.gov/242/Maui-Planting-Guidelines).
- Only plants grown on Maui should be used for landscaping purposes. If locally grown plants are unavailable, then imported plants may be used, but they should be thoroughly inspected or quarantined if necessary to ensure that they are free from invasive pests such as little fire ants and invasive plant seeds and seedlings that could arrive inadvertently.

The Coordination Group on Alien Pest Species (CGAPS) in Hawaiʻi has outlined BMPs for projects in the state. H. T. Harvey & Associates recommends that HDOT follow BMPs recommended provided by CGAPS which are included in Appendix D.

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Appendix A. U.S. Fish and Wildlife Service's Information for Planning and Conservation – Official Resource List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
Phone: (808) 792-9400 Fax: (808) 792-9580

In Reply Refer To: February 03, 2023
Project Code: 2023-0041712
Project Name: Honoaliilani Highway Improvements

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened and endangered species, as well as designated critical habitat that may occur within the boundary of your proposed project and that may be affected by project related actions. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Please contact the Service's Pacific Islands Fish and Wildlife Office (PIFWO) at 808-792-9400 if you have any questions regarding your IPaC species list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may adversely affect threatened and endangered species and/or designated critical habitat.

Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a Biological

Evaluation, similar to a Biological Assessment, be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment or Biological Evaluation are described at 50 CFR 402.12.

Due to the significant number of listed species found on each island within PIFWO's regulatory jurisdiction, and the difficulty in accurately mapping ranges for species that we have limited information about, your species list may include more species than if you obtained the list directly from a Service biologist. We recommend you use the species links in IPaC to view the life history, habitat descriptions, and recommended avoidance and minimization measures to assist with your initial determination of whether the species or its habitat may occur within your project area. If appropriate habitat is present for a listed species, we recommend surveys be conducted to determine whether the species is also present. If no surveys are conducted, we err on the side of the species, by regulation, and assume the habitat is occupied. Updated avoidance and minimization measures for plants and animals, best management practices for work in or near aquatic environments, and invasive species biosecurity protocols can be found on the PIFWO website at: https://www.fws.gov/office/pacific-islands-fish-and-wildlife/library.

If a Federal agency determines, based on the Biological Assessment or Biological Evaluation, that a listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/index.

Non-federal entities can also use the IPaC generated species list to develop Habitat Conservation Plans (HCP) in accordance with section 10(a)(1)(B) of the Act. We recommend HCP applicants coordinate with the Service early during the HCP development process. For additional information on HCPs, the Habitat Conservation Planning handbook can be found at https://www.fws.gov/sites/default/files/documents/habitat-conservation-planning-handbook-entire.pdf.

Please be aware that wind energy projects should follow the Service's wind energy guidelines (http://www.fws.gov/windenergy) for minimizing impacts to migratory birds. Listed birds and the Hawaiian hoary bat may also be affected by wind energy development and we recommend development of a Habitat Conservation Plan for those species, as described above. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at:

- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers
- http://www.towerkill.com
- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation actions that benefit threatened and endangered species into their project planning to further the purposes of the Act in accordance with section 7(a)(1). Please include the Consultation Tracking Number associated with your IPaC species list in any request for consultation or correspondence about your project that you submit to our office. Please feel free to contact us at PIFWO_admin@fws.gov or 808-792-9400 if you need more current information or assistance regarding the potential impacts to federally listed species and federally designated critical habitat.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

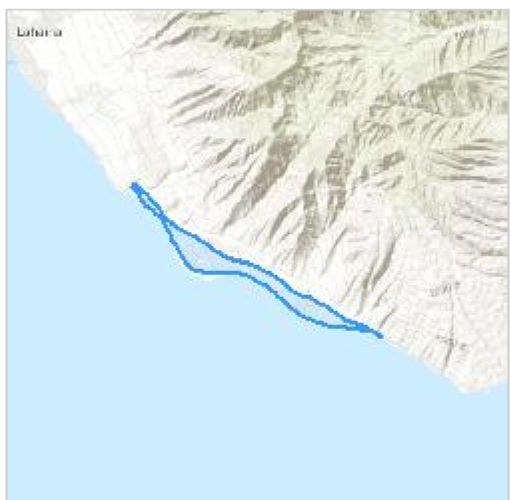
Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
(808) 792-9400

Project Summary

Project Code: 2023-0041712
Project Name: Honoaliilani Highway Improvements
Project Type: New Constr - Above Ground
Project Description: The primary purpose of this project is to provide a reliable transportation facility in West Maui by reducing the highway's vulnerability to coastal hazards. Specifically, the project will look at ways to address existing and future erosion and flooding from Ukumehame, at approximately milepost 11, in the vicinity of Pāpalaua Wayside Park to Launiopoko, at milepost 17, the existing southern terminus of Lāhainā Bypass. Currently, there are four alternatives being considered, which would realign the highway further mauka of the existing Honoapiilani Highway. The EIS process is on-going and also includes a no-build option.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@20.8136205,-156.6175240199674,14z



Counties: Maui County, Hawaii

Endangered Species Act Species

There is a total of 20 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Hawaiian Hoary Bat *Lasiurus cinereus semotus*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/770
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6477.pdf

Birds

NAME	STATUS
Band-rumped Storm-petrel *Oceanodroma castro* Population: USA (HI) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1226 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6939.pdf	Endangered
Hawaiian (=koloa) Duck *Anas wyvilliana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7712 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6934.pdf	Endangered
Hawaiian Coot *Fulica americana alai* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7233 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6934.pdf	Endangered
Hawaiian Goose *Branta (=Nesochen) sandvicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1627 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6925.pdf	Threatened
Hawaiian Petrel *Pterodroma sandwichensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6746 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6939.pdf	Endangered
Hawaiian Stilt *Himantopus mexicanus knudseni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2082 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6934.pdf	Endangered
Newell's Townsend's Shearwater *Puffinus auricularis newelli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2048 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6939.pdf	Threatened

NAME	STATUS
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: Central North Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6929.pdf	Threatened

Insects

NAME	STATUS
Blackburn's Sphinx Moth *Manduca blackburni* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4528 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6926.pdf	Endangered

Flowering Plants

NAME	STATUS
\`ena\`ena *Pseudognaphalium sandwicensium var. molokaiense*	Endangered
Awiwi *Schenkia sebaeoides*	Endangered

`ena`ena *Pseudognaphalium sandwicensium var. molokaiense* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5993
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Awiwi *Schenkia sebaeoides* — Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7103
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Carter's Panicgrass *Panicum fauriei var. carteri* — Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5578
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7060.pdf

Dwarf Naupaka *Scaevola coriacea* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4669
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7060.pdf

Ihi *Portulaca villosa* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4886

Ko`oloa`ula *Abutilon menziesii* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3268
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Ohai *Sesbania tomentosa* — Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8453
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Round-leaved Chaff-flower *Achyranthes splendens var. rotundata* — Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4709
General project design guidelines:

NAME	STATUS
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf	
Vigna o-wahuensis There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8445 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency:	Hawaii Department of Transportation
Name:	Matthew Small
Address:	1001 Bishop Street
Address Line 2:	Suite 2400
City:	Honolulu
State:	HI
Zip:	96813
Email	matthew.small@wsp.com
Phone:	8085662228

Lead Agency Contact Information

Lead Agency:	Federal Highway Administration
Name:	Lisa Powell
Email:	lisa.powell@dot.gov
Phone:	8085412305

Appendix B. U.S. Fish and Wildlife Service Refined Species List for Honoapiʻilani Highway Project May 2, 2023 Memo

Refined species list for Honoapiʻilani HWY Project

Date: 2 May 2023

Prepared by: Carrie Harrington USFWS

For: Federal DOT, state DOT, HT Harvey (consultants) for project

<u>ANIMALS</u>

Hawaiian waterbirds: **Hawaiian stilt** and **Hawaiian coot**; the **Hawaiian stilt** has been recorded recently in several locations within the project footprint.

Nēnē: nēnē with goslings at the Ukumehame firing range.

Megalagrion xanthomelas: confirmed a little mauka of Ukumehame firing range in valley along stream, out of the project footprint, but it could be present downstream from the recorded sites.

Hawaiian hoary bat: recorded in area

Seabirds: **Short-tailed Albatross**, **Newell's Townsend's Shearwater**, and **Band-rumped Storm Petrel**. May transit the area so lighting (permanent and temporary) is primary factor to consider here.

Blackburn's sphinx moth: Maui is not well surveyed for the Blackburn's sphinx moth, so if there is a tree tobacco plant (or aiea...although unlikely to be found in project fotover 3 feet tall in the Project Area, we recommend including the blackburn's sphinx moth avoidance and minimization measures.

Sea turtles (we recommend incorporating our BMPs for work in and around aquatic environments and relavent sea turtle avoidance and minimzation measures into the project description).

<u>PLANTS</u>

According to current (April 2023) USFWS records, no listed plants have been recorded in the project action area. However, while we do not have records of listed plants within the project action area, the listed plants on the IPAC generated species list could be present in the project action area. IPAC generates a list of species with current potential ranges for the species. We understand that you have contracted botanical surveys for the project action area, which are already underway, and that the botanical expert has a copy of the IPAC generated species list.

Additionally, USFWS plant records show there are several federally listed plants documented less than a mile from project action area:

Portulacca villosa: recorded mauka of Avalua Beach, a little outside of the most mauka alternative'ʻs Project Area (but this small population thought to be washed away by a flood), also along the corridor of northern most segment of the most mauka alternative, and just east of the southern most segment of the Lāhainā bypass.

Spermolepis hawaiiensis: mauka of the southern most segment of the existing Lāhainā bypass, where the new road will connect to the bypass.

Psittirostra psittacea (observed in area historically, mauka of Ukumehame in valley)

Gouania hillebrandii (documented occurence just east of the south end of the existing Lāhainā bypass and could therefore potentially occur in the mauka side of the northern most segment of the new highway where it will connect to the existing bypass.

At-risk* endemic plants in vicinity (mostly a little more mauka from most inland alternative) *not listed, conservaiton actions would help prevent the potential need to list in the future):

Gossypium tomentosum (in valley mauka of Olowalu, just behind the housing development)

Erythrina sandwicensis (in valley mauka of Ukumehame)

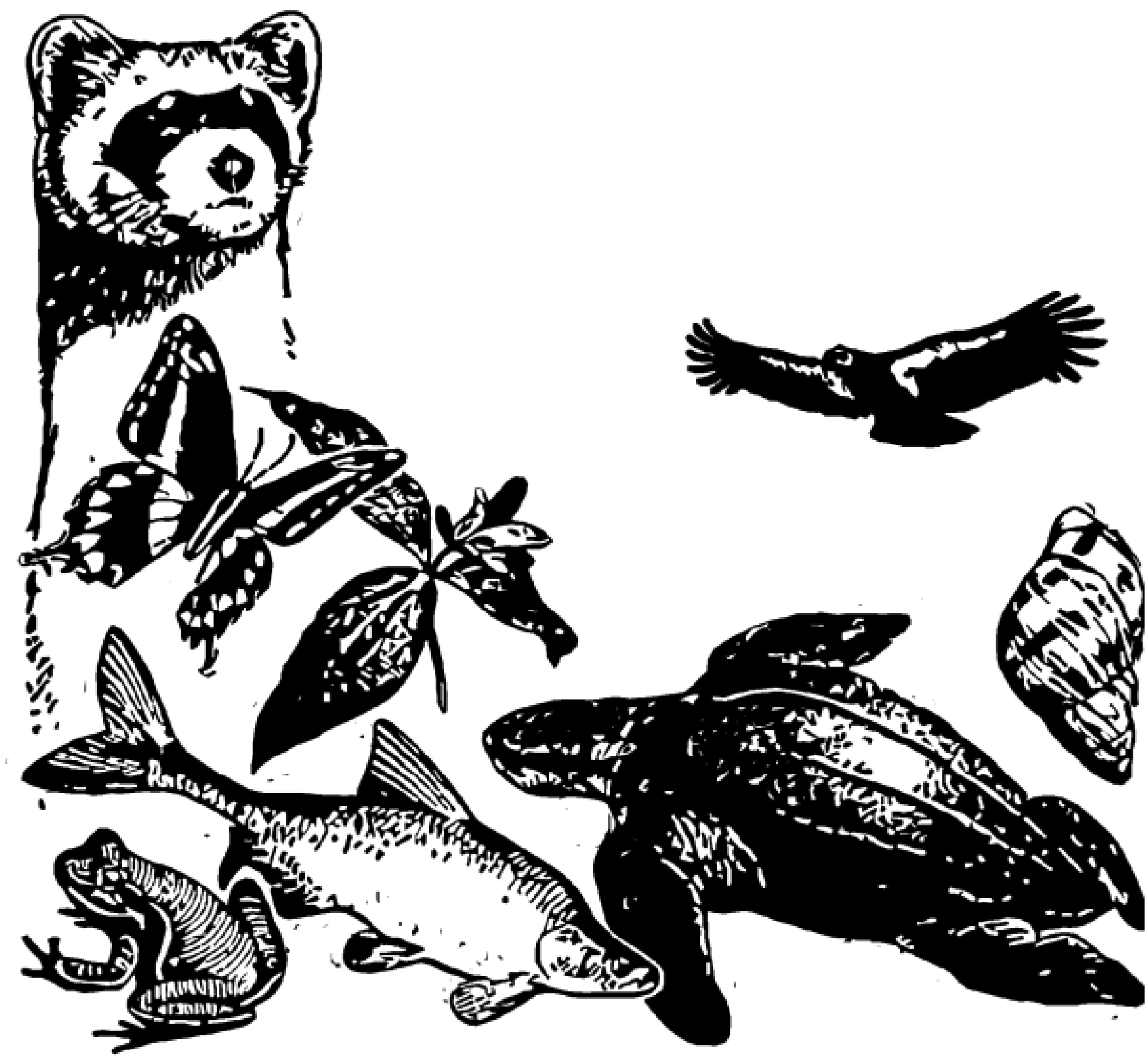
Appendix C. General Project Design Guidelines for Endangered Hawaiian Goose, Waterbirds, Seabirds, Hawaiian Hoary Bat, and Green Sea Turtle

U.S. Fish & Wildlife Service

Hawaiian hoary bat

Hawaiian Hoary Bat

Generated July 03, 2023 01:32 AM UTC, IPaC v6.94.0-rc4



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

Hawaiian hoary bat (*Lasiurus cinereus semotus*): The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed since they are too young to fly or may not move away. Additionally, Hawaiian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered Hawaiian hoary bat we recommend you incorporate the following applicable measures into your project description:

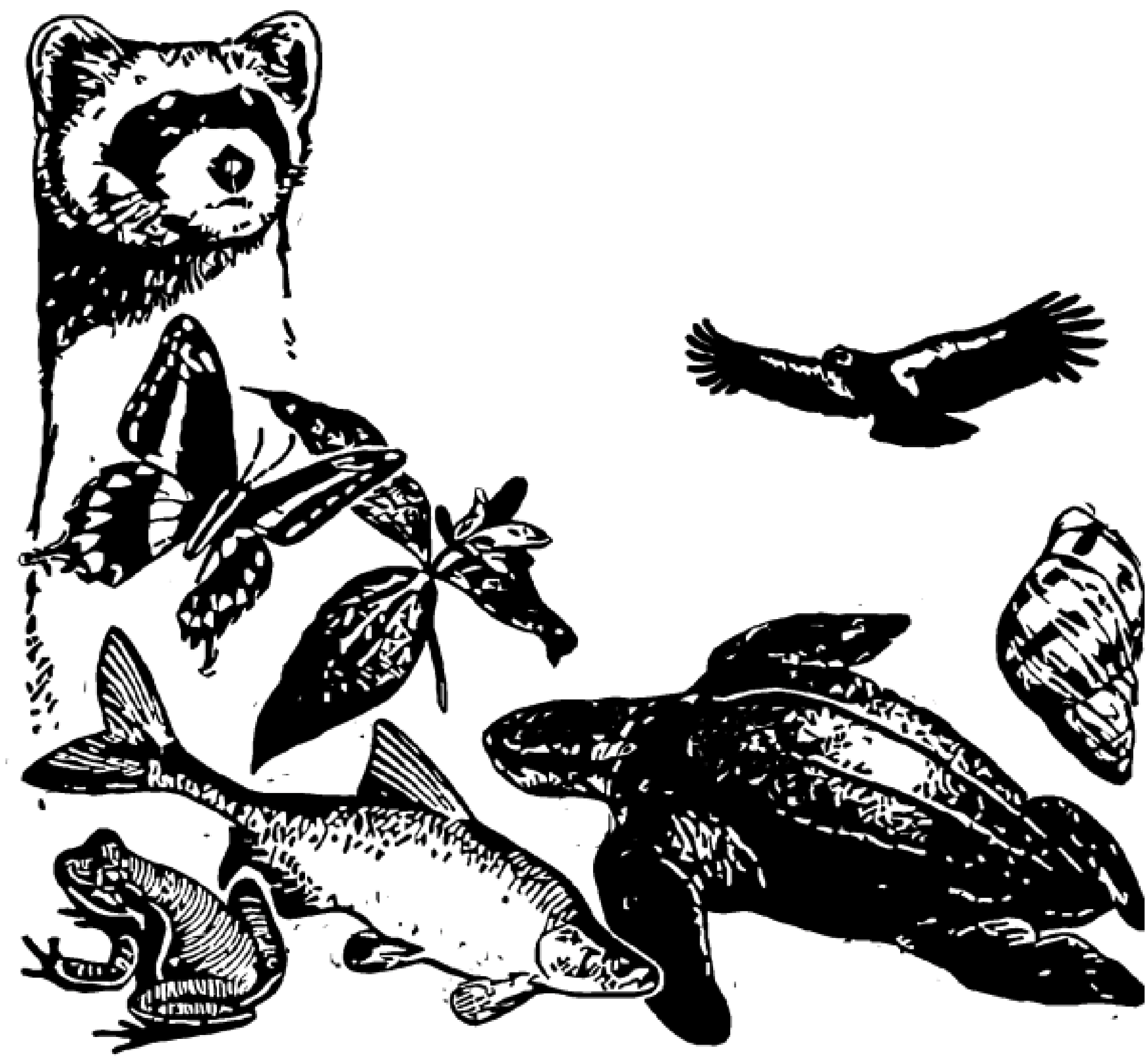
- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15).
- Do not use barbed wire for fencing.

U.S. Fish & Wildlife Service

Hawaiian goose

Hawaiian Goose

Generated July 03, 2023 01:29 AM UTC, IPaC v6.94.0-rc4



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

Hawaiian goose (nene), (*Branta (Nesochen) sandvicensis*): Nene are found on the islands of Hawaii, Maui, Molokai, and Kauai. They are observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes.

To avoid and minimize potential project impacts to nene we recommend you incorporate the following measures into your project description:

- Do not approach, feed, or disturb nene.
- If nene are observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with nene nesting behavior survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).
- Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of proposed project, or a previously undiscovered nest is found within the 150-foot radius after work begins.
- In areas where nene are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

nene 4(d) rule: A 4(d) rule was established at the time the nene was downlisted to threatened status. Under the 4(d) rule, the following actions are not prohibited under the Act, provided the additional measures described in the downlisting rule are adhered to:

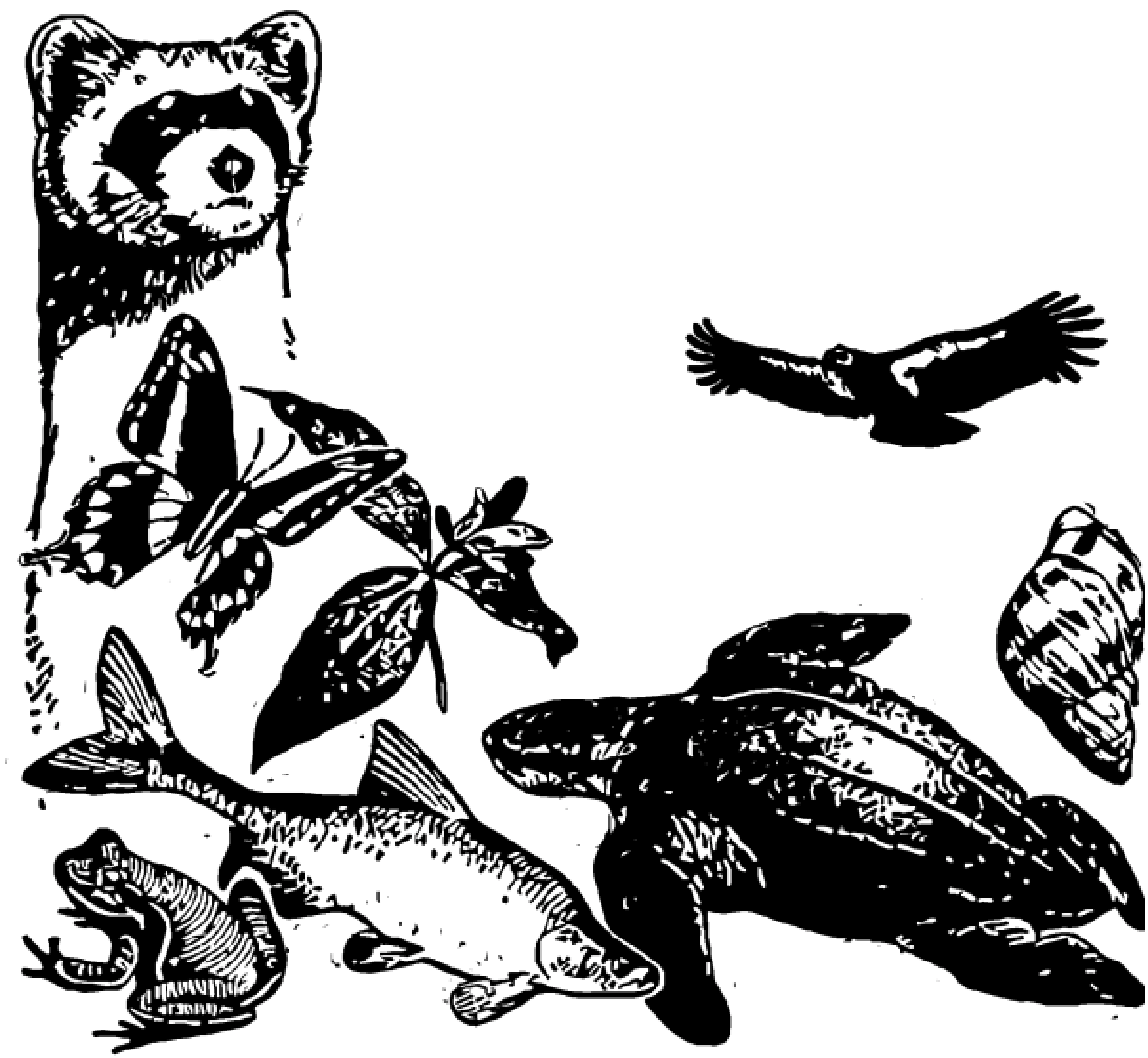
- Take by landowners, or their agents, conducting intentional harassment in the form of hazing or other deterrent measures not likely to cause direct injury or mortality, or nene surveys.
- Take that is incidental to conducting lawful control of introduced predators or habitat management activities for nene.
- Take by authorized law enforcement officers for the purpose of aiding or euthanizing sick, injured, or orphaned nene; disposing of dead specimens; and salvaging a dead specimen that may be used for scientific study.

U.S. Fish & Wildlife Service

Hawaiian waterbirds

Hawaiian (=koloa) Duck and 3 more species

Generated July 03, 2023 01:31 AM UTC, IPaC v6.94.0-rc4



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

General Project Design Guidelines - Hawaiian (=koloa) Duck and 3 more species

Published by Pacific Islands Fish And Wildlife Office - Publication Date: February 1, 2022 for the following species included in your project

- Hawaiian (=koloa) Duck Anas wyvilliana
- Hawaiian Common Gallinule Gallinula galeata sandvicensis
- Hawaiian Stilt Himantopus mexicanus knudseni
- Hawaiian Coot Fulica americana alai

Hawaiian waterbirds (Hawaiian stilt, *Himantopus mexicanus knudseni*; Hawaiian coot, *Fulica alai*; Hawaiian common gallinule, *Gallinula galeata sandvicensis*; Hawaiian duck, *Anas wyvilliana*):
Listed Hawaiian waterbirds are found in fresh and brackish-water marshes and natural or man-made ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. Threats to these species include non-native predators, habitat loss, and habitat degradation. Hawaiian ducks are also subject to threats from hybridization with introduced mallards.

The creation of standing or open water may result in the attraction of Hawaiian waterbirds to a site (creative nuisance or habitat sink). In particular, the Hawaiian stilt is known to nest in sub-optimal locations (e.g. any ponding water), if water is present. Hawaiian waterbirds attracted to sub-optimal habitat may suffer adverse impacts, such as predation and reduced reproductive success, and thus the project may create an attractive nuisance. Therefore, we recommend you work with our office during project planning so that we may assist you in developing measures to avoid impacts to listed species (e.g., fencing, vegetation control, predator management).

To avoid and minimize potential project impacts to Hawaiian waterbirds we recommend you incorporate the following applicable measures into your project description:

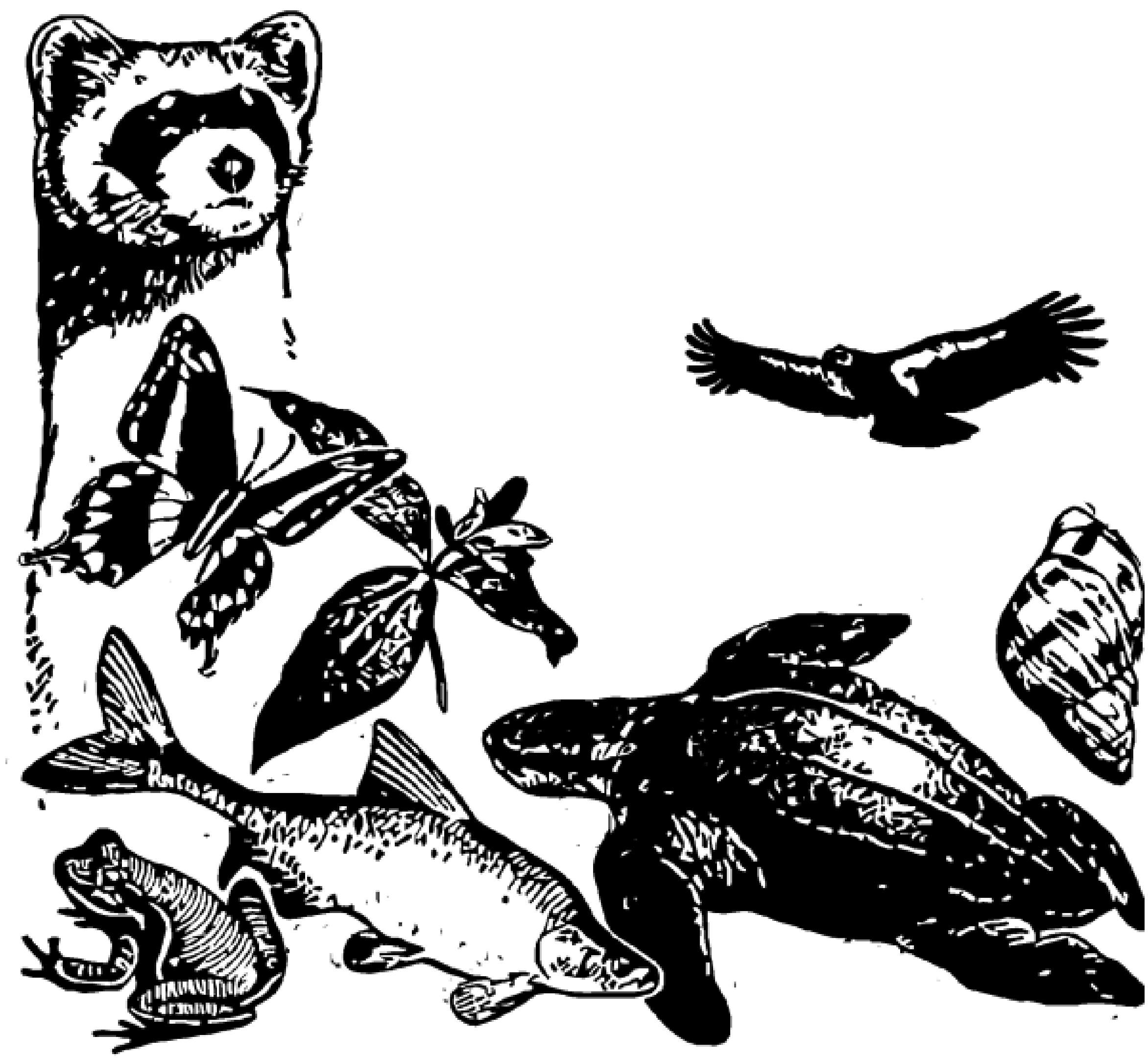
- In areas where waterbirds are known to be present, post and enforce reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.
- Incorporate the Service's Best Management Practices for Work in Aquatic Environments into the project design.
- Have a biological monitor that is familiar with the species' biology conduct Hawaiian waterbird nest surveys, where appropriate habitat occurs within the vicinity of the proposed project site, prior to project initiation. Repeat surveys again within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest). If a nest or active brood is found:
    - Contact the Service within 48 hours for further guidance.
    - Establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks/ducklings have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.
    - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

U.S. Fish & Wildlife Service

Hawaiian seabirds

Hawaiian Petrel and 2 more species

Generated July 03, 2023 01:25 AM UTC, IPaC v6.94.0-rc4



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

General Project Design Guidelines - Hawaiian Petrel and 2 more species

Published by Pacific Islands Fish And Wildlife Office - Publication Date: February 1, 2022 for the following species included in your project

- Hawaiian Petrel Pterodroma sandwichensis
- Newell's Townsend's Shearwater Puffinus auricularis newelli
- Band-rumped Storm-petrel Oceanodroma castro

Endangered Hawaiian petrel (*Pterodroma sandwichensis*), Threatened Newell's shearwater (*Puffinus auricularis newelli*), and Endangered Hawaii Distinct Population Segment of the band-rumped storm-petrel (*Oceanodroma castro*):
Hawaiian seabirds may traverse the project area at night during the breeding, nesting and fledging seasons (March 1 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction.

To avoid and minimize potential project impacts to seabirds we recommend you incorporate the following measures into your project description:

- Fully shield all outdoor lights so the bulb can only be seen from below.
- Install automatic motion sensor switches and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird fledging period, September 15 through December 15.

Listed seabirds have been documented colliding with communication towers, particularly in areas of high seabird passage rate. In general, self-supporting monopoles are the least likely to result in collisions, whereas lattice towers, particularly those that rely on guy-wires, have a greater risk.

To avoid and minimize the likelihood that towers will result in collisions by listed seabirds we recommend you incorporate the following measures into your project description:

- The profile of the tower should be as small as possible, minimize the extent of the tower that protrudes above the surrounding vegetation layer, and avoid the use of guywires.
- If the top of the tower must be lit to comply with Federal Aviation Administration regulations, use a flashing red light verses a steady-beam red or white light.
- If possible, co-locate with existing towers or facilities.

Seabirds have been known to collide with fences, powerlines, and other structures near nesting colonies. To avoid and minimize the likelihood of collision we recommend you incorporate the following measures into your project description:

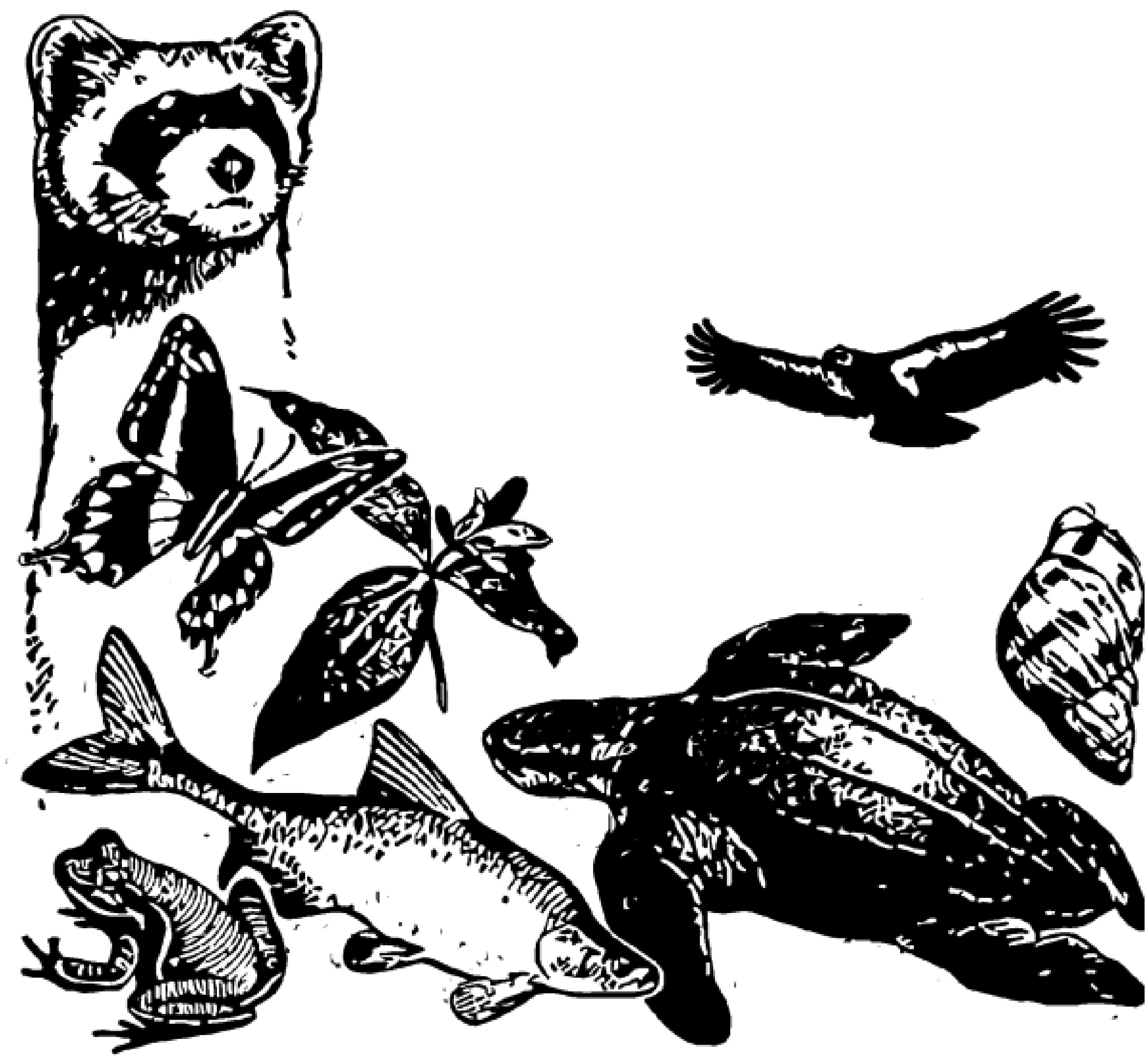
- Where fences extend above vegetation, integrate three strands of polytape into the fence to increase visibility.
- For powerlines, guywires and other cables, minimize exposure above vegetation height and vertical profile.

U.S. Fish & Wildlife Service

Sea turtles

Green Sea Turtle and 2 more species

Generated July 03, 2023 06:43 AM UTC, IPaC v6.94.0-rc4



IPaC - Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

General Project Design Guidelines - Green Sea Turtle and 2 more species

Published by Pacific Islands Fish And Wildlife Office - Publication Date: February 1, 2022 for the following species included in your project

- Green Sea Turtle Chelonia mydas
- Green Sea Turtle Chelonia mydas
- Green Sea Turtle Chelonia mydas

Pacific sea turtles: Green sea turtles (*Chelonia mydas*) (Central North Pacific DPS - Hawaii and Johnston Atoll), (Central West Pacific DPS - Mariana Archipelago and Wake NWR) and (Central South Pacific DPS - American Samoa, Palmyra, Kingman, Howland, Baker and Jarvis NWR), and Hawksbill sea turtle (*Eretmochelys imbricata*):
The Service consults on sea turtles and their use of terrestrial habitats (beaches where nesting and/or basking is known to occur), whereas the National Marine Fisheries Service (NMFS) consults on sea turtles and their use of off-shore and open ocean habitats. We recommend that you consult with NMFS regarding the potential impacts from the proposed project to sea turtles in off-shore and open ocean habitats.

Green sea turtles may nest on any sandy beach area in the Pacific Islands. Hawksbill sea turtles exhibit a wide tolerance for nesting substrate (ranging from sandy beach to crushed coral) with nests typically placed under vegetation. Both species exhibit strong nesting site fidelity. Nesting occurs on Hawaiian beaches from May through September, peaking in June and July, with hatchlings emerging through November and December. Sea turtle nesting in the Western Pacific, Marianas, and South Pacific Islands can occur year-round; peaking in April and July. Nesting in American Samoa is from October to March).

Construction on, or in the vicinity of, beaches can result in sand and sediment compaction, sea turtle nest destruction, beach erosion, contaminant and nutrient runoff, and an increase in direct and ambient light pollution which may disorient hatchlings or deter nesting females. Off-road vehicle traffic may result in direct impacts to sea turtles and nests, and also contributes to habitat degradation through erosion and compaction.

Projects that alter the natural beach profile, such as nourishment and hardening, including the placement of seawalls, jetties, sandbags, and other structures, are known to reduce the suitability of on-shore habitat for sea turtles. These types of projects often result in sand compaction, erosion, and additional sedimentation in nearshore habitats, resulting in adverse effects to the ecological community and future sea turtle nests. The hardening of a shoreline increases the potential for erosion in adjacent areas, resulting in subsequent requests to install stabilization structures or conduct beach nourishment in adjacent areas. Given projected sea level rise estimates, the likelihood of increase in storm surge intensity, and other factors associated with climate change, we anticipate that beach erosion will continue and likely increase.

Whenever possible, projects should consider alternatives that avoid the modification or hardening of coastlines. Beach nourishment or beach hardening projects should evaluate the long-term effect to sea turtle nesting habitat and consider the cumulative effects.

To avoid and minimize project impacts to sea turtles and their nests we recommend you incorporate the following applicable measures into your project description:

- No vehicle use on, or modification of, the beach/dune environment during the sea turtle nesting or hatching season, or on beaches where sea turtles are known to bask.
- Do not remove or destroy native dune vegetation.
- Incorporate applicable Best Management Practices for Work in Aquatic Environments into the project design.

- Have a biologist familiar with sea turtles conduct a visual survey of the project site to ensure no basking sea turtles are present.
    - If a basking sea turtle is found within the project area, cease all mechanical or construction activities within 100 feet until the animal voluntarily leaves the area.
    - Cease all activities between the basking turtle and the ocean.
- Remove any project-related debris, trash, or equipment from the beach or dune if not actively being used.
- Do not stockpile project-related materials in the intertidal zone, reef flats, or stream channels.

Lighting: Optimal nesting habitat is a dark beach free of barriers that restrict sea turtle movement. Nesting turtles may be deterred from approaching or laying successful nests on lighted or disturbed beaches. They may become disoriented by artificial lighting, leading to exhaustion and placement of a nest in an inappropriate location (such as at or below the high tide line). Hatchlings that emerge from nests may also be disoriented by artificial lighting. Inland areas visible from the beach should be sufficiently dark to allow for successful navigation to the ocean.

To avoid and minimize project impacts to sea turtles from lighting we recommend incorporating the following applicable measures into your project description:

- Avoid nighttime work during the nesting and hatching season.
- Minimize the use of lighting and shield all project-related lights so the light is not visible from any beach.
    - If lights can’t be fully shielded or if headlights must be used, fully enclose the light source with light filtering tape or filters.
- Incorporate design measures into the construction or operation of buildings adjacent to the beach to reduce ambient outdoor lighting such as:
    - tinting or using automatic window shades for exterior windows that face the beach;
    - reducing the height of exterior lighting to below 3 feet and pointed downward or away from the beach; and
    - minimize light intensity to the lowest level feasible and, when possible, include timers and motion sensors.

Appendix D. Best Management Practices for Invasive Species Prevention

Best Management Practices (BMPs) for Invasive Species Prevention

General Prevention (for Little Fire Ant, coqui frogs, Coconut Rhinoceros Beetles, and others)
When contracting, purchasing, or conducting projects, there is a very real risk of bringing or moving invasive species with the movement of equipment, materials, and commodities. To reduce risk, please consider implementing or incorporating the following BMPs:

- Institute contract specifications that require mitigation for potential introductions. This can include requiring equipment cleaning and materials inspection prior to work and site inspections to assess compliance efficacy prior to job completion/payment.
- Ask if the contractor or vendor follows BMPs for invasive species, and ask for a copy to review.
- Ask about a contractor or vendor's previous job location/s and the known invasive species in that area. Coqui, Little Fire Ants (LFA), Coconut Rhinoceros Beetles (CRB), and weeds have all been moved to new locations on heavy equipment and materials from infested job sites.
- When purchasing or selecting materials, source plants, planting materials, and similar supplies from uninfested areas and/or from vendors that implement pest BMPs, or ones that are working under official pest mitigation compliance agreements.
- Quarantine and survey all new plants and materials for pests before outplanting, e.g. listen at night for coqui, look for CRB and damage (see below), test all new plants for LFA (see how at https://stoptheant.org/report-little-fire-ants/).

Coconut Rhinoceros Beetle (Any of palms, mulch, compost, etc. coming from Oahu or Kauai should be considered high risk!)
If ordering or working with greenwaste, mulch, loose or bagged compost, or similar materials, be aware that CRB lay their eggs and their grubs (larvae) develop in compost, mulch, greenwaste, manure, etc.). Specify in your contract or purchase agreement that the materials receive proper treatment (e.g., chipping, grinding, heat treatment, or fumigation), and also specify that the vendor/shipper must comply with all applicable laws and rules when moving these items.

- Inspect upon receiving and while working with or managing/maintaining these materials and installation sites. Conduct regular searches/inspections (at least every 4 months/quarterly) of the material for any signs of CRB grubs or pupa (in mulch, greenwaste, and soil mixes/growing media, or damage to the leaves or crowns of coconut trees or any type of palm, banana, and hala.
- If working with tree trimmers, landscapers, or similar, consider asking that all personnel be trained on what to watch for and how to report it. Adult CRB bore golfball-sized holes in coconut and other palms and the leaves may show signs of beetle damage. CRB can also bore into banana plants, hala trees, and many other trees. Text or call (808) 679-5244 or info@crbhawaii.org. For more information, see https://www.crbhawaii.org/.

Fire-promoting and Invasive Plants & Landscaping

- Consider selecting native plants or non-native plants that are low risk for becoming invasive in Hawaii at www.plantpono.org. If a particular plant you are interested in has not been screened for invasiveness, request a screening which is a free service and the results are non-regulatory. The website also features nurseries on Kauai and Hawaii island that have invasive species BMPs in place, see the "Pono Businesses" tab for the lists.
- Consider also staying away from plants that are particularly risky because they are fire-promoting or fire-adapted. See the resources at the Pacific Fire Exchange: https://pacificfireexchange.org/resource/weed-fire-risk-assessment-for-hawaii-2/

Mahalo for considering these suggestions! Please contact any of these groups as resources:
Coordinating Group on Alien Pest Species (CGAPS): christym@hawaii.edu; (808) 722-0995
Kauaʻi Invasive Species Committee (KISC): kisc@hawaii.edu
Oʻahu Invasive Species Committee (OISC): oisc@hawaii.edu
Maui Invasive Species Committee (MISC): miscpr@hawaii.edu
Molokaʻi-Maui Invasive Species Committee (MoMISC): molokaiinvasive@gmail.com
Big Island Invasive Species Committee (BIISC): biisc@hawaii.edu
CRB Response Team: info@crbhawaii.org or (808) 679-5244
Hawaiʻi Ant Lab (HAL): info@littlefireants.com or (808) 315-5656
State Pest Hotline (808) 643-PEST (7378) or online at www.643PEST.org

Honoapiʻilani Highway Improvements Project

Endangered Species Act
Biological Survey Report Supplement

On behalf of the Federal Highway Administration,
in cooperation with the State of Hawaii,
Department of Transportation

October 7, 2024

Prepared by

H.T. Harvey and Associates
Ecological Consultants

and

WSP USA, Inc.

Table of Contents

Acronyms

AA	Action Area
AMM	Avoidance and Minimization Measure
BMP	Best Management Practice
BSM	Blackburn’s Sphinx Moth
DEIS	Draft Environmental Impact Statement
ESA	Endangered Species Act
FHWA	Federal Highway Administration
HDOT	State of Hawaii, Department of Transportation
NLAA	Not Likely to Adversely Affect
O&M	Operations and Maintenance
ROW	Right-Of-Way
USFWS	U.S. Fish and Wildlife Service

1. Executive Summary

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii, Department of Transportation (HDOT), is proposing the Honoapiʻilani Highway Improvements Project (Project). This Project is situated in West Maui, Hawaii, in the area served by the existing Honoapiʻilani Highway between milepost 11 and milepost 17 (Figure 1).

The Draft Environmental Impact Statement (DEIS) for this project is analyzing four alternatives. The proposed action for purposes of this consultation, is the "preferred alternative" that is identified in the DEIS.

H.T. Harvey & Associates obtained an official species list from the U.S. Fish and Wildlife Service (USFWS) via the Information for Planning and Consultation (IPaC) database and conducted biological surveys during 2023 in the Project's Action Area (AA) for ESA-listed species. Results of this survey, along with effects analysis, were incorporated into a 2023 Biological Survey Report. This 2023 report was transmitted to USFWS in November 2023, along with a request for informal consultation under Section 7 of the Endangered Species Act of 1973 (ESA).

USFWS responded via email on February 23, 2024 with a request for supplemental information for the consultation, including additional information to support the analysis of effects to two ESA-listed species: Hawaiian stilt or ae'o (*Himantopus mexicanus knudseni*) and Hawaiian goose or nēnē (*Branta sandvicensis*). On February 29, 2024, USFWS posed a series of additional questions and suggested additional avoidance and minimization measures (AMMs).

This document provides the information requested by USFWS to support the Section 7 consultation. Specifically, the following information has been provided:

- additional detail regarding the proposed action;
- aerial images of the proposed action including the proposed viaduct structure;
- typical cross sections of the proposed highway;
- a summary of al proposed AMMs, including those additionally provided by USFWS;
- an analysis of potential effects of the proposed action on five of the ESA-listed species under USFWS jurisdiction that were addressed in the initial consultation request: Hawaiian Hoary Bat *(Lasiurus cinereus semotus)*, Hawaiian coot (*Fulica alai*), Hawaiian Goose (*Branta sandvicensis*), Hawaiian stilt (*Himantopus mexicanus knudseni*), and Blackburn's Sphinx moth (BSM) (*Manduca blackburni*).

The findings presented in this supplemental analysis support the effect determinations of "**may affect, not likely to adversely affect**" that were presented in the initial request.[1]

2. Proposed Action

As defined in the ESA Section 7 regulations (50 CFR § 402.02), "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United

[1] A separate Section 7 consultation has already been completed with NMFS for ESA-listed species and critical habitats under their jurisdiction. NMFS issued a Letter of Concurrence on this consultation (PIRO-2022-03611, I-PI-23-2170-DG) on November 27, 2023.

States or upon the high seas." The action area (AA) is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action."

As described in the initial consultation request, FHWA and HDOT have developed four preliminary Project alternatives. These alternatives would be further refined as the DEIS is prepared, leading to the selection of a preferred alternative. The "proposed action" for purposes of this consultation is the "preferred alternative" that is being analyzed in the National Environmental Policy Act (NEPA) DEIS. It is also referred to in this document as the "new highway".

The project site and AA for the proposed action are located approximately 235 feet (72m) mauka and generally parallel with the existing Honoapiʿilani Highway (see Figures 1 and 2). The AA is composed of three portions, listed below (corresponding to numeric labeling in Fig. 2.).

1. *Olowalu – Northern Connection to Existing Lahaina Bypass*—Starting at the northern end, the new highway would tie into the Lahaina Bypass where it partially overlaps the existing highway before moving mauka through Launiupoko and behind existing businesses and residences to the south and east in the Olowalu Peninsula for about three miles.
2. *Ukumehame – Northern Connection to Olowalu*—In the central portion, a 0.6-mile stretch of the new highway connects the northernmost section of Ukumehame to the Olowalu Peninsula.
3. *Ukumehame – Pali Connection through Ukumehame Firing Range*—In the southernmost stretch, the new highway is a two-lane alignment from the southern Pali connection through to the north side of the Ukumehame firing range. A single viaduct structure would be constructed to carry the new highway across the HDOT detention basin and the firing range. Accessing the firing range and public beaches would be from the new highway's intersections with existing cross streets (Pohaku Aeko Street and Ehehene Street) in Ukumehame. No driveways or intersections are proposed further north entering the Olowalu area.

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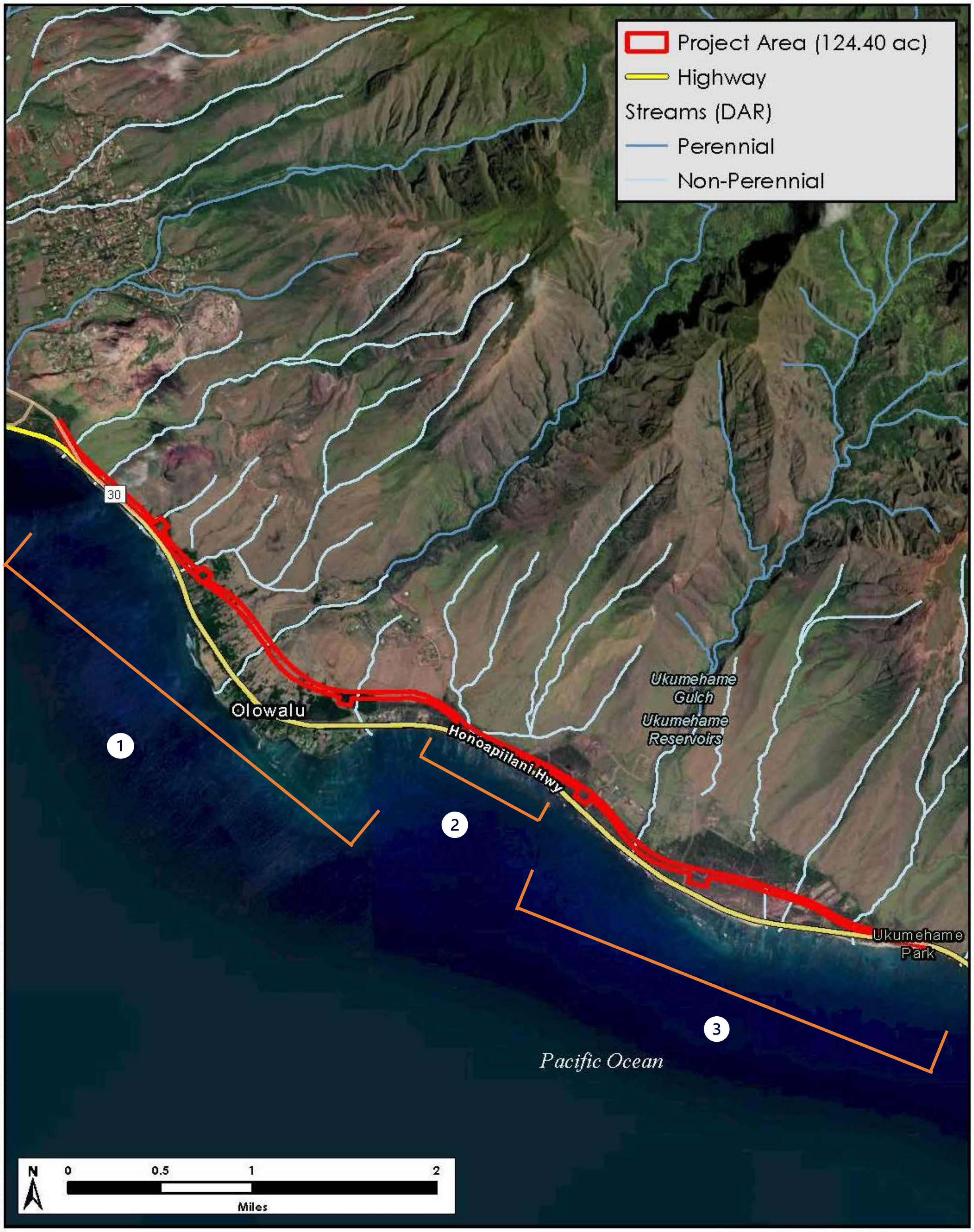
Ecological Consultants

Figure 1. Project Vicinity Map

Honoapiilani Highway, Biological and Wetland Constraints Analysis (4692-01)

May 2024



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Ecological Consultants

Figure 2. Project Area Map
Honoapiilani Highway, Biological and Wetland Constraints Analysis (4692-01)
May 2024

2.2.1 Construction

At-Grade Right of Way—The new highway would have a Right-Of-Way (ROW) width of 140 feet with two (in-bound and out-bound direction) 11-foot-wide travel lanes, 6-foot-wide shoulders, and a 42-foot-wide median. While the new highway would be built as a two-lane highway, the ROW and assessment of potential effects is based on the ability to provide a four-lane highway configuration (two lanes in each direction) in the future. The outer lanes would be constructed for the two-lane highway and inner lanes would be built in the future as warranted by traffic demand and the availability of funding. Figure 3 shows the typical ROW sections with two lanes, and Figure 4 shows the typical ROW sections with four lanes.   Additional ROW at eight natural low points close to the proposed highway alignment would be set aside for permanent stormwater Best Management Practices ("permanent BMPs" as defined in the next paragraph). Other than intersections with existing cross streets that provide access to the existing Honoapiʻilani Highway and therefore the new highway as well, there would not be additional intersections.

Figure 3. Typical ROW Sections with Two Lanes

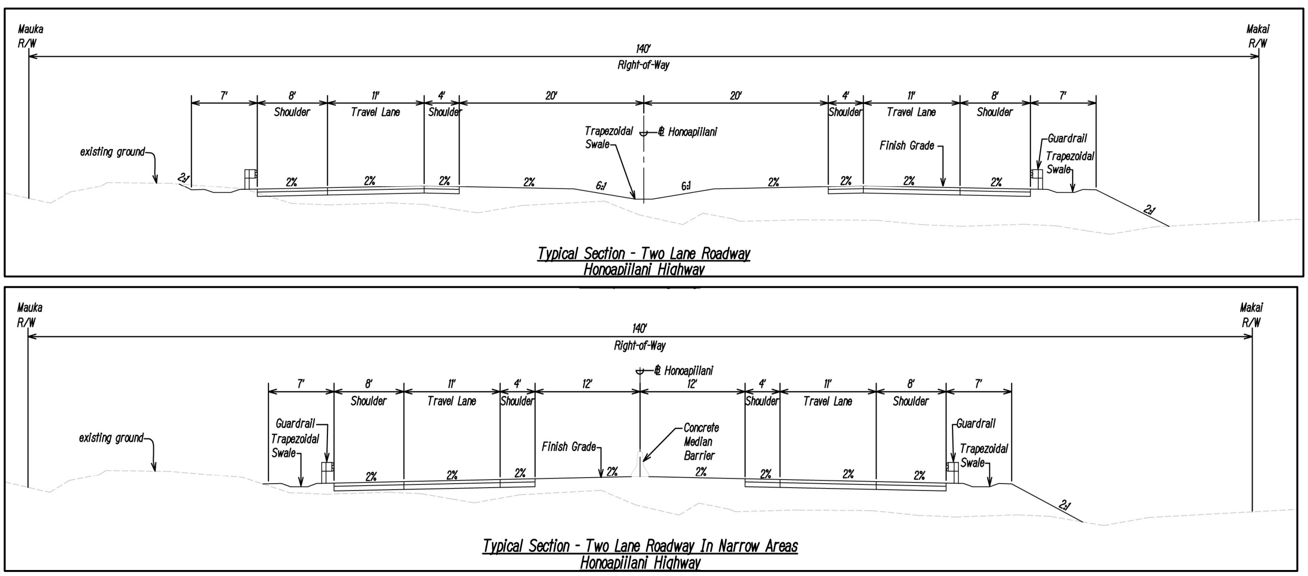
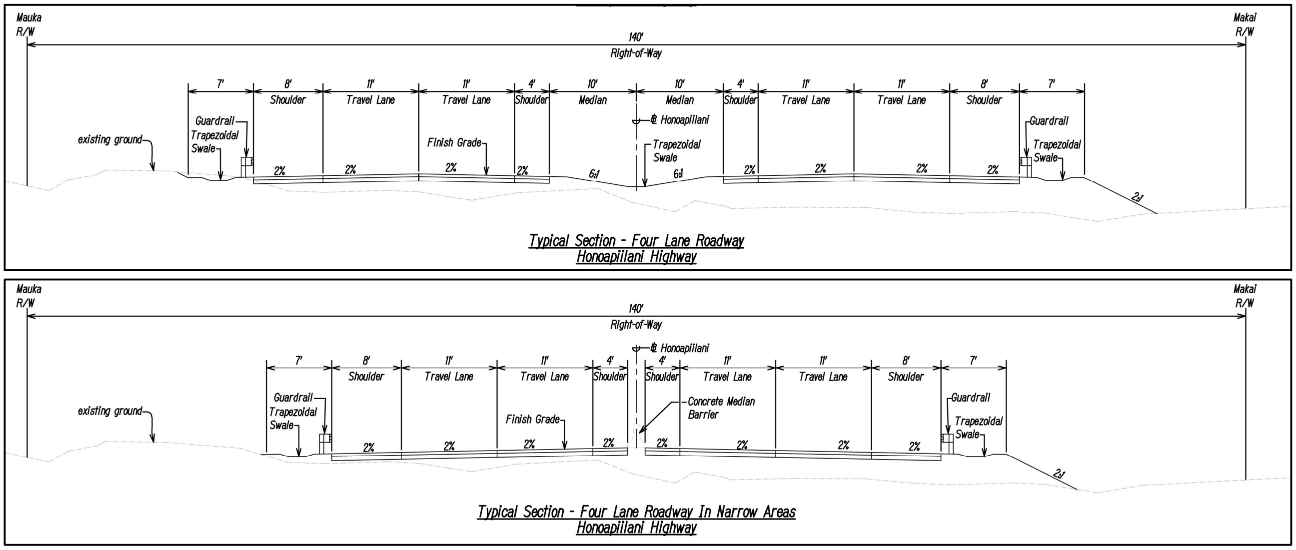


Figure 4. Typical ROW Sections with Four Lanes



Permanent BMPs—Each Build Alternative would set aside additional ROW at several natural low points close to proposed alignments for permanent stormwater Best Management Practices (permanent BMPs) with an average size of approximately one acre. Proposed locations can be seen in Figure 2 as square structures abutting the project area. Between the Draft and Final EIS, additional design considerations would be assessed for the Preferred Alternative, including potential additional effects of using additional ROW for permanent BMPs if not previously evaluated. Biological surveying of potential permanent BMP locations by trained biologists would occur between the Draft and Final EIS as part of these additional considerations. These set asides are conservatively sized for a maximum potential area of disturbance and the final number, locations, and size of the infrastructure may vary depending on the treatment strategies as established through final design as part of the design build process. The Record of Decision (ROD) establishes this environmental footprint within which the design build team must stay. Excavation, potential clearing, temporary construction equipment use, and all other construction activities in final locations of permanent BMPs are required to adhere to the USFWS-provided AMMs (Sections 3 and 5), which could support biological determinations described in Section 4. This includes monitoring by dedicated personnel during construction, protocol if nests are discovered, vegetation clearing protocol, adhering to temporal work-restrictions associated with mating and nesting behavior, signage if-necessary, buffer zones and use of non-barbed wire fencing to avoid any listed species entering the work site, and work stoppage should species be observed during the work period.

Construction Activities— The typical stages of construction activities are summarized below and would be further detailed by the design build contractor and developed in conformance with HDOT Construction and Post Construction Manuals, as well as the USFWS-provided AMMs:

- Pre-Construction, Staging, and Lay Down Yards: In coordination with and as approved by HDOT, the contractor would identify appropriate construction staging areas for storage, equipment, and materials. The contractor would prioritize previously disturbed and bare areas to use for these activities to limit ground disturbance and any potential vegetation clearing. As described in the 2023 Biological Survey Report, the AA is dominated by a nearly monotypic expanse of buffel grass (*Cenchrus ciliaris*) with scattered alien shrublands (H.T. Harvey & Associates, 2024). Such areas are numerous and well suited for the above activities as they are highly disturbed with a history of vegetation disturbance and landscape level modification, and not suitable for listed species. The contractor could identify disposal and borrow sites (that is, where excavated material would be excavated and stockpiled for application in later stages or removed for off-site disposal). The use of disposal and borrow sites would be subject to standard HDOT specifications and policies, as well as County of Maui and State of Hawaiʻi environmental regulations and permit requirements. Another pre-development siting element would be the contractor determining whether there is a need to establish a concrete batch plant (where raw materials of aggregate, sand, cement, and water are stored and mixed as needed for highway construction).

- Demolition, Clearing and Grubbing, and Grading: The contractor would develop a schedule that identifies where construction would start and how it would proceed for additional segments. To prepare for new construction activities, the ROW land requiring grading or disturbance would be cleared of existing structures to be demolished and existing vegetation would be removed (grubbing). Grubbing would adhere to USFWS-provided AMMs, including preservation in place of large [> 15 foot tall (4.6m)] trees to avoid and minimize effects to Hawaiian hoary bats (*Lasiurus cinereus semotus*). If they must be removed, they would be cut down outside of the bat birthing and pup rearing season of June 1 to September 15. Additionally, conservation measures below concerning non-native tree tobacco (*Nicotiana glauca)* would be implemented to minimize potential effects to Blackburn's sphinx moth (*Manduca blackburni*) (BSM). The roadway and adjacent areas would then be graded.
- Roadway Substructure and Top Layers: Once the roadway is cleared and grubbed, subsurface utilities would be installed, including drainage infrastructure and the ROW would have rough grading where the alignment and profile of the new roadway would be constructed. As the rough grading gets closer to the finish grade, signal light and streetlight and other future use conduits and pull boxes are installed. The final roadway layers would be based on the contractor's Pavement Design Report, which would indicate the precise thickness of the pavement structure to use and where it would be needed. The USFWS-provided AMMs would be implemented throughout roadway substructure and top layer installation/construction including dedicated monitors during all work, species signage and temporary speed limits for construction vehicles enforced by dedicated personnel – if necessary, and use of buffers and non-barbed wire fencing to avoid species entering the work site.
- New Bridge and Viaduct Construction: While the final design of the new bridges, culverts, and viaduct portions of the Project would be developed by the design build team, for the purposes of the Draft EIS, it is assumed that new structures would be supported on pile foundations. Drilled shaft foundations would be used in areas sensitive to vibration and noise and would be an efficient technique at selected pier bents. Abutment and wingwall footings would also be on piles. Construction of the bridge and viaduct portions of the Project would involve completing piers, columns, deck, roadway finishes, and lighting. The designer would determine the type of superstructure and construction methods that would best meet the requirements of the Project. These methods would adhere to the USFWS-provided AMMs, listed in Section 3 and Section 5.
- Completion and Build Out: Once the roadway prism is installed and the final layer of concrete has achieved strength to support construction vehicles, striping would be installed. Guardrail would be used to prevent vehicles from departing the roadway onto unrecoverable slopes and to shield roadside obstructions. Guardrails may be installed before the final pavement layer is installed. Throughout completion and build out, dedicated personnel would monitor the work site (where work is currently being done) for any listed species, as well as enforcing temporary

speed limits to avoid collisions with listed species. However, collisions with listed species would be avoided as buffer zones and non-barbed wire fencing would keep listed species away from the work site.

Culverts, Bridges, and Viaduct Structures—The highway design includes culverts, bridges, and viaduct structure (a viaduct is a longer multi-span bridge) that allow for stream crossings and avoid or minimize potential adverse environmental effects. The ultimate determination of culvert and bridge specifications, or the use of viaducts to span larger areas, would be based on the length of the span required, and in consideration of avoiding and minimizing effects to mapped wetlands and recorded Hawaiian goose (*Branta sandvicensis)* and Hawaiian stilt (*Himantopus mexicanus knudseni*) loafing areas, as well as avoiding the sea-level rise exposure area (SLR-XA). Constructability and cost would also play a role in culvert, bridge, and viaduct specifications.

Two bridge structures would be provided over the perennial Olowalu Stream and the Ukumehame Stream with abutments and piers located outside the Ordinary High Water Mark elevation to ensure that the critical structural components of the bridge are not intruding into the stream's natural course. Bridges, culverts, and/or a viaduct would be required for crossing another five non-perennial streams and ditches in Olowalu and six non-perennial streams and ditches in Ukumehame. Per HDOT drainage design standards, during the design build phase of the Project, all culverts and bridges would be designed for a 50-year storm and a 100-year storm would be used to analyze crossings within mapped floodways on Federal Emergency Management Agency Flood Insurance Rate Maps. Each crossing would have a separate bridge crossing per two-lane segments and a typical elevation and section (which would vary by span length and height) is shown in Figure 5 for a short-span bridge and Figure 6 for a long-span bridge.

In the Ukumehame area, the Project would include a two-lane viaduct (see Figure 7). The locations of the piers for the viaduct were assumed. The designer of record would determine the final locations. The conceptual design viaduct in the Ukumehame area is approximately 3,678 feet long (1,121m) with approximate varying elevations of 10 feet (3m) near take-off and up to 20 feet (6m) (Figure 8). The above ground height of the viaduct over the wetlands and nearest the Hawaiian goose and Hawaiian stilt loafing areas would be 20 feet (6m). This above ground height would allow waterbirds to traverse the low-lying Ukumehame area safely (under the viaduct) without need to cross the new highway, as well as permit maintenance vehicles to work within the detention basin and allow for the continued use of the firing range driveway from the existing highway, which would pass underneath the viaduct structure.

Existing Honoapiʻilani Highway—The Project would not make any changes to the existing Honoapiʻilani Highway, although it is proposed to become the jurisdiction of County of Maui. Following this jurisdictional change, the operation and maintenance of the existing highway is outside the scope of this proposed action.

Figure 5. Typical Short Span Bridge Elevations and Sections

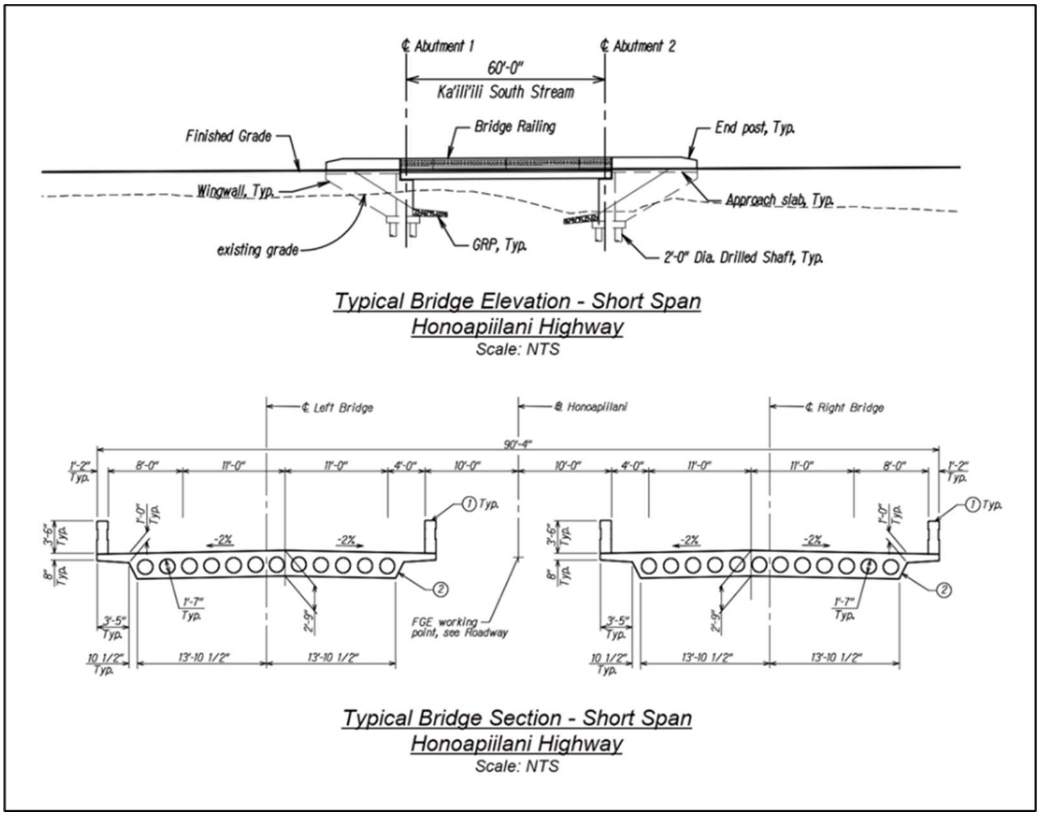


Figure 6. Typical Long Span Bridge Elevation and Section

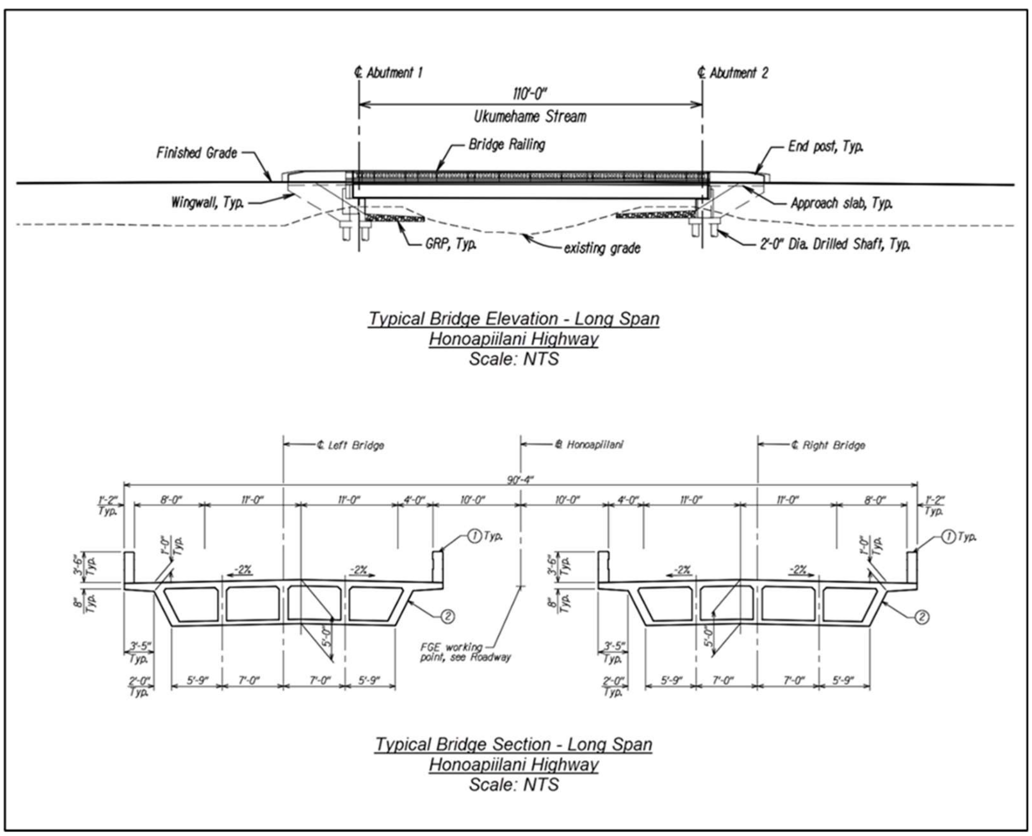
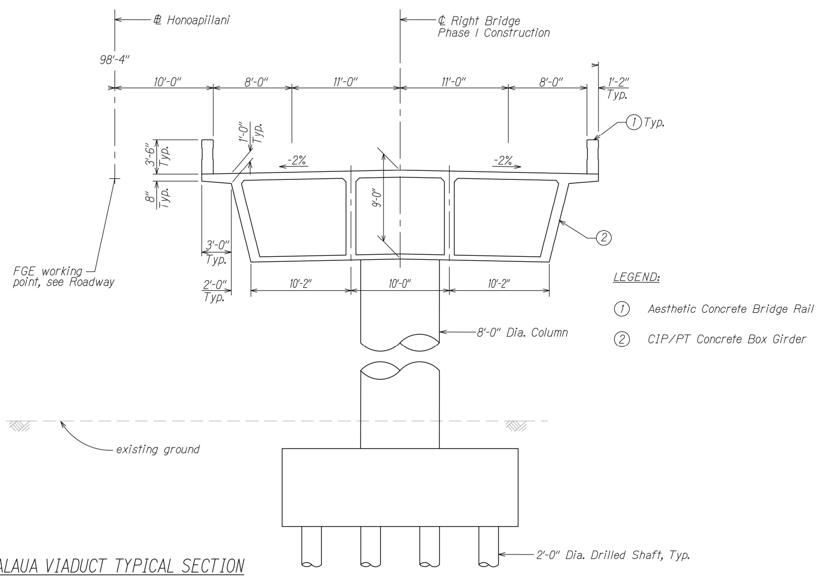
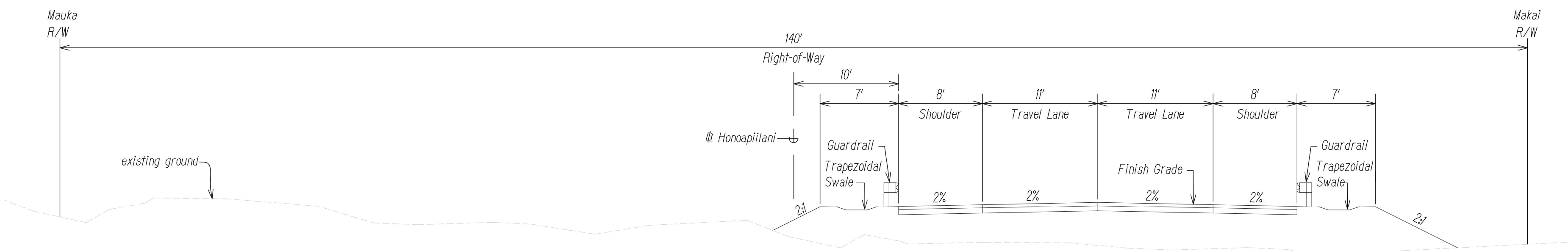


Figure 7. Preliminary Viaduct Structure - Ukumehame

Figure 8. Typical Viaduct Section and Elevation



PAPALAUA VIADUCT TYPICAL SECTION
Scale: 3/16"=1'-0"
Sta. 257+00 to Sta. 288+00



Typical Section - Two Lane Roadway
Honoapiilani Highway
Scale: 1"=5'

Sta. 250+00 to Sta. 257+00
Sta. 288+00 to Sta. 302+01

2.2.2 Operations and Maintenance

The maximum directional operational volume is estimated at 1,900 vehicles per hour (vph) for the new highway, 325 vph more than the existing highway. This higher maximum directional operational volume for the new highway is projected because of better management of the number of accesses and improved roadway segment and intersection configurations. Traffic control devices would be a mixture of two-way stops and traffic signals at various locations along the new highway. There are five intersections planned for the new highway. One would provide access to the Olowalu Recycling and Refuse Convenience Center as well as a former cinder mining quarry currently used as a temporary storage site for ash and debris from the Lāhainā wildfire just west of mile marker 16. In Olowalu, other intersections include an unsignalized t-intersection planned at North Road - halfway between mile markers 16 and 15, and a signalized four-legged intersection at Luawai Street – halfway between mile markers 15 and 14. This area is highly disturbed and is composed of buffel grass dominated grassland (H.T. Harvey & Associates, 2024). In Ukumehame, two signalized four-legged intersections are planned at Ehehene Street and Pohaku Aeko Street – east and west of mile marker 13. A single lane viaduct structure would carry the new highway across the HDOT detention basin and the firing range, east of mile marker 12, allowing for the continued use of the firing range driveway from the existing highway, which would pass underneath the viaduct structure.

Guardrails would be used to prevent vehicles from departing the roadway onto unrecoverable slopes and to shield roadside obstructions. These guardrails would also deter wildlife from attempting to cross the road. The viaduct structure in Ukumehame would allow for wildlife to more easily pass underneath than to fly up and onto the new highway. Setback of vegetation maintenance would be approximately 15-feet off the edge of the shoulder such that the new highway would have a vegetation-free shoulder.

Maintenance activities include roadway resurfacing and repair, drainage system maintenance, traffic control device maintenance, vegetation control, bridge and structure inspection, and emergency response. Typical inspection and maintenance intervals by HDOT crews can be found in Table 1. As-needed maintenance addresses critical items that are fond during these more frequent, less detailed inspections – pothole repairs, guardrail repairs, sign replacement, etc. Large scale maintenance projects, such as full roadway resurfacing, would be done approximately every 10-15 years.

Table 1. Typical Maintenance and Inspection Activities During Operation

Infrastructure Category	**Inspection Interval**	**Typical Maintenance Interval**
Vegetation Control	weekly	5 weeks
Traffic Control Devices (signs, striping etc.)	weekly	As needed
Bridges / Structures	2-years	As needed
Drainage Systems (Culverts)	As needed	As needed
Roadway Pavement	weekly	As needed

3. Avoidance and Minimization Measures

This section describes the avoidance and minimization measures (AMMs) that would be implemented as part of the proposed action to further reduce the extent of effects on ESA-listed species. Additional information regarding species-specific AMMs are provided in the writeup for each species in Section 5.

Daily visual surveys by trained competent observers, dedicated personnel on the construction staff who have been trained by the on-site biologist, would be conducted prior to the start of and during construction work to check for presence of listed species nests. Should nests be observed, then species-specific conservation measures listed in Section 5 would be implemented.

Additional conservation measures for the five species (Hawaiian Hoary Bat, Hawaiian coot, Hawaiian goose, Hawaiian stilt, and BSM) include presence of an on-site biologist during construction activities, and monitoring by trained competent observers prior to the start of and during construction, use of buffer zones and non-barbed wire fencing around active work sites to avoid species interaction with humans, minimizing unnecessary noise at the project site through prohibiting music if listed birds are observed during daily monitoring and noise reducing construction BMPs, incorporating permanent highly visible signs throughout the Ukumehame area alerting workers of the presence of listed waterbirds in the project area to reduce the chance of vehicle collisions (Figure 6.), posting and enforcing reduced speed limits by dedicated personnel during construction in the Ukumehame area, and prohibition of cat feeding stations in the AA (enforced by dedicated personnel during daily surveys). The contractor would also secure all temporary structures to avoid them blowing over during heavy winds and hitting listed bird species.

Figure 6. Example of Highly Visible Hawaiian Goose Sign

Worker Environmental Awareness Training (WEAT) for ESA-listed species would be performed prior to work by personnel on the project for both construction and O&M phases. The crew would be instructed on Hawaiian coot, Hawaiian stilt, and Hawaiian goose identification, behavior, including nesting behavior and ecology and would be instructed on daily monitoring protocol and ecology and biology and to contact a qualified biologist if any ESA-listed species is seen on or near the work site during the daily monitoring conducted while construction is occurring. Work would be postponed in the interim until the biologist can advise on next steps. The daily monitoring protocol would include designated personnel to walk the project site every morning prior to the start of construction work to determine if any ESA-listed species nests are present at the work site and note if any listed individuals were present. Construction crews are not allowed to haze Hawaiian coots or Hawaiian stilts from or near the construction site. Under the 2019 USFWS 4(d) rule, hazing of Hawaiian geese is allowed in certain circumstances. If deemed necessary to prevent nesting by the USFWS, the dedicated on-site biological monitor may perform hazing or other deterrent measures as long as such actions conform to said rule (USFWS, 2019).

3.1 Aquatic BMPs

Tables 2 and 3 below provide a list of aquatic BMPs that would be incorporated into the proposed action.

Table 2. Aquatic BMPs To Be Incorporated into Proposed Action

Topic	BMP
Waste Management	Concrete wastes, solid wastes, and any sanitary/septic wastes would be located away from and managed to assure no contamination to the ocean or critical habitats.
Vehicle and Equipment Management	All vehicles and equipment cleaning, maintenance, and refueling would be located away from and managed to assure no contamination to the critical habitats. Invasive species controls shall be maintained to ensure that all materials transported from off-site are free of such species.
Stormwater Management and Erosion Control	The project would require an NPDES permit with a SWPPP. The Contractor would be required to install and maintain BMPs as part of the proposed project. Site-specific stormwater BMPs would be implemented and/or installed at the staging and work areas to prevent water quality degradation associated with stormwater runoff. Stormwater BMPs would include maintaining equipment in good working order, storing equipment and materials away from the ocean or stream bank with strategic placement of absorbent material, such as fiber rolls, as a buffer between equipment and nearby waterbodies. Drip pans shall also be maintained beneath construction equipment. The Contractor would be required to prevent any debris from falling into the water.
Water Pollution	The HDOT Standard Specifications for Road and Bridge Construction Section 209 Temporary Water Pollution, Dust, and Erosion Control would be followed.
Construction	The project would require temporary construction laydown areas. Stockpiling, storage, and equipment staging would utilize appropriate BMPs to prevent potential surface runoff from entering the stream. No stockpiling, storage, or heavy equipment would be placed in the streams.
For Physical Impacts to Benthic Communities	1. Prevent trash and debris from entering the marine environment during the project. 2. For anticipated stream crossings, all temporary structures must be removed at the completion of in-water work. 3. For anticipated stream crossings, do not stockpile or stage materials in the marine environment unless absolutely necessary. Place material that is stored in the marine environment on unconsolidated sediments devoid of coral and seagrass.
For Increase in Sedimentation and/or Turbidity	1. Install sediment, turbidity, and/or pneumatic curtains, and use real-time monitoring (automated or manual) to detect failure and implement stop-work processes if pre-determined project thresholds are reached (use standards from Clean Water Act 401 water quality certification). In areas of soft sediment, consider partial length turbidity curtains to reduce resuspension of sediment during high winds and currents. 2. Maintain baseline water flow, volume, and velocity of the waterbody. 3. Use natural or bio-engineered solutions when feasible. 4. Fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.

	5. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction conditions and elevations. 6. Minimize disturbances to stream banks, and place abutments outside of the floodplain whenever possible. Seek to maintain baseline water flow volume and velocity within the system. 7. Design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable. 8. Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.
For Increase in Nutrients, Pollution, Contaminants, and Freshwater	1. Conduct work during the dry season when possible; stop work during storms or heavy rains. 2. Prevent discharges into the water. 3. Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (e.g., oil, fuel) leaks. Work must be stopped until leaks are repaired, and equipment is cleaned. Equipment should always be stored in appropriate staging area designed to be preventative in terms of containing unexpected spills when equipment is not in use or during fueling. 4. All fueling or repairs to equipment must be done in a location with the appropriate controls that prevent the introduction of contaminants to marine environment. 5. Fueling of project-related vehicles and equipment shall take place at least 50 feet, or the maximum distance possible, from the water and within a containment area, preferably over an impervious surface. 6. Use of treated wood that would be in contact with the water is not authorized. 7. Use materials that are nontoxic to aquatic organisms, such as untreated wood, concrete, or steel (avoid pressure treated lumber). 8. Prevent bentonite and other drilling fluids from contacting benthic organisms. 9. Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column.
Observations and Monitoring	Contractors would monitor for the presence of ESA-listed species during all aspects of the permitted action. - A responsible party, i.e., permittee/site manager/project supervisor, would designate a competent observer to be trained by a qualified biologist and to search/monitor work sites and the areas adjacent to the authorized work area for ESA-listed species. - Trained competent observers would survey the area before the start of work each day, including before resumption of work following any break of more than one-half hour.
Monitoring Plan	The Action Agency would ensure that a monitoring plan identifies the methods, equipment, communication, and all necessary measures to adequately observe ESA-listed species in the affected areas and communicate with workers. -The Action Agency would ensure that trained competent observers are exclusively looking for ESA-listed species at the work site and not assigned to other tasks. - Trained competent observers shall report to the workers when motile ESA-listed marine species are within 50 meters (54.7 yards, 164 feet) of the proposed work and halt work and shall only begin/resume after the animals have voluntarily departed the area. - If listed species are noticed in the area after work has already begun, that work may continue only if, in the best judgment of the project supervisor, there is no way for the activity to adversely affect the animal(s).
Human Interaction	Project-related personnel would NOT attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species.

Inspections	The project manager or heavy equipment operators would perform daily pre-work equipment inspections for leaks. Detection of leaks would result in postponing or halting the use of heavy equipment until the leak is repaired and the equipment cleaned. - The Action Agency would ensure that trained competent observers are exclusively looking for ESA-listed species at the work site and not assigned to other tasks. - The worksite would have sufficient materials to contain and clean possible spills. - Equipment storage would occur in an appropriate staging area designed to prevent unexpected spills when equipment is not in use or during fueling. - Drip pans would also be maintained beneath construction equipment. The contractor must keep the water free of debris.
Night Work	Avoid nighttime work during the nesting and hatching season, which extends from May through December.
Turbidity and Sedimentation Control	Turbidity and sediment from project-related work would be minimized and contained to the immediate vicinity of the project through the appropriate use of effective sediment containment devices and the curtailment of work during adverse tidal and weather conditions. - All silt fences, curtains, and other structures would be installed properly and maintained in a functioning manner for the life of the construction period and until the impact area is permanently stabilized, self-sustaining, and/or turbidity levels, elevated due to construction, return to ambient levels. - Use real-time monitoring (automated or manual) to detect failure and implement stop-work processes if predetermined project thresholds are reached (use standards from Clean Water Act 401water quality certification). - In areas of soft sediment, consider partial-length turbidity curtains to reduce the resuspension of sediment during high winds and currents.
Streambank Disturbance	Minimize disturbances to stream banks. Seek to maintain baseline water flow volume and velocity within the system.
Revegetation	Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas before removing silt fences and erosion prevention measures.
Material Handling	Project construction-related materials (fill, revetment rock, pipe, etc.) would not be stockpiled in or near aquatic habitats, to prevent materials from being carried into waters by wind, rain, or high surf.
Stream Crossings	For anticipated stream crossings, removal of all temporary structures would occur at the completion of in-water work.
Stream Crossing and Construction Materials	For anticipated stream crossings, do not stockpile or stage materials in the marine environment unless necessary.
Wood Material	The use of treated wood for in-water work is not authorized.
Discharge into Water	Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column. - Concrete wastes, solid wastes, and any sanitary/septic wastes would be located away from and managed to ensure no contamination of the ocean or critical habitats. - Site-specific storm water BMPs would be implemented and/or installed at the road staging and work areas to prevent water quality degradation associated with storm water runoff. - Project-related materials and equipment placed in the water would be free of pollutants.

Table 3. USFWS Recommended Standard BMPs for Aquatic Environments

BMP	Description
1.	Construction staff would be informed of the potential presence of threatened and endangered species, including being provided materials to assist in species identification and appropriate actions if a species enters the work area.
2.	Good housekeeping practices and erosion-control device(s) shall be employed at the job site to prevent debris and soil from leaving the site.
3.	Upon completion of the Project, all construction-related debris and sediment containment devices shall be removed and disposed of at an approved site.
4.	A litter-control plan shall be developed and implemented to prevent attraction and introduction of nonnative species.
5.	Invasive species controls shall be maintained to ensure that all materials transported from off-site are free of such species.
6.	Project construction-related materials shall not be stockpiled in, or in proximity to aquatic habitats and shall be protected from erosion (for example, with filter fabric) to prevent materials from being carried into waters by wind, rain, or high surf.
7.	Fueling of Project-related vehicles and equipment shall take place away from the aquatic environment. A contingency plan to control petroleum products accidentally spilled during the Project shall be developed. The plan shall be retained on-site with the person responsible for compliance with the plan. Absorbent pads and containment booms shall be stored on-site to facilitate the clean-up of accidental petroleum releases.
8.	All deliberately exposed soil or under-layer materials used in the Project near water shall be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or noninvasive vegetation matting, hydroseeding, etc.

3.2 Invasive Species BMPs

Table 4 below provide a list of invasive-species BMPs that would be incorporated into the proposed action.

Table 4. Invasive Species BMPs

Description
All construction equipment and vehicles should arrive at the work site for the first time in clean condition and free of: any soil; plants or plant parts, including seeds; insects, including eggs; and reptiles and amphibians, including their eggs. Similarly, all construction equipment and vehicles should be cleaned after use in the project area and before leaving the site. This would be particularly important for equipment movement between the project area and the other islands.
All materials imported to the project area, including gravel, soil, rock, and sand, should be certified weed free. Invasive species found on stockpiled materials should be removed either chemically or mechanically.
Only weed-free seed mixtures should be used for hydroseeding and hydromulching on the project area. A qualified botanist should inspect the seeded areas a minimum of 60 days after the hydroseed/hydromulch is applied. Any species of plant other than those intended to be in the

hydroseed/hydromulch should be removed. In particular, plant species that are not known to occur on Maui and those that are actively being controlled on the island should be removed.
To the extent feasible the Project should use native plants for revegetation or landscaping purposes. These species are included in Appendix D of the 2023 Biological Resources Report and. If native plants do not meet landscaping objectives, plants with a low risk of becoming invasive may be substituted. Additional information on selecting appropriate plants for landscaping can be obtained from the Plant Pono website and following County of Maui Planting Guidelines.
Only plants grown on Maui should be used for landscaping purposes. If locally grown plants are unavailable, then imported plants may be used, but they should be thoroughly inspected or quarantined if necessary to ensure that they are free from invasive pests such as little fire ants and invasive plant seeds and seedlings that could arrive inadvertently.

4. Species Presence and Status

A total of 20 ESA-listed species under USFWS jurisdiction were identified on the IPaC species list as having the potential to occur within the Action Area (see Table 4). As discussed in Section 1, a separate consultation has been conducted with NMFS for ESA-listed species and critical habitats and Essential Fish Habitat under their jurisdiction.

The eleven species of wildlife identified on the IPAC list includes eight bird species, one species of bat, one species of marine turtle, and one species of moth. FHWA's consultation request documented that with the incorporation of Avoidance and Minimization Measures into the proposed action, the proposed action **may affect, but is not likely to adversely affect** these 11 species. Additional analysis of effects for five of these species are provided in Section 5 of this document.

Nine ESA-listed plant species were identified on the IPAC list. However, none of these species were found during field surveys conducted in 2023 and habitat suitability is limited for these species within the AA (H.T. Harvey & Associates 2024). For this reason, these species are unlikely to occur within the AA and the proposed action would have **no effect** on any ESA-listed plant species.

Critical habitat has been designated for one species of moth (Blackburn's sphinx moth), and for seven of the species of plants identified on the IPaC list. However, none of this critical habitat occurs within the AA. For this reason, the proposed action would have **no effect** on any designated critical habitat for species under USFWS jurisdiction.

Table 4. ESA-Listed Species with Potential to Occur Within the Action Area.

Common Name	*Scientific Name*	ESA Status	Effect Determination
Hawaiian hoary bat	*Lasiurus cinereus semotus*	E	NLAA
Band-rumped storm petrel	*Hydrobates castro*	E	NLAA
Hawaiian coot	*Fulica alai*	E	NLAA
Hawaiian duck	*Anas wyvilliana*	E	NLAA
Hawaiian goose	*Branta sandvicensis*	T	NLAA
Hawaiian petrel	*Pterodroma sandwichensis*	E	NLAA
Hawaiian stilt	*Himantopus mexicanus knudseni*	E	NLAA
Newell's shearwater	*Puffinus newelli*	T	NLAA

Short-tailed albatross	*Phoebastria albatrus*	E	NLAA
Green sea turtle	*Chelonia mydas*	T	NLAA
Blackburn's sphinx moth	*Manduca blackburni*	E	NLAA
ʽenaʽena	*Pseudognaphalium sandwicensium* var. *molokaiense*	E	No Effect
Awiwi	*Schenkia sebaeoides*	E	No Effect
Carter's panicgrass	*Panicum fauriei* var. *carteri*	E	No Effect
Dwarf Naupaka	*Scaevola coriacea*	E	No Effect
Ihi	*Portulaca villosa*	E	No Effect
Koʽoloaʽula	*Abutilon menziesii*	E	No Effect
Ohai	*Sesbania tomentosa*	E	No Effect
Round-leaved Chaff-flower	*Achyranthes splendens* var. *rotundata*	E	No Effect
Vigna o-wahuensis	*Vigna o-wahuensis*	E	No Effect

T = threatened, E = endangered.

5. Supplemental Effects Analysis

This section provides additional analysis of effects of the proposed action for five of the species identified in FHWA's consultation request. For analysis regarding the other species not addressed in this document, please refer to the consultation request.

5.1 Hawaiian Hoary Bat

5.1.1 Species Background

The Hawaiian hoary bat *(Lasiurus cinereus semotus)* was listed as endangered pursuant to the ESA in 1970 without critical habitat. The species uses a variety of habitats that include open pastures and forested areas in both native and non-native habitats (DLNR 2005). Hawaiian hoary bats are known to roost in large [typically greater than 15-foot-tall (4.6m)] dense-canopy trees, sometimes at the edges of water bodies, such as streams and lakes (USFWS 1998). Typically, this species feeds over streams, bays, along the coast, over lava flows, or at forest edges. The Hawaiian hoary bat is an insectivore and prey items include a variety of native and non-native night-flying insects, including moths, beetles, crickets, mosquitoes, and termites (Whitaker and Tomich 1983). Hawaiian hoary bats may hunt for flying insect prey along roadways, gulches, and open areas and occasionally roost in large, dense-foliage trees. Hoary bats birthing and pup rearing season is July 1 to September 15. Mother bats stay with the pups until they are at least six or seven weeks old during which time the pups are completely dependent on the mother (DLNR 2015).

5.1.2 Presence in Action Area

No formal surveys were conducted for Hawaiian hoary bat during the reconnaissance-level biological studies for the project. However, there are records for this species on Maui and it is therefore assumed that this species may potentially occur within the AA (Tomich 1986, DLNR 2015).

The vast majority of the AA overlaps grassland habitat with few scattered large trees. Some large trees could provide suitable habitat for the Hawaiian hoary bat (H.T. Harvey & Associates, 2024).

5.1.3 Avoidance and Minimization Measures

In addition to the avoidance and minimization measures described in Section 3, which would avoid and minimize impacts broadly for all habitats and species, the following avoidance and minimization measures would specifically serve to further reduce the potential for effects to Hawaiian hoary bats.

- To the greatest extent possible, large [> 15 foot tall (4.6m)] trees would be preserved in place. If they must be removed, they would be cut down outside of the bat birthing and pup rearing season of June 1 to September 15.
- The Project would not use barbed wire for fencing.

5.1.4 Effects Analysis

It is assumed that hoary bat may potentially be in the AA, and that potentially suitable habitat does occur. However, this species is largely active at night and there would be no night work or night lighting during construction or operations and maintenance (O&M). The USFWS-recommended AMMs described in Section 5.1.3 would be incorporated for the proposed action, which would further reduce the potential for any effect to individuals. It is possible that some potentially suitable habitat would be affected, however the extent of any effect associated with the habitat impact would be minimal, and would not result in adverse effect.

5.2 Hawaiian Coot

5.2.1 Species Background

The Hawaiian coot (*Fulica alai*) was listed under the ESA as an endangered species in October 1970 (USFWS 1970) without critical habitat. The species‘ distribution on Maui is mostly limited to Kanaha Pond (~14 miles from AA southern terminus), Kealia Pond (~12 miles from AA southern terminus) and Nuu pond (~50 miles from AA southern terminus). Hawaiian coots are usually found in coastal plain wetlands below 1,320 feet (400m) and feed on land and in water on a wide variety of food items including seeds, leaves, crustaceans, insects, tadpoles, and small fish. Their nesting habitat includes freshwater and brackish water ponds, irrigation ditches, and taro fields. They construct floating nests made from aquatic vegetation on open water or anchored to emergent vegetation. Hawaiian coots nest yearlong but mostly between March and September. The start of nesting is usually associated with rainfall because water levels are critical to nest success (DLNR 2024).

5.2.2 Presence in Action Area

Hawaiian coots were not observed during the field studies conducted in 2023 for the Project, though potentially suitable habitat in the form of agricultural reservoirs (in Olowalu Reservoir) and taro fields and ditches (in Ukumehame region) do exist within the AA. (H.T. Harvey & Associates 2024). Altering wetland habitats for flood control or to allow them to serve as municipal water sources makes them generally unsuitable for Hawaiian coots (DLNR 2015). There are documented records of Hawaiian coots in the vicinity of Lahaina (~ 6.5 miles to the northern terminus) and in the vicinity of Maalaea (~9.4 miles to the southern terminus) (ebird 2024). On July 4, 2024, there was an incidental observation of Hawaiian coot in the southern end of the AA along the existing highway (ebird 2024).

5.2.3 Avoidance and Minimization Measures

In addition to the avoidance and minimization measures described in Section 3, which would avoid and minimize impacts broadly for all habitats and species, the following avoidance and minimization measures would specifically serve to further reduce the potential for impacts to Hawaiian coots:

- A qualified biological monitor familiar with the species' identification and biology would conduct a pre-construction survey for Hawaiian coot nests where appropriate habitat occurs (listed above) within the vicinity of the work site, within three days of the initiation of project work. These nest surveys would be repeated within three days of project initiation, and after any subsequent delay of work of three or more days following the initiation of project construction (during which the birds may attempt to nest).
- If a nest or active brood is found the biological monitor would contact the Service, or would immediately inform the Project manager, either of which would:
  - Contact the Service within 48 hours upon discovery of the nest for further guidance.
  - Upon discovery of an active nest or nests, immediately establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks have fledged. No potentially disruptive activities or habitat alteration would occur within this buffer.
  - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.
- Reduced speed limit signs of 15 mph through the Olowalu area and 10 mph in the Ukumehame area would be posted at the project site during construction.
- If observed during daily visual surveys or after work has begun, work in the vicinity of a loafing or foraging Hawaiian coot can begin only after the birds have left on their own and a 100-foot buffer maintained until that time.

5.2.4 Effects Analysis

Hawaiian coots have not been observed within the AA, though wetlands and aquatic habitats in the AA and vicinity represent potentially suitable habitat. The wetlands associated with this project do not appear to provide quality nesting habitat and it is most likely that a Hawaiian coot on site would be utilizing the wetlands as merely a temporary foraging area if water depths are suitable. The extent of anticipated habitat suitability is as temporary foraging habitat, in areas and at times of year when water depths are suitable.

Adverse effects to wetlands would reduce the availability of foraging habitat for coots, which would represent a potential effect. However, any adverse effects to wetlands would require permit authorizations from the U.S. Army Corps of Engineers, and compensatory mitigation would be required as part of these permits to ensure no net loss of wetlands or wetland function. With the implementation of avoidance and minimization measures listed above, the proposed action may affect, but is not likely to adversely affect Hawaiian coot.

5.3 Hawaiian Goose

5.3.1 Species Background

The Hawaiian goose (*Branta sandvicensis*) was protected as an endangered species in 1967 before being downlisted to a threatened species in 2019 with a 4(d) rule (USFWS 1967, 2019). USFWS has not designated critical habitat for the Hawaiian goose. A 2018 statewide population estimate was 2,855 individuals with 616 on Maui (USFWS 2018). The species is non-migratory with daily flights typically in early morning and late afternoon. Their extended breeding season has eggs being laid from August to April with the majority of the goslings hatching in December and January (Banko et al. 1999;USFWS 2004, 2018). Hawaiian geese nest on the ground in a shallow scrape in the shade of dense shrubs or other vegetation. Goslings are flightless for 10 to 12 weeks and adults are flightless for a period of 4 to 6 weeks during their molt, which occurs between February to May. During June to September after molting and fledging, family groups frequently congregate in post-breeding flocks often far from nesting areas (USFWS 2004, 2019). Hawaiian geese appear to exhibit seasonal movements in response to foraging opportunities, shifting to grasslands during periods of low native browse and berry production and when wet conditions produce grass with high-water content and resultant higher protein content.

5.3.2 Presence in Action Area

Hawaiian geese were observed on three occasions in the AA during field surveys conducted for the proposed action (H.T. Survey & Associated 2024). The observed individuals were foraging or loafing, and neither nesting behavior nor eggs, nests, or goslings were documented in the AA (H.T. Survey & Associated 2024).

On January 3, 2023, four individuals were spotted at the Ukumehame Firing Range (see Figure 7) near the classroom building in a shallow muddy pond formed by recent rains. Two of these individuals were banded. The assumed same four individuals were observed the next day, January 4, 2023, in the same location. On March 22 and April 28, 2023, two additional Hawaiian geese were sighted again at the firing range, near the classroom. One individual was also seen loafing in the open grassy area in Ukumehame subdivision at the intersection of Pohaku Aeko Street and Paekii Place on March 23, 2023 (see Figure 7). This individual was also a banded bird. In total, seven Hawaiian geese have been observed in the Ukumehame area of the AA, three of which were banded. No Hawaiian geese were observed in the Olowalu area; however, a landowner reported that the birds can be present in grassy areas, particularly near the water reservoir (outside of the AA) (Larse *pers. comm.* 2023). However, Larse (2023) had not seen them as frequently as in past years.

Most Hawaiian geese on Maui do not frequent the AA, as National Park Service (NPS) reports the elevational range of the Hawaiian goose population on the West Maui Mountains to be between 3,000-4,000 feet (914m-1219m) (well above the AA).

5.3.3 Avoidance and Minimization Measures

In addition to the avoidance and minimization measures described in Section 3, which would avoid and minimize impacts broadly for all habitats and species, the following avoidance and minimization measures would specifically serve to further reduce the potential for impacts to Hawaiian Goose:

- Crew would not approach, feed, or disturb Hawaiian geese, if observed in the AA.
- If a Hawaiian goose is observed loafing or foraging within the project site during the breeding season (September through April), then a biologist familiar with Hawaiian goose nesting behavior would survey for nests in and around the project site prior to the resumption of any work. Repeat surveys would be performed after any subsequent delay of work of three or more days (during which the birds may attempt to nest).
- If a nest or active brood is found the biological monitor would contact the Service, or would immediately inform the Project manager, either of which would:
    - Contact the Service within 48 hours upon discovery of the nest for further guidance.
    - Upon discovery of an active nest or nests, immediately establish and maintain a 150-foot buffer around all active nests and/or broods until the chicks have fledged. No work would occur within this buffer.
- The project site would be adequately signposted with high visibility signs alerting crew to presence of Hawaiian geese in Ukumehame (Fig. 6).

- As noted above: if necessary to prevent nesting, the dedicated on-site biological monitor (not construction crew) may perform hazing or other deterrent measures as long as such actions conform to said rule (USFWS, 2019).
- Work within 150 feet of a loafing or foraging Hawaiian goose can begin only after the birds have left on their own.
- For alignment activities near an observed Hawaiian goose, fencing around the work site would be used where practicable to maintain a distance buffer and reduce vehicle strikes. If observations occur within an identified buffer, the contractor would assign a dedicated monitor to alert construction vehicle drivers of their presence and reduce accidental vehicle strikes.

5.3.4 Effects Analysis

Hawaiian geese have been observed within the AA and are likely present at times within the AA, though not in great numbers. Grassland habitats in the AA and vicinity represent potentially suitable foraging and/or nesting habitat for this species. There are also opportunities for nesting around the grassy edges of homesteads, maintained lawns and woodland areas in the Olowalu portion of the AA. However breeding Hawaiian goose were not observed in the AA, and no nests, eggs, or fledglings were observed during the biological surveys conducted for the project.

Hawaiian Geese, if present within the AA during construction, could potentially be affected by the presence of humans and construction equipment. However, the minimization measures described above would avoid the potential for any Hawaiian goose to be directly harmed or injured during construction. Effects associated with direct interactions during construction would be limited to temporary behavioral modification, but it is not expected to result in individual Hawaiian geese abandoning or leaving nests exposed for extended periods.

Impacts to grassland habitats would represent a loss of potentially suitable habitat for Hawaiian geese. However, there are abundant similar grassland habitats both within and outside of the AA that provide a comparable level of habitat suitability, and any effects to potentially suitable habitat would not result in an adverse effect to Hawaiian goose.

With the implementation of conservation measures listed above, therefore, the proposed action may affect but is not likely to adversely affect Hawaiian goose.

5.4 Hawaiian Stilt

5.4.1 Species Background

The Hawaiian stilt (*Himantopus mexicanus knudseni*) was listed under the ESA as an endangered species in October 1970 (USFWS 1970) without critical habitat. USFWS estimates there are typically 350 – 500 stilts present on Maui in a given year (1,500–2,000 individuals statewide). On Maui, the species congregates in Kanaha Pond State Wildlife Sanctuary (~14 miles from AA southern terminus) and Kealia Pond National Wildlife Refuge (~12 miles from AA southern terminus). Hawaiian stilts were observed on two occasions in the AA during the biological surveys that were conducted for the proposed action.

Hawaiian stilts usually lay three to four eggs that are incubated for 23 to 26 days. Stilts are opportunistic feeders that use a variety of aquatic habitats but are limited by water depth and vegetation cover (USFWS 2011). Hawaiian stilts are known to use ephemeral lakes, anchialine ponds, prawn farm ponds, marshlands, and tidal flats. The Hawaiian stilt nesting season normally extends from mid-February through August, with peak nesting varying among years (Robinson *et al.* 1999). This species prefers to nest on freshly exposed mudflats interspersed with low growing vegetation (USFWS 2011). Nesting also occurs on islands in freshwater or brackish ponds. Hydrologic alterations of wetlands, including flood control and channelization, often make wetland habitat less suitable by altering water depth and timing of water level fluctuations (USFWS 2011). The depletion of freshwater aquifers can cause salt-water intrusion into coastal ground water, altering the salinity of affected wetlands, and reducing habitat suitability (USFWS 2011).

5.4.2 Presence in Action Area

On January 3, 2023, three stilts were seen feeding and loafing in a shallow ponded area by the classroom building at the Ukumehame Firing Range (where Hawaiian geese were also spotted). Three additional stilts, assumed to be the same three, were observed again the following day, January 4, 2023. An individual stilt was again spotted in the Ukumehame area on March 23, 2023, feeding in a ponded ditch. It is uncertain whether this individual was one of the three observed in January. Hawaiian stilts were observed to be either feeding or loafing and no nests were found during the field studies in 2023 (H.T. Harvey & Associates). Given the availability of potentially suitable nesting habitats, however, nesting within the AA cannot be ruled out.

5.4.3 Avoidance and Minimization Measures

In addition to the avoidance and minimization measures described in Section 3, which would avoid and minimize impacts broadly for all habitats and species, the following avoidance and minimization measures would specifically serve to further reduce the potential for impacts to Hawaiian stilt:

- A qualified biological monitor familiar with the species' identification and biology would conduct a pre-construction survey for Hawaiian stilt nests where appropriate habitat occurs (listed above) within the vicinity of the work site, within three days of the initiation of project work. These nest surveys would be repeated within three days of project initiation, and after any subsequent delay of work of three or more days following the initiation of project construction (during which the birds may attempt to nest).
- If a nest or active brood is found the biological monitor would contact the Service, or would immediately inform the Project manager, either of which would:
  - Contact the Service within 48 hours upon discovery of the nest for further guidance.
  - Upon discovery of an active nest or nests, immediately establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks have fledged. No potentially disruptive activities or habitat alteration would occur within this buffer.
  - Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.
- Reduced speed limit signs of 15 mph through the Olowalu area and 10 mph in the Ukumehame area would be posted at the project site during construction.
- If observed during daily visual surveys or after work has begun, work in the vicinity of a loafing or foraging Hawaiian stilt can begin only after the birds have left on their own and a 100-foot buffer maintained until that time.

5.4.4 Effects Analysis

Hawaiian stilts have been observed within the AA and are likely present at times within the AA, though not in great numbers. Wetland habitats in the AA and vicinity represent potentially suitable foraging and/or nesting habitat for this species. However nesting Hawaiian stilts were not observed in the AA, and no nests, eggs, or fledglings were observed during the biological surveys conducted for the project.

Hawaiian stilts, if present within the AA during construction, could potentially be affected by the presence of humans and construction equipment. However, the minimization measures described above would avoid the potential for any Hawaiian stilts to be directly harmed or injured during construction. Effects associated with direct interactions during construction would be limited to temporary behavioral modification, but it is not expected to result in individual Hawaiian stilts abandoning or leaving nests exposed for extended periods.

At construction sites where work has been temporarily halted, Hawaiian stilts have been known to nest in mud puddles and other ephemeral ponded areas at the construction site. The avoidance and minimization measures described above would be implemented to monitor for the presence of any actively nesting Hawaiian stilts, and if any are observed, to avoid any adverse effect.

Impacts to wetland habitats would represent a loss of potentially suitable habitat for Hawaiian stilts. However, any impacts to wetlands would require permit authorizations from the U.S. Army Corps of Engineers, and compensatory mitigation would be required as part of these permits to ensure no net loss of wetlands or wetland function.

With the implementation of conservation measures listed above, therefore, the proposed action may affect but is not likely to adversely affect Hawaiian stilts.

5.5 Blackburn's Sphinx Moth

5.5.1 Species Background

The Blackburn's Sphinx Moth (BSM) (*Manduca blackburni*) was listed pursuant to the ESA as an endangered species in 2000 with designated critical habitat in 2003 (USFWS 2000, 2003). Once distributed across all main Hawaiian Islands, the BSM's current range is limited to the islands of Maui, Molokai, Lanai, and Hawaii with the largest populations occurring on Maui and Hawaii. The 2005 USFWS Recovery Plan for BSM identifies management units on Maui for BSM, none of which are within 14 miles of the AA. These units are at Waihee (~14.5 miles away), Kanaha Pond (~14 miles away), Puu O Kali (~30 miles away), and Ahihi-Kinau (~24 miles away) (USFWS 2005). The species' short life span as an adult, rarity, and mobility makes estimating the BSM population sizes difficult. Despite this, it is believed that populations have declined over the past 100 years since the moth no longer occurs on several islands on which it had been recorded. The BSM can be found across a broad elevational gradient from sea level to 5,000 feet (1,540m) and the have been documented to occur in West Maui (USFWS 2023).

The BSM is the largest native Hawaiian insect with a wingspan of up to 15 cm (5 inches). Adult BSMs are found year-round but may be most active between January and April and again between September and November, especially after rain events. Adults have been observed feeding on the nectar of koaliawa (*Ipomoea indica*), while other species of Ipomoea, maiapilo (*Capparis sandwichiana*), and iliee (*Plumbago zeylancia*) are also thought to be food plants for the adult moth. The BSM lay eggs on and the larvae or caterpillars feed on plants in the nightshade family (Solanaceae), especially native trees in the genus *Nothocestrum*, but also on non-native solanacious plants such as commercial tobacco (*Nicotiana tabacum*), tree tobacco (*N. glauca*), eggplant (*Solanum melongena*), tomato (*Lycopersicon esculentum*), and Jimson weed (*Datura stramonium*). Development from egg to adult may be as short as 56 days, but pupae may aestivate (i.e., period of dormancy during hot or dry conditions) in the ground for as long as a year (DLNR 2015). Although BSM larvae feed on the non-native tree tobacco, USFWS does not consider this plant to be a necessary biological requirement for this species due to the ephemeral nature of this plant species and its intolerance to drought.

5.5.2 Presence in Action Area

The BSM was not observed in the AA during the biological field surveys for this proposed action. However, on March 25, 2023, three individual host plants of tree tobacco (*Nicotiana glauca*) about 5-6 feet tall (1.5m-1.8m) were observed in the Mixed Alien Shrubland in the vicinity of Olowalu Residential Recycling and Refuse Center of the AA. No BSM caterpillars were seen on these plants and no signs of feeding damage were observed either. A close inspection of the leaves did not reveal the presence of BSM eggs. Except for three tree tobacco plants in the Olowalu area, none of the adult food plants or larvae host plants were found in the AA. Larval host plants such as the tree tobacco, tomato, and Jimson weed are widespread on Maui and can establish, particularly after ground disturbance activities at the Project site.

It is possible but unlikely, that BSM occur within the AA with any regularity, and the habitat suitability for this species is low, being limited to the three observed host plants. Nevertheless, it is possible that BSM could potentially occur within the AA.

5.5.3 Avoidance and Minimization Measures

In addition to the avoidance and minimization measures described in Section 3, which would avoid and minimize impacts broadly for all habitats and species, the following avoidance and minimization measures would specifically serve to further reduce the potential for impacts to BSM.

- A biologist familiar with BSM would survey for the species and its larval host plants during the wettest portion of the year (November–April or several weeks after a significant rain) and within 4-6 weeks prior to construction. Surveys would include searches for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage).
- If aiea or tree tobacco over three feet (0.9m), or adult BSM moths are found during surveys, then USFWS would be informed for additional guidance. Sometimes the pupating larvae are less visible on mature plants and when uprooting the mature plant larvae could also dislodge and remain in the ground typically within 33 ft (10m) of the parent plant. In this scenario the Project would create a 33-ft (10m), disturbance-free buffer in which no work activities at all would be performed around the woody host plant to prevent disturbance to any pupating larvae. The plant roots would be removed 90 days following the initial survey to prevent resprouting.
- If no BSM, aiea, or tree tobacco are found during survey, then the Project site staff would take measures to ensure that tree tobacco plants do not establish in the Project site. If tree tobacco grows more than three feet (0.9m) tall it may become a host plant for BSM larvae, which can occur in as few as six weeks. Therefore, to ensure that tree tobacco does not get established in the Project site, the on-site biologist would survey for tree tobacco every six weeks during construction and before ground disturbing construction activities within a 33-foot (10m) buffer. If tree tobacco is found, the on-site biologist would remove and dispose of the pulled tree tobacco.

5.5.4 Effects Analysis

It is possible but unlikely, that BSM occur within the AA with any regularity, and the habitat suitability for this species is low, being limited to the three observed host plants. Nevertheless, it is possible that BSM could potentially occur within the AA.

By implementing the avoidance and minimization measures described above, including timely surveys and monitoring, the establishment of tree tobacco at the project site can be prevented and impacts to BSM can be avoided. Because the surveys would involve a thorough search by a biologist for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage) the likelihood of eggs or larvae on the host plant being destroyed is also discountable.

With the implementation of conservation measures listed above, therefore, the proposed action may affect but is not likely to adversely affect BSM.

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HT Harvey & Associates
Addendum to the Biological Survey Report

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Memorandum

Project No. 4692-02

April 18, 2025

To: **James Sullivan, Environmental Planner, WSP USA**

From: **Shahin Ansari, Senior Ecologist, H. T. Harvey & Associates**

CC: **Scott Terrill, Principal in Charge, H. T. Harvey & Associates**
Jamie Bents, Project Manager, WSP USA

Subject: **Addendum to the November 2023 Honoapiilani Highway Improvements Project—Biological Survey Report**

Introduction

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii, Department of Transportation (HDOT), is proposing the Honoapiilani Highway Improvements Project (Project). This Project is situated in West Maui, Hawaii, in the area served by the existing Honoapiilani Highway between milepost 11 and milepost 17 and generally overlaps the ahupuaa of Ukumehame and Olowalu (Figure 1). Honoapiilani Highway is the primary transportation route for people and goods between West Maui and the rest of the island. Climate change and sea-level rise are already contributing to damage along this coastal stretch of the Highway. In the last decade, Honoapiilani Highway has been repaired several times after storm and high-wave events undermined pavement sections and overtopped the highway, making the roadway impassable. Furthermore, comprehensive modeling of the future impacts of sea-level rise have indicated that much of the Honoapiʻilani Highway in the project area (51% in Olowalu and 73% in Ukumehame) is within the projected 3.2-foot Sea Level Rise Exposure Area (SLR-XA) and confirms that road disruptions and emergency repairs will increase over time as a result of more frequent and severe flooding. The purpose of the Project is to reduce the highway's exposure to the SLR-XA, where feasible, and provide a reliable transportation facility in West Maui that can serve the community with increased reliability and safety to withstand coastal hazards.

A draft environmental impact statement (DEIS) for the Project was published in December 2024. H. T. Harvey & Associated completed biological studies in support of the environmental planning for the Project in 2023, the results of which are published in the DEIS. The Biological Study Area (BSA) encompassed an area of about 902 acres overlapping the four proposed Highway alignments that were evaluated for the DEIS (Figure 2). These alternatives were further refined as the DEIS was prepared, leading to the selection of a preferred alternative. While the vast majority of the BSA surveyed in 2023 overlaps the preferred alternative, there are a few scattered parcels along the preferred alternative that were not part of the 2023 field studies. These unsurveyed parcels are illustrated in Figure 2 and collectively referred to here as the 2025 BSA. This memorandum describes the methods and results of the flora and fauna studies we conducted in the 2025 BSA.

Biological Study Scope and Objectives

The scope of the flora and fauna field studies were limited to the 13 separate 2025 BSA parcels encompassing a total of 31.6 acres. The 2023 botanical surveys documented the habitat types, and the plant and vertebrate (birds and mammals) species found in the BSA overlapping the four proposed alignments. The 2025 BSA parcels are next to the 2023 BSA and the habitat in these 13 parcels generally are a continuum of those already surveyed and therefore expected to have a similar suite of plant and animal species. This rationale formed the basis for the following objectives for these 2025 field surveys.

- Conduct a reconnaissance survey to document additional plant species not previously documented during the 2023 surveys, in particular, any plant taxa that are state or federally listed as threatened or endangered, or candidate species for listing.
- Conduct a reconnaissance-level wildlife survey to document native bird species, in particular, this study focused on scanning the habitat in the 2025 BSA parcels for the threatened Hawaiian goose (*Branta sandvicensis*) and Hawaiian stilt (*Himantopus mexicanus knudseni*). This is because both these species were observed at multiple locations during the 2023 BSA.
- Identify sensitive habitats (e.g., suitable breeding habitat for nene or Hawaiian stilts for foraging or nesting) that should be avoided as part of the Project design and provide the information to the engineers to support their design considerations.
- Consistent with the scope of the 2023 biological surveys, this study did not include surveys for invertebrates (insects), Hawaii's only terrestrial native mammals, the Hawaiian hoary bat (Lasiurus cinereus semotus), Hawaiian listed seabirds—Hawaiian petrel (*Pterodroma sandwichensis*), Band-rumped-storm-petrel (*Hydrobates castro*), and the threatened Newell's shearwater (*Puffinus newelli*). An assessment of potential impacts to these taxa are addressed in the DEIS published in 2024.

Methods

Prior to the survey, we reviewed the vegetation and wildlife data from the completed 2023 surveys. The habitats surveyed provided a good indication of what we might expect in the 2025 BSA parcels. Prior to the field survey we also coordinated closely with WSP and HDOT to get safe access to the 2025 BSA parcels. The field surveys for the 2025 BSA parcels were conducted on March 19, March 25, April 2 and April 3. In general, clear skies, and hot and humid conditions with mild trade winds were present on all four of the field studies. The biologists walked through the accessible areas of the 2025 BSA parcels searching for the presence of rare, threatened, or endangered plants. A handheld Global Positioning System device preloaded with spatial data (e.g., BSA boundary) was used to navigate during the survey and record field observations. In general, rocky outcrops, shaded areas, and topographic depressions, which are more likely to support native plant species, were surveyed more extensively. To survey birds, visual and auditory detection, as well as secondary indicators (e.g., nests) were used to identify the species present. Bird point counts were not conducted because the quantitative data gathered in 2023 is representative of the bird species in the general vicinity of the Project Area. Each parcel was carefully scanned to look for nene and other Hawaiian waterbirds in addition to making casual observations throughout the survey.

Results

No rare, threatened, or endangered plant species were observed in the 2025 BSA parcels. Also, no native bird species were observed in or around the 2025 BSA parcels. The narrative below describes observations made at each of the 13 2025 BSA parcels during the survey regarding habitat type, plants, birds, and mammals. The numbering below corresponds to the parcel numbers on Figures 2 and 3. The photos referenced in the narrative below are included as an attachment to this memo (Attachment 1).

1. Parcel 1 in Ukumehame is about 0.6 acres and is intersected in the east-west direction by the County Road that leads to the Maui County Firing Range. The triangular area to the north of the County Road is Kiawe Woodland with dense ground cover of pickle weed (*Batis maritima*) (Photo 1). The kiawe trees appeared to be stressed with mostly bare or leafless branches. The portion south of the County Road overlaps HDOT's sedimentation basin. The top of the bank was mostly bare ground with the outer slopes sparsely vegetated with kiawe trees and weedy grasses such as guinea grass and buffel grass. The small slither of the bed of the basin was mostly covered with cocklebur (*Xanthium strumarium*) shrubs (Photo 2).
2. Parcel 2 is about 2.7 acres, on the opposite side of Pohaku Aeko Street from Parcel 4 and to the south of it. Vegetation here can be characterized as Haole Koa Pluchea Shrubland. Large stretches of haole koa stand here were dead although the reason was not obvious in the field (Photo 3). *Pluchea* shrubs were common with kiawe and opiuma trees scattered throughout and buffel grass was abundant as ground cover. An old irrigation ditch enters this parcel from the southwest corner and terminates somewhat in the center. Salt bush (*Atriplex suberecta*) was common in the moist bed of this ditch with several weedy species such as radiate finger grass (*Chloris spp.*), and scattered plants of the native akulikuli (*Sesuvium portulacastrum*) on the banks.
3. Parcel 3 is about 0.4 acres with Pohaku Aeko Street intersecting it in the east-west direction. The portion to the north of the Street was a dense stand of kiawe opiuma woodland. However, on the opposite side of the street, in the southern portion, the vegetation had been cleared and there were a few large logs piled up next to the street (Photo 4).
4. Parcel 4 is a small, about 0.2 acre parcel along Pohaku Aeko Street, just before it terminates at the existing Honoapiilani Highway. Vegetation here is a somewhat open kiawe opiuma woodland with a dense understory of dry buffel grass (Photo 5). Kiawe trees in this parcel appeared stressed with dry leafless branches.

5. Parcel 5 is about 0.6 acres and mostly overlap the intersection of the existing Honoapiilani Highway with Ehehene Street (Photo 6). The concrete culverts under Ehehene Street border the north and southern borders of this parcel. Vegetation bordering this parcel is mostly composed of weedy species such as haole koa, guinea grass, and vining cow pea (*Macroptilium atropurpureum*) (Photo 6).

6. Parcel 6 is approximately 0.9 acres and is situated behind an old agricultural ditch that runs parallel to the existing Honoapiilani Highway. Dense vegetation precluded ground surveys for most of this parcel. Surveys from a higher vantage point with binoculars indicated a 100 percent vegetative cover of mostly *Pluchea* shrubs. There are also a few scattered trees of kiawe, milo (*Thespesia populnea*) trees, and haole koa shrubs (Photo 7). A small stretch of the ditch enters the northwestern corner of this parcel. The parcel was accessible from the northern end for a limited stretch where a few additional dry and disjointed ditches were found amidst the thick understory.

7. Parcel 7 is approximately 10.7 acres in the transition stretch from Olowalu to Ukumehame region. Except for a rectangular-shaped portion in the west, vegetation in this parcel can be characterized as kiawe opiuma woodland (Photo 8). The understory was patchy and varied from being just bare ground or buffer grass or a mix of shrubs such as haole koa and *Pluchea* spp. along with buffel grass. There were several crisscrossing dirt paths in this parcel, and it is highly disturbed with many places being used as dumpsites and homeless encampments. Rock piles and rock walls were also seen at several places toward the center of this parcel. Two gray francolins (*Francolinus pondicerianus*) were flushed from the buffel grass when surveying this parcel.

   The rectangular-shaped area in the western portion of this parcel is covered with dense shrubs of *Pluchea* spp. (Photo 9) and there is a small ditch that enters the southwestern corner. There is also a small, cleared area here under a grove of Mexican fan palms (Photo 9) with signs of human habitation. Northern cardinals (*Cardinalis cardinalis*) were seen when surveying this area.

8. Parcel 8 is approximately 4.9 acres and intersects Luawai Street that passes through private undeveloped residential lots in the Olowalu peninsula. There is another paved road that runs perpendicular to Luawai Street and meanders through the southern portion of this parcel toward Mopua Stream. Other than for these built-up linear alignments, vegetation in the majority of this parcel can be characterized as buffel grass grassland with kiawe woodland along the southwestern border (Photo 10). In the southeastern corner, at the intersection of the two roads there is a small garden with several native plants such as koa (*Acacia koa*), ilima, pohinahina (*Vitex rotunda*), and naupaka (*Scaevola taccada*). Also, at several locations in the southern portion, native plants such as pohinahina have been outplanted and are watered by an underground irrigation system.

9. Parcel 9 in the Olowalu regions is just east of parcel 10, separated by the proposed alignment and about 1.6 acres. The entire parcel is buffel grass dominated grassland with scattered kiawe trees (Photo 11). Shrubs of the native uhaloa were common in this parcel.

10. Parcel 10 in the Olowalu region is small, about 0.4 acre parcel and overlaps a dirt road that extends mauka from the inner cane haul road. There is dry buffel grass on both sides of this road (Photo 12).

11. Parcel 11 is a rectangular area of about 1.7 acres overlapping a mixed alien shrubland with 100 percent vegetative cover. Vegetation was somewhat patchy with some areas being either predominantly guinea grass (*Megathyrsus maximus*) or short (~2-4 feet) haole koa shrubs, or a mix of several shrub species such as haole koa, *Pluchea* spp. (*Pluchea indica* and *Pluchea x fosbergii*), castor bean (*Ricinus communis*), uhaloa and ilima (Photo 13). Tall Mexican fan palms (*Washingtonia robusta*), kiawe and opiuma trees were also seen scattered in this shrubland. The southeastern corner overlaps a portion of kiawe woodland that stretches further mauka from this parcel (Photo 13). Signs of browsing and grazing, deer droppings, and deer skeletal remains suggest that axis deer (*Axis axis*) were on this parcel. Warbling white-eyes (*Zosterops japonicus*) were commonly seen flying between trees in small groups.

12. Parcel 12 is a small area, approximately 0.3 acre, that largely overlaps an existing paved road that services the dump site for the Lahaina fire debris (Photo 14). Limited vegetation along the edges of this parcel is mostly composed of kiawe trees with an understory of buffel grass with other herbaceous weedy species.

13. Parcel 13 is approximately 6.6 acres toward the northern end the preferred alignment, near the Lahaina Bypass. The entire parcel is highly disturbed roadside habitat with the existing Honoapiilani Highway intersecting this parcel into a smaller northwestern portion and a relatively larger southeastern slither. The northwest portion makai (ocean side) of the existing Highway mostly overlaps an old and abandoned road dirt road with limited vegetated areas dominated with kiawe (*Prosopis pallida*) and buffel grass (*Cenchrus ciliaris*) in the understory (Photo 15). Uhaloa (*Waltheria indica*) a native shrub species was common along the roadside and few individuals of the native ilima (*Sida fallax*) were also present scattered amongst the buffel grass. A couple individuals of jungle fowl (*Gallus gallus*) were seen in the homeless encampment, makai of this portion of the parcel.

    The southeastern slither on the mauka side (mountain side) of the existing Highway overlaps a high (about 20 feet) berm at the top of which is a paved road that runs parallel to the existing Highway and appeared to be newly built to service the dumpsite for the Lahaina fire debris (Photo 16). This road was sign-posted for nene (Photo 17). The buffel grass grassland mauka of this road (but outside of the parcel) was scanned for nene on March 19 and again on March 25 but no birds were seen. Vegetation throughout the southeastern section of the parcel is also predominantly a buffel-grass grassland. Scattered shrubs of native uhaloa and ilima stood out in this otherwise alien dominated dry grassland. One individual of the native aalii (*Dodonaea viscosa*) was also found along the upper paved road. At the bottom on the berm there is a fenced-in area along the roadside that had thickets of kiawe, opiuma (*Pithecellobium dulce*), haole koa (*Leucaena leucocephala*) trees with an understory of mostly uhaloa and buffel grass. Other weedy species in this parcel were alani (*Boerhavia repens*), little bell (*Ipomoea triloba*), puncture vine (*Tribulus terrestris*), and swollen finger grass (*Chloris barbata*).

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Figure 1. Project Vicinity
Honoapiilani Highway Improvements Project
Biological Survey of Additional Areas for the Preferred Alignment (4692-02)
April 2025

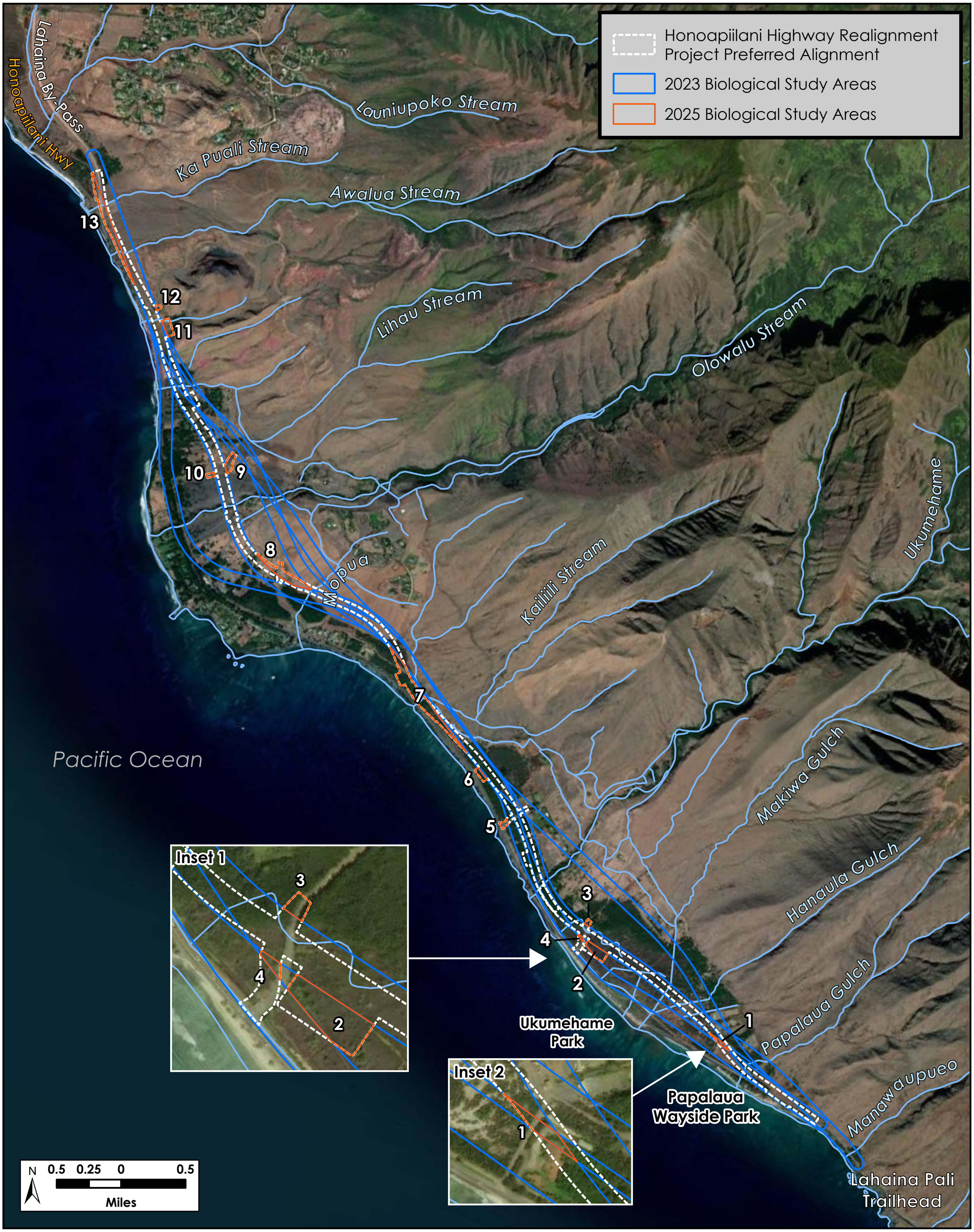

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Figure 2. Honoapiilani Highway Realignment Project Biological Study Area

Honoapiilani Highway Improvements Project

Biological Survey of Additional Areas for the Preferred Alignment (4692-02)

April 2025

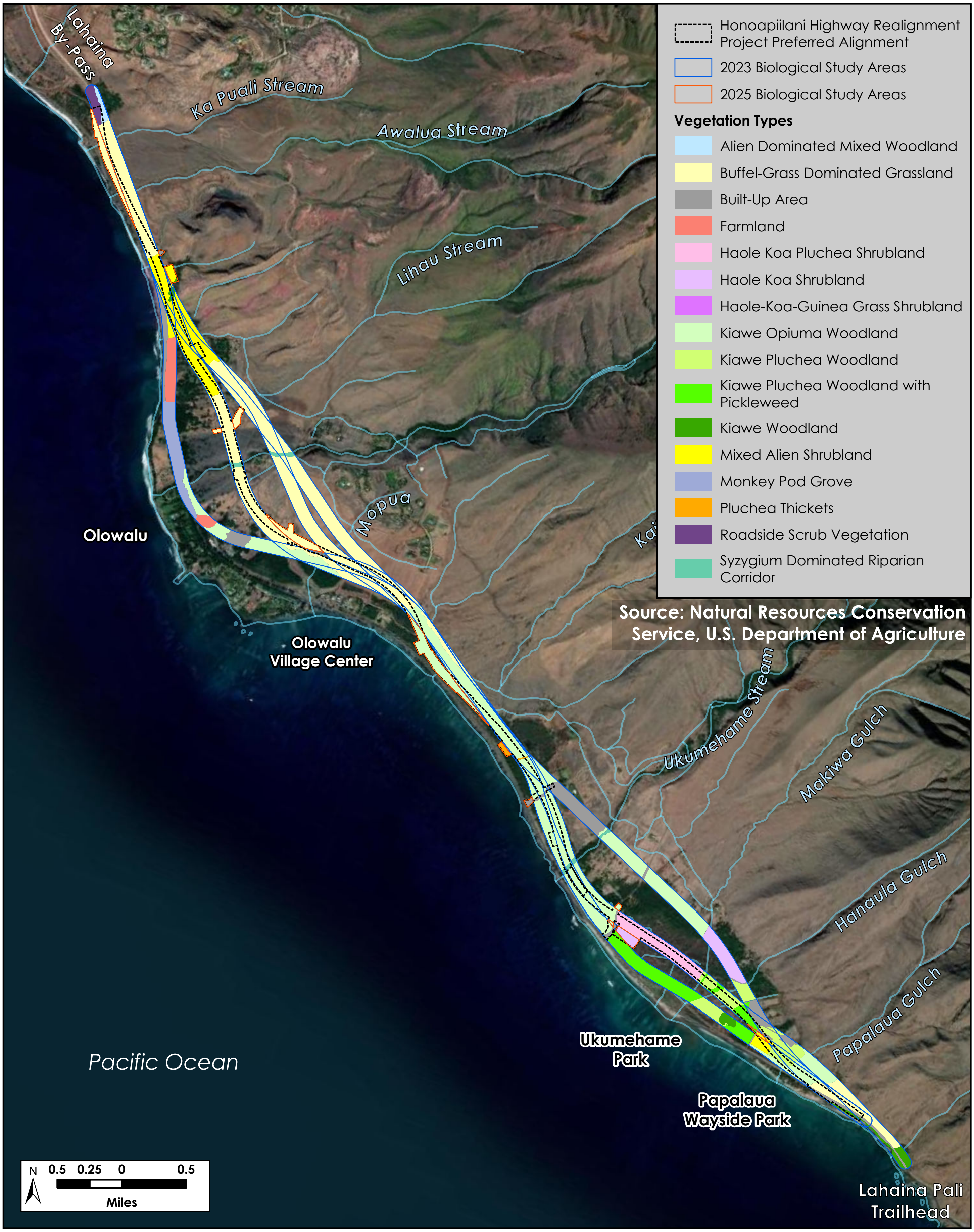

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Figure 3. Habitat/Vegetation Types
Honoapiilani Highway Improvements Project
Biological Survey of Additional Areas for the Preferred Alignment (4692-02)
April 2025

Conclusion

In conclusion, this study did not find any botanical concerns in the BSA. No plant species that are state or federally listed as threatened or endangered, a candidate species for listing, a rare native plant species, or a native plant species of concern were found in the BSA. All 13 additional parcels of the 2025 BSA are highly disturbed with a history of vegetation disturbance and landscape level modification. The native plant species—uhaloa, ilima, aalii, and milo that were found to naturally occur in the BSA are not likely to be adversely affected because these species have a wider distribution on Maui and elsewhere in the state. The endemic koa trees seen in the vicinity of the undeveloped Olowalu residential lots were planted for landscaping and did not occur naturally there.

No bird species that are rare, state or federally listed as threatened or endangered, or a candidate species for listing, were seen during this study. However, it is possible that nene, which are known to occur in the vicinity of the Project Area, may use the buffel grass grassland habitat seen in some of the 2025 BSA parcels. No open bodies (ditches seen were heavily vegetated) of water were present in the 2025 BSA and no suitable habitat for Hawaiian stilts was found in the 2025 BSA but, as the 2023 biological studies indicated, these birds are generally known to occur in the vicinity of the Project Area.

Attachment 1. Photos of the 2025 Biological Study Area Parcels

Photo 1. Parcel 1 – Northern Portion with Mostly Stressed and Dead Kiawe Trees and a Dense Ground Cover of Pickleweed (*Batis maritima*)

Photo 2. Parcel 1 – Southern Portion Overlap the Berm (Foreground) of the Sedimentation Basin with Kiawe Trees and Weedy Grasses with Mostly Cocklebur (*Xanthium strumarium*) in the Basin

Photo 3. Parcel 2 - Haole Koa Pluchea Shrubland with a Stretch of Dead Haole Koa (*Leucaena leucocephala*) Trees

Photo 4. Parcel 3 – Kiawe Opiuma Woodland to the North of Pohaku Aeko Street (Left) and Cleared Vegetation in the Portion to the South

Photo 5. Parcel 4 – Kiawe Opiuma Woodland with Buffel Grass in the Understory

Photo 6. Parcel 5 – The Built-Up Portion of the Existing Honoapiilani Highway and Ehehene Street Overlap Parcel 5

Photo 7. Parcel 6 – Pluchea Thickets with Scattered Trees of Kiawe (Prosopis pallida), Milo (*Thespesia populnea*), and Haole Koa (*Leucaena leucocephala*)

Photo 8. Parcel 7 – Kiawe Opiuma Woodland Along an Inner Dirt Road with Mostly Buffel Grass in the Understory

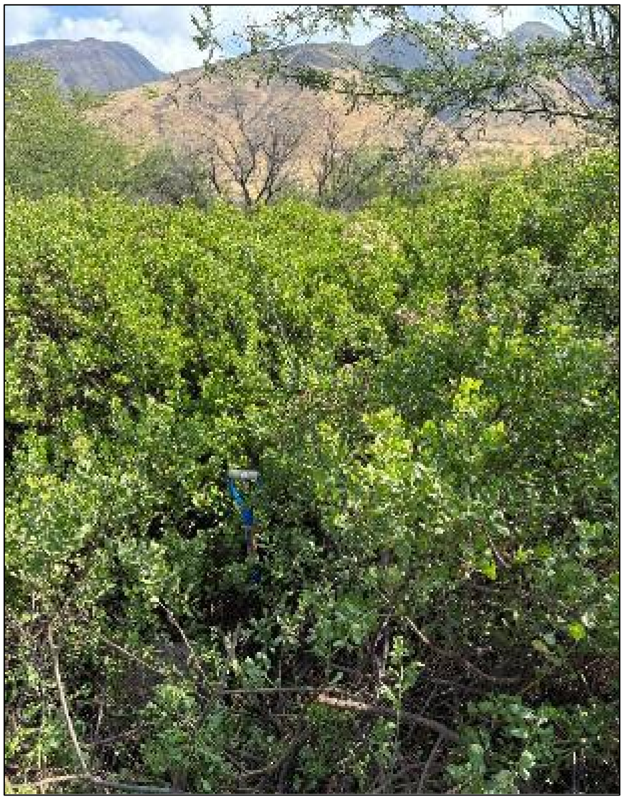


Photo 9. Parcel 7 – Vegetation in the Western Portion, Thickets of *Pluchea* Shrubs (Left) and Grove of Mexican Fan Palms (*Washingtonia robusta*)

Photo 10. Parcel 8 – Luawai Street and Buffel Grass Grassland with a Small Native Plant Garden (Circled in Red)

Photo11. Parcel 9 – Buffel Grass Dominated Grassland with Kiawe (*Prosopis pallida*) Trees

Photo 12. Parcel 10 – Dirt Road Overlaps Most of This Small Parcel with Dry Buffel Grass and Other Herbaceous Weeds Bordering this Road

Photo 13. Parcel 11 – Mixed Alien Shrubland in the Foreground with Kiawe Wood in the Background Overlapping the Southeastern Corner of this Parcel

Photo 14. Parcel 12 – Overlaps a Paved Road with Kiawe (*Prosopis pallida*) Trees and Buffel Grass (*Cenchrus ciliaris*) Along the Vegetated Edges

Photo 15. Parcel 13 – Northwest Section Mostly Overlaps a Dirt Road with Kiawe (*Prosopis pallida*) and Buffel Grass (*Cenchrus ciliaris*) in the Vegetated Portions

Photo 16. Parcel 13 – Southeast Section Overlaps the Roadside Berm Dominated with Buffel Grass Grassland; Transmission Lines (Upper Left Coner) Are Along an Inner Paved Road Leading to a Debris Dumpsite

Photo 17. Parcel 13 – Signpost to Watch Out for Nene (*Branta sandvicensis*) Along the Inner Paved Road in Parcel 13 that Cuts Through the Buffel Grass Grassland

Agency Correspondence

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

June 30, 2023

300 Ala Moana Blvd, Rm 3-229
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
FHWA-Hawaii.Intake@dot.gov

In Reply Refer To:
HDA-HI

Ms. Sarah Malloy
Regional Administrator (Acting), Pacific Islands Regional Office
National Oceanic and Atmospheric Administration
NOAA Inouye Regional Center, NMFS/PIRO
1845 Wasp Boulevard, Building 176
Honolulu, HI 96818

Subject: Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation
Honoapiilani Highway Improvements, West Maui, Ukumehame to Launiupoko
Lahaina, Island of Maui, State of Hawaii
Federal-aid Project No. RAEM-030-1(059)

Dear Ms. Malloy:

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii Department of Transportation (HDOT), is planning to improve Honoapiilani Highway (State Route 30) between milepost 11 and milepost 17 with State and federal funds.
Pursuant to Section 305(b)(2)(4) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the FHWA is requesting essential fish habitat (EFH) consultation with the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) for the proposed project. FHWA appreciates the early participation by NMFS and the initial feedback provided.

In this letter, the project team is providing an Essential Fish Habitat Analysis (EFHA) containing a description of the proposed action, an assessment of potential adverse effects, proposed ways to mitigate for any adverse effects, and a determination as to how the action would potentially affect EFH.

Description of the Proposed Action

The proposed project is in West Maui, in the areas served by the existing Honoapiilani Highway between milepost 11 and milepost 17. Honoapiilani Highway, which is part of Maui's Belt Road system, is a two-lane principal arterial highway that provides the sole access between communities along the west coast of Maui and the rest of the island. The proposed southeastern terminus at milepost 11 is in Ukumehame, in the vicinity of Papalaua Beach Park, and the northwestern terminus of the project is at milepost 17 in Launiupoko, where Honoapiilani

Highway currently intersects the southern terminus of the Lahaina Bypass. This approximately six-mile long and 3/4-mile-wide project area is composed predominantly of a coastal plain that includes the Ahupuaa of Ukumehame, Olowalu, and Launiupoko. Offshore, the Olowalu reef area, which extends from Ukumehame to Launiupoko, hosts about 1,000 acres of some of the healthiest and oldest living corals within the main Hawaiian Islands.

FHWA and HDOT developed four preliminary project alternatives. The project alternatives would be further refined as the Draft Environmental Impact Statement (EIS) is prepared, leading to the selection of a preferred alternative. The proposed project does not include work on the existing highway except where the new project joins the existing highway at the northern and southern connections points and potentially at connector roads to ensure continued access to residences, businesses, and public beaches. Depending on the selected alternative, there may be intersections at Luawai Street in Olowalu and Ehehene Street, Pohaku Aeko Street as well as a new driveway connect for direct access to the Ukumehame Firing Range. It is anticipated that there will be little or no new construction at the existing highway since these primary connector roads all have existing intersections with considerable infrastructure including left and right turn lanes on the existing highway as well as merge lanes for traffic turning from the side street onto the existing highway.

Additional information can be obtained at the project website, www.honoapiilanihwyimprovements.com.

Project Alternatives

A Preferred Alternative has not yet been identified. Four draft "Build Alternatives" have been identified and are being evaluated in the Draft EIS currently underway. Each alternative involves the construction of a new highway, which is mainly along a new alignment, further inland from the ocean. None of the alternatives involve work in the ocean. They may require bridges over the streams. All project alternatives would incorporate Best Management Practices (BMPs). Opportunities to avoid cultural and environmental constraints identified during the EIS technical studies would be considered in ongoing conceptual design work in support of the Draft EIS and determination of the Preferred Alternative.

The four alternatives are depicted in Figure 1 and brief descriptions are as follows:

> **Build Alternative 1 (Red Line)** has been adapted from the County of Maui's Pali to Puamana Parkway 2005 coastal or makai concept. This alignment has been "modified" to apply American Association of State Highway and Transportation Officials (AASHTO) design standards, bypass erosion areas, and avoid cultural resources. This alternative is just mauka of most inundation areas in Launiupuoko and Olowalu and maximizes use of the existing right-of-way (ROW).
>
> **Build Alternative 2 (Yellow Line)** has been adapted from the County of Maui's Pali to Puamana Parkway 2005 "middle" concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources.

Build Alternative 3 (Bright Green Line) has been adapted from the County of Maui's Pali to Puamana Parkway 2005 "mauka" concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources.

Build Alternative 4 (Purple Line) was also adapted from the County of Maui's Pali to Puamana Parkway 2005 mountain-ward or mauka concept. The alignment has been "corrected" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. The route through Olowalu town, which distinguishes this alignment, is based on landowner input provided in 2007. This alignment meets the 55 miles per hour (mph) design speed (with speed signs to be posted at 45 mph), while minimizing curves.

The alignments converge at several points and there are two distinct areas where the alignments all differ from one another: one in Olowalu and the other in Ukumehame. The preferred alternative may be selected from two proposed alternatives, one in each of the two differing areas.

The No-Build Alternative reflects future conditions if the proposed project were not constructed. Future conditions are based on projections of land-use and development that are likely to occur in 2045 Build Analysis timeframe. The roadway would continue to operate in its current location and condition, including at the several locations along the existing highway where the highway has been protected by various emergency stabilization projects. Additional stabilization efforts could be required in the future under the No Build Alternative.

For the proposed project, none of the four alternatives would require any disturbance or work in the ocean. While it is intended that the existing highway right-of-way would be transferred from the State to Maui County (where, consistent with Maui County park planning, it would be used to provide continued access to beaches and local residential and commercial uses) the proposed project does not include any work on the existing highway in the areas where prior emergency stabilizations have occurred.

It is also noted that no night work is anticipated during construction, and construction duration is anticipated to be no longer than two years. However, should night work be required, additional coordination would be conducted with NMFS to agree upon any other appropriate conservation measures.

Analysis of Potential Adverse Effects on EFH and Managed Species

The Western Pacific Regional Fishery Management Council (Council) has established EFH for Bottomfish and Seamount Groundfish, as well as Crustaceans, and Coral Reef Ecosystems as generally beginning in the marine water column at the shoreline, including tidally influenced stream areas surrounding all islands of Hawaii. Other Management Unit Species (MUS) include Precious Coral and Pelagic species; however, these specific EFH are too geographically distant to experience potential adverse effects from the proposed action.

The 2009 Hawaii Fishery Ecosystem Plan (FEP) describes the physical limits of EFH for each MUS and possible sources of adverse impacts to the EFH from non-fishing activities. These possible sources identified in the FEP which may be relevant to this project include coastal construction and nutrient loading. Potential adverse impacts of these activities as discussed below, include turbidity plumes, biological availability of toxic substances, contaminant runoff, and sediment runoff.

The Olowalu reef area offshore of the project is a major marine resource proximate to the project footprint and the potential effect from the proposed action on its resources is evaluated in this EFHA. Olowalu Reef has long been considered Maui's 'crown jewel' and one of the Hawaiian Island's greatest treasures. This thousand-acre coral reef is home to an incredible diversity of marine life including large populations of manta rays, sea turtles, reef sharks, and a multitude of tropical fish species. Olowalu Reef is vitally important to the surrounding underwater ecosystems of Maui, Molokai and Lanai, serving as a nursery to replenish and populate nearby reefs.

The proposed project is being evaluated as a potential source of environmental stressors of concern to the Olowalu reef area including: physical damage to the benthos (e.g., corals and seagrass), sedimentation and turbidity, introduction of chemical contaminants, introduction of invasive species, and noise. There may also be cumulative impacts from the highway reconstruction and other human activities on the West Maui coast.

Physical damage to the benthos (e.g., corals and seagrass)

Physical damage to corals can occur due to abrasion or breaking of colonies. Activities that may impart physical damage from the construction projects can include dredging, filling discharge (e.g., rocks, dirt, cement, etc.), anchoring vessels/barges and silt curtains, and using heavy equipment in-water.

The proposed project does not include any work in the ocean so would not impart physical damage to the corals or other ocean life. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Sedimentation and Turbidity

Increased sedimentation and turbidity can cause smothering of benthic species and block sunlight necessary for species that rely on photosynthesis. For fish, sedimentation is less likely to cause significant impacts because of their mobility, but some effects are still possible.

Sedimentation and turbidity are potential adverse effects. Use of proper BMPs, as detailed below, would avoid or minimize potential adverse effects and no additional mitigation would be anticipated. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions. The project would require a National Pollutant Discharge Elimination System (NPDES) permit and the associated Stormwater Pollution Prevention Plan (SWPPP) to minimize sedimentation and turbidity effects.

Hui O Ka Wai Ola (huiokawaiola.com) and the Hawaii Department of Health regularly sample water quality, including turbidity, along the project area coast. Their work since 2006 provides a valuable record of nearshore water quality conditions. During construction, their monitoring data would allow HDOT to evaluate the effectiveness of the construction BMPs and quickly respond if there are any abnormal turbidity results.

Introduction of Nutrients, Chemical Contaminants, and Freshwater

Increases in nutrients (i.e., from earthmoving, land use changes, and runoff), pollutants and contaminants (i.e., from earthmoving and equipment), and freshwater to the marine environment can reduce fitness and cause mortality of exposed organisms. Increases of land-based runoffs and discharges can subject benthic communities to adverse exposures and potential degradation of condition and mortality. Water conditions around coral reefs are often oligotrophic, and introduction of nutrients can change water conditions from a clear, nutrient limited baseline. The construction site's primary potential sources of nutrient loading are sediment runoff from ground disturbance and the storage and use of construction equipment. When not properly maintained, equipment could release contaminants (oil, fuel, etc.) into the marine environment. Accidental releases or spills due to unanticipated circumstances are also possible. Contaminant runoff could be generated from storage and use of construction equipment that is leaking fuel or oil, and/or improperly stored construction materials being exposed to stormwater runoff.

The release of contaminants such as oil or fuel and the introduction of nutrients are potential adverse effects addressed by proposed BMPs which would avoid or minimize potential adverse effects and no additional mitigation would be anticipated. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Introduction of Invasive Species

Introduced species are organisms that have been moved, intentionally or unintentionally, into areas where they do not naturally occur. Species can be introduced to new biogeographies, typically via transport on vessel hulls, in ballast waters, or on equipment. Invasive species can rapidly increase in abundance to the point that they come to dominate their new environment, creating adverse ecological effects to other species of the ecosystem and the functions and services it may provide. Invasive species can decrease species diversity, change trophic structure, and diminish physical structure, but adverse effects are highly variable and species-specific.

Invasive species are both a threat to the ocean and the land ecosystems. Specific BMPs to prevent invasive species from being spread by the project would avoid or minimize potential adverse effects and no additional mitigation would be anticipated. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Noise

Construction noise has been shown to have a broad range of potential effects. However, no noise would be directly generated in the ocean by this project. BMPs suggested are directed at any bridge construction on the streams entering the ocean.

Given the proposed implementation of BMPs and minimization measures, which are described further below, potential adverse effects would be avoided and no additional mitigation would be anticipated. Noise is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Project Best Management Practices and Avoidance and Minimization Measures

BMPs would be implemented during construction to minimize the potential for impacts to water quality. BMPs for in-water and land-based construction would be implemented in accordance with the documented approach, "*An Integrated Storm Water Management Approach and a Summary of Clear Water Diversion and Isolation Best Management Practices for Use in the State of Hawaii*" by the Federal Highway Administration and Hawaii Department of Transportation Practitioners Guide (2016) or the *Construction Best Management Practices Field Manual* by the State of Hawaii Department of Transportation (2008).

Specific BMPs and minimization measures to be implemented include:

1. Waste Management – Concrete wastes, solid wastes, and any sanitary/septic wastes would be located away from and managed to assure no contamination to the ocean or critical habitats.

2. Vehicle and Equipment Management – All vehicles and equipment cleaning, maintenance, and refueling would be located away from and managed to assure no contamination to the critical habitats. Invasive species controls shall be maintained to ensure that all materials transported from off-site are free of such species.

3. Stormwater Management and Erosion Control – The project would require an NPDES permit with a SWPPP. The Contractor would be required to install and maintain BMPs as part of the proposed project. Site-specific stormwater BMPs would be implemented and/or installed at the staging and work areas to prevent water quality degradation associated with stormwater runoff. Stormwater BMPs would include maintaining equipment in good working order, storing equipment and materials away from the ocean or stream bank with strategic placement of absorbent material, such as fiber rolls, as a buffer between equipment and nearby waterbodies. Drip pans shall also be maintained beneath construction equipment. The Contractor would be required to prevent any debris from falling into the water.

4. The HDOT Standard Specifications for Road and Bridge Construction Section 209 Temporary Water Pollution, Dust, and Erosion Control would be followed.

5. The project would require temporary construction laydown areas. Stockpiling, storage, and equipment staging would utilize appropriate BMPs to prevent potential surface runoff from entering the stream. No stockpiling, storage, or heavy equipment would be placed in the streams.

In addition, NMFS provided a list of standard BMPs (Enclosure: Initial BMPs to Consider for Road Construction Projects Version 27 Feb 2023). These BMPs have been evaluated for applicability to the proposed project and those that are appropriate are presented below and would be used in the design and construction of the Project.

Specific BMPs and minimization measures to be implemented include:

A. For Physical Impacts to Benthic Communities (most of these are not considered applicable since there is no anticipated construction in the marine environment).
   1. Prevent trash and debris from entering the marine environment during the project.
   2. For anticipated stream crossings, all temporary structures must be removed at the completion of in-water work.
   3. For anticipated stream crossings, do not stockpile or stage materials in the marine environment unless absolutely necessary. Place material that is stored in the marine environment on unconsolidated sediments devoid of coral and seagrass.

B. For Increase in Sedimentation and/or Turbidity
   1. Install sediment, turbidity, and/or pneumatic curtains, and use real-time monitoring (automated or manual) to detect failure and implement stop-work processes if pre-determined project thresholds are reached (use standards from Clean Water Act 401 water quality certification). In areas of soft sediment, consider partial length turbidity curtains to reduce resuspension of sediment during high winds and currents.
   2. Maintain baseline water flow, volume, and velocity of the waterbody.
   3. Use natural or bio-engineered solutions when feasible.
   4. Fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.
   5. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction conditions and elevations.
   6. Minimize disturbances to stream banks, and place abutments outside of the floodplain whenever possible. Seek to maintain baseline water flow volume and velocity within the system.
   7. Design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable.
   8. Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.

C. For Increase in Nutrients, Pollution, Contaminants, and Freshwater
   1. Conduct work during the dry season when possible; stop work during storms or heavy rains.
   2. Prevent discharges into the water.
   3. Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (e.g., oil, fuel) leaks. Work must be stopped until leaks are repaired, and equipment is cleaned. Equipment should always be stored in appropriate staging area designed to be preventative in terms of containing unexpected spills when equipment is not in use or during fueling.
   4. All fueling or repairs to equipment must be done in a location with the appropriate controls that prevent the introduction of contaminants to marine environment.
   5. Fueling of project-related vehicles and equipment shall take place at least 50 feet, or the maximum distance possible, from the water and within a containment area, preferably over an impervious surface.
   6. Use of treated wood that would be in contact with the water is not authorized.

7. Use materials that are nontoxic to aquatic organisms, such as untreated wood, concrete, or steel (avoid pressure treated lumber).
8. Prevent bentonite and other drilling fluids from contacting benthic organisms.
9. Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column.

As provided by NMFS, these remaining BMPs and minimization measures do not apply to the project primarily since there is no anticipated in-water ocean construction associated with the Project.

A. For Physical Impacts to Benthic Communities
    1. Restrict all physical contact with the bottom to unconsolidated sediments devoid of coral and seagrass.
    2. Perform pre-deployment reconnaissance (e.g., divers, drop cameras) to ensure that all anchors are set on hard or sandy bottom devoid of corals and seagrass and that chosen anchor locations take into consideration damage that could occur from the anchor chain if the vessel swings due to currents or tides.
    3. Prior to mobilizing, ensure all equipment, ballast, and vessel hulls do not pose a risk of introducing new invasive species and will not increase abundance of invasive species present at the project location.
    4. Relocate infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities according to an approved relocation plan. If infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities will be removed or destroyed as part of permitted activities, relocate these materials to an appropriate receiving site. Equipment, anchors, structures, or fills shall not be deployed in project areas containing live corals, seagrass beds, or visible benthic organisms. Perform pre-deployment reconnaissance (e.g., divers, drop cameras, etc.) to ensure these resources are avoided.
    5. Minimize direct impact (direct or indirect contact causing damage) by divers and construction related tools, equipment, and materials with benthic organisms, regardless of size, especially corals and seagrass.
    6. Maintain all structures, gears, instruments, mooring lines, and equipment to prevent failures.
    7. All objects lowered to the bottom shall be lowered in a controlled manner. Note: This can be achieved using buoyancy controls such as lift bags, or the use of cranes, winches, or other equipment that affect positive control over the rate of descent. This often requires skilled in-water observation.
    8. Select work platforms based on the following preferential hierarchy:
        A. conduct all work from land or an existing structure;
        B. use a barge with auto-positioning systems where thrusters will not cause increased turbidity;
        C. anchor barges to (1) shoreline infrastructure; (2) nearby existing moorings; and, (3) anchors or spuds on sand only (as possible, have SCUBA divers lay anchors by hand in sand areas).
    10. Ensure new structures minimize shading impacts to marine habitats.
    11. Mooring systems (e.g., buoys, chains, ropes) must:
        A. be kept taut to the minimum length necessary.

   B. employ the minimum line length necessary to account for expected fluctuations in water depth due to tides or waves.
   C. use a mid-line floats or other buoyancy devices to prevent contact with the ocean floor.
   D. be properly maintained.
12. Ensure structures are properly weighted to prevent movement from currents or waves and implement a maintenance plan to ensure integrity over time.
13. Require a long-term maintenance plan for gear, instruments, and equipment to prevent failures leading to permanent adverse effects to EFH (e.g. scour or vessel groundings).

B. For Increase in Sedimentation and/or Turbidity
   1. Collect all accumulated sediment and/or debris and remove them entirely from the water and place onto a surface vessel; debris should not be towed outside a containment.
   2. Debris and sediment that is removed from the water shall be disposed of at an appropriate upland location. Sediment and debris must be contained while in transit or on the shore.
   3. Project operations must cease under unusual conditions, such as large tidal events, storms, and high surf conditions.
   4. Conduct intertidal work at low and/or slack tide to the greatest extent feasible.
   5. To minimize impacts to coral larvae, you should avoid in-water work during mass-coral spawning times or peak coral spawning seasons. Permittees should coordinate with local NMFS Habitat Conservation Division representatives to determine the exact period when coral spawning would occur for the given year at the project site.
   6. Use cofferdams to dewater the project impact site for activities.
   7. Utilize environmental clamshell buckets for mechanical dredging.

C. For Increase in Nutrients, Pollution, Contaminants, and Freshwater
   1. Use diffusers on the end of subtidal discharge pipes to minimize impacts from discharges.

D. For Increase in Acoustic Impacts
   1. Use a vibratory hammer to install piles when possible. Under conditions where impact hammers are required, drive as deep as possible with a vibratory hammer prior to the use of an impact hammer.
   2. Implement measures to attenuate the sound or minimize impacts to aquatic resources during pile installation. Methods to mitigate sound impacts include but are not limited to the following: surround the pile with a dewatered cofferdam and/or air bubble curtain system.

Conclusion

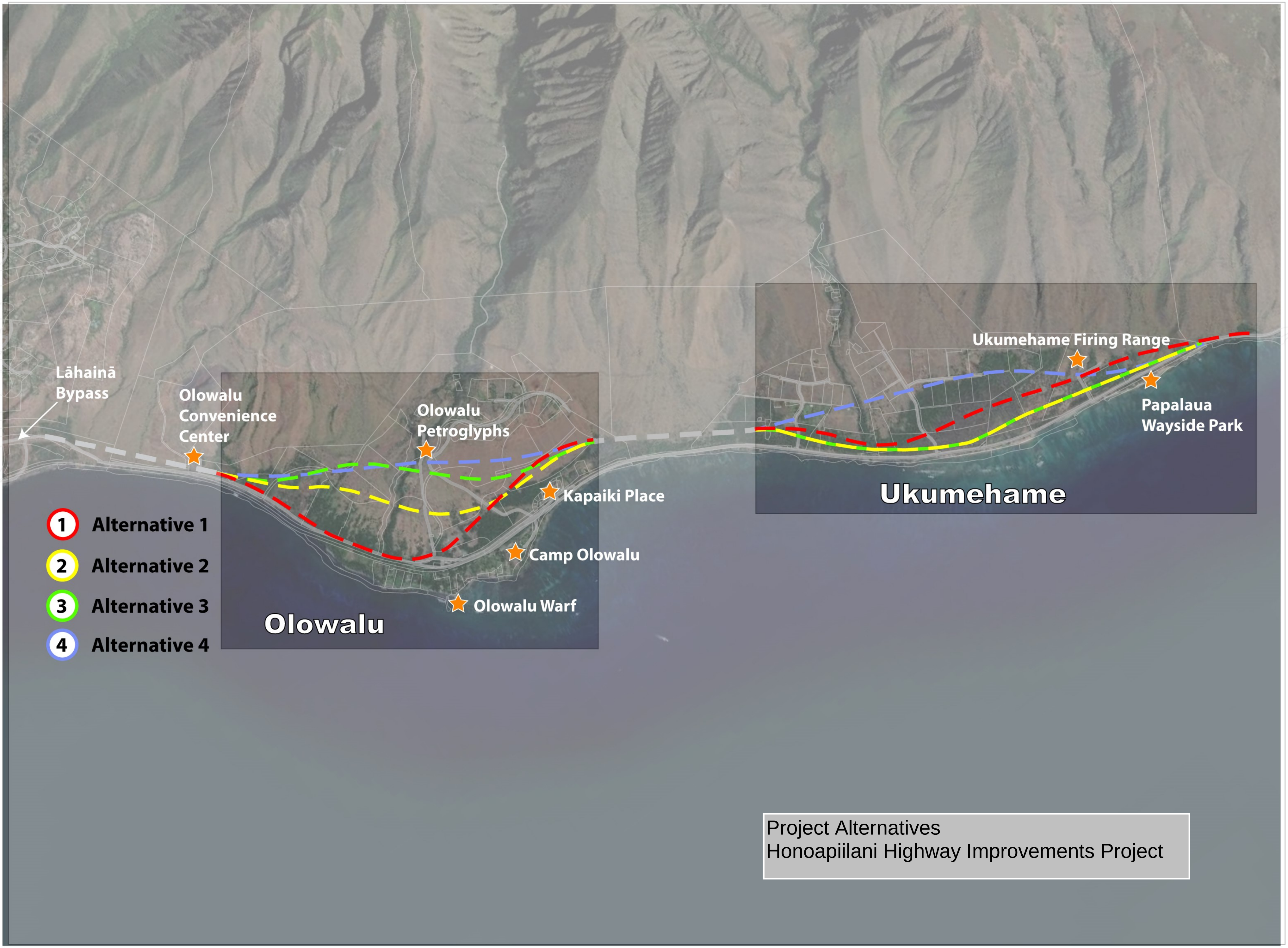
Based on the nature of the proposed work and implementation of the proposed BMPs, the FHWA believes there will be no more than minimal adverse effects to EFH and managed species. We are seeking concurrence that the proposed action will have no more than minimal adverse effects to EFH and managed species. We respectfully request your response within 30 days of receipt of this letter.

If you have any questions, please feel free to contact Meesa Otani, Environmental Engineer, at (808) 541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

for Richelle M. Takara, P.E.
Division Administrator

Enclosures



Project Alternatives
Honoapiilani Highway Improvements Project

Enclosure: Initial BMPs to Consider for Road Construction Projects
Version 27 Feb 2023

A. For Physical Impacts to Benthic Communities

1. Restrict all physical contact with the bottom to unconsolidated sediments devoid of coral and seagrass.

2. Perform pre-deployment reconnaissance (e.g., divers, drop cameras) to ensure that all anchors are set on hard or sandy bottom devoid of corals and seagrass and that chosen anchor locations take into consideration damage that could occur from the anchor chain if the vessel swings due to currents or tides.

3. Prior to mobilizing, ensure all equipment, ballast, and vessel hulls do not pose a risk of introducing new invasive species and will not increase abundance of invasive species present at the project location.

4. Relocate infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities according to an approved relocation plan. If infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities will be removed or destroyed as part of permitted activities, relocate these materials to an appropriate receiving site. Equipment, anchors, structures, or fills shall not be deployed in project areas containing live corals, seagrass beds, or visible benthic organisms. Perform pre-deployment reconnaissance (e.g., divers, drop cameras, etc.) to ensure these resources are avoided.

5. Minimize direct impact (direct or indirect contact causing damage) by divers and construction related tools, equipment, and materials with benthic organisms, regardless of size, especially corals and seagrass.

6. Prevent trash and debris from entering the marine environment during the project.

7. Maintain all structures, gears, instruments, mooring lines, and equipment to prevent failures.

8. All objects lowered to the bottom shall be lowered in a controlled manner. Note: This can be achieved using buoyancy controls such as lift bags, or the use of cranes, winches, or other equipment that affect positive control over the rate of descent. This often requires skilled in-water observation.

9. Select work platforms based on the following preferential hierarchy:

A. conduct all work from land or an existing structure;

B. use a barge with auto-positioning systems where thrusters will not cause increased turbidity;

C. anchor barges to (1) shoreline infrastructure; (2) nearby existing moorings; and, (3) anchors or spuds on sand only (as possible, have SCUBA divers lay anchors by hand in sand areas).

10. Ensure new structures minimize shading impacts to marine habitats.

11. Mooring systems (e.g., buoys, chains, ropes) must:

A. be kept taut to the minimum length necessary.

B. employ the minimum line length necessary to account for expected fluctuations in water depth due to tides or waves.

C. use a mid-line floats or other buoyancy devices to prevent contact with the ocean floor.

D. be properly maintained.

12. Ensure structures are properly weighted to prevent movement from currents or waves and implement a maintenance plan to ensure integrity over time.

13. Require a long-term maintenance plan for gear, instruments, and equipment to prevent failures leading to permanent adverse effects to EFH (e.g. scour or vessel groundings).
14. All temporary structures must be removed at the completion of in-water work.
15. Do not stockpile or stage materials in the marine environment unless absolutely necessary. Place material that is stored in the marine environment on unconsolidated sediments devoid of coral and seagrass.

B. For Increase in Sedimentation and/or Turbidity

1. Install sediment, turbidity, and/or pneumatic curtains, and use real-time monitoring (automated or manual) to detect failure and implement stop-work processes if pre-determined project thresholds are reached (use standards from Clean Water Act 401 water quality certification). In areas of soft sediment, consider partial length turbidity curtains to reduce resuspension of sediment during high winds and currents.
2. Collect all accumulated sediment and/or debris and remove them entirely from the water and place onto a surface vessel; debris should not be towed outside a containment.
3. Debris and sediment that is removed from the water shall be disposed of at an appropriate upland location. Sediment and debris must be contained while in transit or on the shore.
4. Project operations must cease under unusual conditions, such as large tidal events, storms, and high surf conditions.
5. Conduct intertidal work at low and/or slack tide to the greatest extent feasible.
6. To minimize impacts to coral larvae, you should avoid in-water work during mass-coral spawning times or peak coral spawning seasons. Permittees should coordinate with local NMFS Habitat Conservation Division representatives to determine the exact period when coral spawning would occur for the given year at the project site.
7. Maintain baseline water flow, volume, and velocity of the waterbody.
8. Use natural or bio-engineered solutions when feasible.
9. Fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.
10. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction conditions and elevations.
11. Use cofferdams to dewater the project impact site for activities.
12. Utilize environmental clamshell buckets for mechanical dredging.
13. Minimize disturbances to stream banks, and place abutments outside of the floodplain whenever possible. Seek to maintain baseline water flow volume and velocity within the system.
14. Design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable.
15. Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.

C. For Increase in Nutrients, Pollution, Contaminants, and Freshwater

1. Conduct work during the dry season when possible; stop work during storms or heavy rains.
2. Prevent discharges into the water.
3. Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (e.g., oil, fuel) leaks. Work must be stopped until leaks are repaired, and equipment is cleaned. Equipment should always be stored in appropriate

staging area designed to be preventative in terms of containing unexpected spills when equipment is not in use or during fueling.

4. All fueling or repairs to equipment must be done in a location with the appropriate controls that prevent the introduction of contaminants to marine environment
5. Fueling of project-related vehicles and equipment shall take place at least 50 feet, or the maximum distance possible, from the water and within a containment area, preferably over an impervious surface.
6. Use of treated wood that would be in contact with the water is not authorized.
7. Use materials that are nontoxic to aquatic organisms, such as untreated wood, concrete, or steel (avoid pressure treated lumber).
8. Use diffusers on the end of subtidal discharge pipes to minimize impacts from discharges.
9. Prevent bentonite and other drilling fluids from contacting benthic organisms.
10. Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column.

D. For Increase in Acoustic Impacts

1. Use a vibratory hammer to install piles when possible. Under conditions where impact hammers are required, drive as deep as possible with a vibratory hammer prior to the use of an impact hammer.
2. Implement measures to attenuate the sound or minimize impacts to aquatic resources during pile installation. Methods to mitigate sound impacts include, but are not limited to the following: surround the pile with a dewatered cofferdam and/or air bubble curtain system.

Sullivan, James

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Friday, July 7, 2023 2:51 PM
To: Otani, Meesa (FHWA)
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hello Meesa,

While reviewing your submission, I had several questions and comments that came up that I wanted to mention/ address for your review.

1. For the species that May be Affected/ Not Likely Adversely Affected, I would recommend limiting this to species found in coastal waters as any pollution/ waste/ turbidity concerns are not likely to affect pelagic waters. I would suggest that this list only needs to include Central North Pacific green sea turtles, Hawksbill sea turtles, Hawaiian monk seals, and monk seal critical habitat. Does that work for you?
2. Since an alternative has not yet been determined, but they are all likely to produce the same stressors, we would likely review all four alternatives as part of this action.
3. For the four alternatives, it looks like the new highway construction will join up with the old highway at some point along the coast (or use sections of the old highway). Since this will likely result in construction along coastal areas there may be the potential for disturbances from human activity. I would suggest including the following BMPs:

- Constant vigilance will be kept for the presence of ESA-listed species during all aspects of the permitted action. A responsible party, i.e., permittee/site manager/project supervisor, will designate a competent observer to search/monitor work sites and the areas adjacent to the authorized work area for ESA-listed species.
- All work will be postponed or halted when ESA-listed marine species are within 50 m of the proposed work and will only begin/resume after the animals have voluntarily departed the area.
- Project-related personnel will NOT attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species.

Please feel free to reach out if you have any further concerns, and I will let you know when I initiate the consultation.

Thanks
Jamie Marchetti

On Fri, Jun 30, 2023 at 11:46 AM 'Otani, Meesa (FHWA)' via _NMFS PIR ESHESA <efhesaconsult@noaa.gov> wrote:

> Hello,
>
> Attached is the Endangered Species Act and Essential Fish Habitat consultation for the Honoapiilani Highway Improvements, Ukumehame to Launiupoko project on the Island of Maui.

Please let me know if you have any questions.

Thank you!

Meesa Otani

Environmental Engineer

Federal Highway Administration, Hawaii Division

300 Ala Moana Blvd., Room 3-229

Honolulu, Hawaii 96850

(808) 541-2316

meesa.otani@dot.gov

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Monday, July 31, 2023 1:33 PM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: Powell, Lisa (FHWA) <lisa.powell@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hello Meesa,

Sorry for the continued questions, just trying to gather enough information to do a proper exposure-analysis.

Though the initial submitted ESA letter states, *no noise would be directly generated in the ocean by this project,* I am attempting to determine if any in-stream work may produce noise isopleths which may reach the ocean, or monk seal habitat. From the provided list above, would any of the following activities occur in-stream (and as a result may produce in-water noise)?

- Geotechnical drilling
- Spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts)
- Sheet driving for temporary excavations
- The use of land-based, wetland environment cofferdams
- Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer
- Construction of new bank stabilization and any maintenance/reconstruction

I realize many indicate land-based, but I wanted to ensure that this also did not include within streams.

Thanks again for your continued work on this.

Jamie

On Mon, Jul 31, 2023 at 9:34 AM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

> Hi Jamie,
>
> Please see list of construction activities and schedule details below.
>
> - Road construction with minor amounts of resurfacing, and/or reconstruction
> - Bridge construction
> - Grading and establishment of staging and storage areas
> - Geotechnical drilling
> - Establishment of new temporary access roads and traffic detours
> - Saw cutting
> - Spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts)
> - Sheet driving for temporary excavations
> - Enhancing existing scour protection and establishing new scour protection
> - Establishing grated inlets, guardrails, curbs and curb ramps
> - Clearing, grubbing
> - Grading – cut and fill
> - Installing pavement markings and signage and utility manholes
> - The use of land-based, wetland environment cofferdams
> - Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer
> - Construction of new bank stabilization and any maintenance/reconstruction
> - Landscaping
> - Traffic signals
> - Street Lighting; Installing utility poles
> - Constructing permanent BMPs
>
> Schedule:
>
> - NEPA complete July 2024
> - Project is Design/Build with RFP scheduled for July 2024

- Raise Grant Obligation Expenditure deadline is 9/27/29. However, the funds from the Raise Grant are unlikely to be enough for building project so construction may continue after the Raise Grant Obligation Expenditure deadline.

Please let me know if you have any questions.

Thank you!
Meesa

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Monday, July 31, 2023 8:45 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Yes,
Thanks for the response.
Jamie

On Sat, Jul 29, 2023 at 11:16 AM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

> Hi Jamie,
>
> We are working on getting back to you regarding the latest email sent about the activities. I assume the EFH consultation was shared with you?
>
> Thanks!
> Meesa
>
> ---
>
> **From:** Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
> **Sent:** Friday, July 28, 2023 10:28 AM
> **To:** Otani, Meesa (FHWA) <meesa.otani@dot.gov>
> **Subject:** Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation
>
> **CAUTION:** This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.
>
> Hi Meesa,
> I just wanted to do a quick check-in on this as I was informed the EFH component of this project has been completed. Once I have more information I should be able to finish the ESA document and send it for internal review.
>
> Thanks,
> Jamie
>
> On Tue, Jul 18, 2023 at 10:52 AM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:
>
>> Hi Meesa,
>>
>> As I work through the analysis, it would be helpful to have more specific information regarding the various activities that may be associated with the project. It is anticipated that based on the location all alignments

will have a mix of raised roadways, bridge structures, and at-grade portions. Based on previous road work and bridge construction, I composed the following list of activities that may occur:

- Road construction, resurfacing, and/or reconstruction
- Bridge construction
- Grading and establishment of staging and storage areas
- Geotechnical drilling
- Establishment of new temporary access roads and traffic detours
- Saw cutting, pile and/or sheet driving
- Upgrading and repairing existing abutments
- Enhancing existing scour protection and establishing new scour protection
- Establishing grated inlets, guardrails, curbs and curb ramps,
- Clearing and grubbing,
- Installing pavement markings and signage and utility manholes.
- The use of cofferdams
- Installation or proofing of steel or concrete pilings and/or sheetpile via impact hammer.
- Construction of new bank stabilization and any maintenance/reconstruction
- Maintenance dredging

Are there any activities on this list that are unlikely to occur as a part of this action? Are there other activities associated with this action that need to be added?

Thanks

Jamie Marchetti

On Fri, Jul 14, 2023 at 11:48 AM Sean Hanser - NOAA Federal <sean.hanser@noaa.gov> wrote:

> Hi Meesa,
>
> We have another question for the project. As we are constructing our EFH Conservation Recommendations letter, we write a section that summarizes the action. We are realizing that we are unclear on the schedule for the project. We have a sense of the NEPA schedule, which we know is supposed to wrap up in June 2024 (with a ROD at that time, we assume). We don't know the basic schedule for construction. Will it start right away? We know it will take 2 years or less, but some more detail would be helpful. Is there anything you can share? Is it in the draft EIS?

Thanks for your help.

Regards,
Sean

On Fri, Jul 7, 2023 at 4:14 PM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

Hi Sean,

I will check with the project team and get back to you.

Thanks!
Meesa

From: Sean Hanser - NOAA Federal <sean.hanser@noaa.gov>
Sent: Friday, July 7, 2023 2:47 PM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: kate.taylor@noaa.gov; Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>; Powell, Lisa (FHWA) <lisa.powell@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hi Meesa,

After looking through the document, a few more questions have come to mind:

Your alternatives refer to the County of Maui's Pali to Puamana Parkway 2005 concepts. These concepts have not been built, is that correct? These are not ideas for modifying existing roadways, are they? Are these concepts illustrated in more detail in the EIS? If so, is there a draft we could look at for context? Or will the draft EIS be out for comment sometime soon?

It could be helpful for us to understand a little more about how right of ways work. They are on both sides of the highway or street, right? Will equipment or material be staged in these areas for the roads that you take over from the State?

You say in the document on pages 4 and 5 that "Hui O Ka Wai Ola (huiokawaiola.com) and the Hawaii Department of Health regularly sample water quality, including turbidity, along the project area coast." and "During construction, their monitoring data would allow HDOT to evaluate the effectiveness of the construction BMPs and quickly respond if there are any abnormal turbidity results." This is good to know and is encouraging regarding the monitoring you all tap into. Can you explain a little more about how their data would be used and the rate at which a questionable measurement could be detected and responded to?

Thanks in advance for your help with our questions.

Regards,
Sean

On Wed, Jul 5, 2023 at 2:58 PM Sean Hanser - NOAA Federal <sean.hanser@noaa.gov> wrote:

Hi Meesa,

I cut the list of people down a bit, because I figure that questions don't need to bother everyone if they can be taken care of quickly with you.

In the EFHA (and the ESA) consultation document that you sent, it refers to Figure 1. That label does not show up elsewhere in the document, but I am interpreting the figure on page 11 of the PDF to be Figure 1. Just because I have made the mistake of assuming before, I wanted to check and make sure that was a safe assumption. I did not see other figures in the document, but it is always worth checking.

Thanks for your help,
Sean

On Fri, Jun 30, 2023 at 11:46 AM 'Otani, Meesa (FHWA)' via _NMFS PIR ESHESA <efhesaconsult@noaa.gov> wrote:

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>
> Please let me know if you have any questions.
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> Thank you!
>
> ***Meesa Otani***
> Environmental Engineer
> Federal Highway Administration, Hawaii Division
> 300 Ala Moana Blvd., Room 3-229
> Honolulu, Hawaii 96850
> (808) 541-2316
> meesa.otani@dot.gov
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>

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Sean F. Hanser, PhD.

Resource Management Specialist, Habitat Conservation Division

Pacific Islands Regional Office

National Marine Fisheries Service | U.S. Department of Commerce

(808) 725-5091

www.fisheries.noaa.gov

On Fri, Oct 6, 2023 at 1:43 PM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

Hi Jamie,

Sorry for not getting back to you quicker regarding the Section 7 consultation. Below, we tried to capture the different questions and noted the date of the email.

For the specific questions, the responses are in red.

Please let me know if you have any additional questions.

Thank you!!!
Meesa

July 31, 2023 email

Based on currently available information, we do not anticipate any in-water work.
To protect monk seal and ocean habitat, all applicable laws would be used in design and construction and enforced throughout the lifetime of the project. These include the Marine Mammal Protection Act, Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, and NOAA/NMFS conservation recommendations, in accordance with the Recovery Plan for the Hawaiian monk seal.

Regarding potential noise isopleths, we are confident that our proposed actions will not cause any adverse effects for the following reasons:

1. Project Location – Our project area is inland of the coast, avoiding crossing into any critical habitat.
2. NMFS Conservation Measures – NMFS provided conservation recommendations pursuant to 50 CFR 600.920 that, when implemented, will help ensure that potential adverse effects are avoided and minimized. We are committing to those conservation recommendations.
3. USWFS Conservation Guidelines – Our Biological Resources Report recommended following a suite of USWFS conservation guidelines for various fauna. While monk seal were not listed on the IPaC Species List or observed in the field during official field surveys, we are committing to all conservation guidelines recommended by USFWS.
4. Construction Methods: Most construction noise and vibrations come from pile driving. We are using drilled shafts for piers, rather than pile driving, which eliminates much of the noise associated with piers construction.
5. Stream conditions - Noise isopleths from proposed actions radiate in all direction but diminish in intensity (attenuate) as the sound wave spreads over a larger area. Waves are also attenuated or blocked by encountering obstructions such as shallow water, land masses, or rocks. As both the Olowalu and Ukumehame Streams are shallow and rocky with numerous riffles, potential effects on monk seal and ocean habitat diminish with distance from construction activities. The project area is inland of the beach, providing a buffer distance to attenuate sound waves. The likelihood of any noise going linearly along the shallow rocky streams far enough to reach the ocean are very minimal. And if they do, they will immediately fan out and diminish along with being further attenuated by reefs.

We are aware of the critical habitat along the Maui coastline, but given the existing conditions, our current mitigation measures and proposed construction activities minimize and are likely to avoid any potential adverse effects migrating from our inland project area to marine waters.
Below are specific activities and their anticipated status of in-stream work:

- Geotechnical drilling – No, geotechnical drilling for soil exploration is not anticipated to be done in streams.
- Spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts) – There may be piers constructed in the stream channel above the OHWM in some locations, but it is not anticipated to involve in-water work based on currently available information.
- Sheet driving for temporary excavations – It is possible that sheet driving to limit excavation area for pier cap construction would be in the stream channel, but it is not anticipated to be done in-water based on currently available information.
- The use of land-based, wetland environment cofferdams – Inland wetland areas have been identified in parts of the project (Ukumehame, near the Ukumehame Firing Range) that are isolated from the shoreline and not connected to any stream features. The project currently anticipates spanning over these areas utilizing viaducts which will require construction of foundations for bridge piers. To limit the disturbance within the wetland areas the use of cofferdams may be employed. If this measure is applied, it would be isolated from the streams themselves.
- Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer – Concrete pile driving is not anticipated. Concrete pile driving is generally not done for

bridge construction these days as, in general, drilled shafts are preferred because they are more efficient. Sheet piles for cofferdam installation are addressed above.

- Construction of new bank stabilization and any maintenance/reconstruction – It is possible that scour protection extends into stream channels, most likely dumped riprap, but as noted, this is anticipated to be above the OHWM based on currently available information. Should scour design extend into any stream channel, we will follow "An Integrated Storm Water Management Approach and a Summary of Clear Water Diversion and Isolation Best Management Practices for Use in the State of Hawaii" by the FHWA and HDOT Practitioners Guide (2016).
- Construction of box culverts – Culverts on the project are limited to smaller drainage areas that are generally dry, where concentrated flows will be carried across the roadway corridor. In these areas culverts would be either preformed pipe, precast concrete box or cast-in-place concrete box culverts. At stream locations, bridges are anticipated in lieu of culverts, to provide greater flow capacity and to avoid in-water work.

July 14, 2023 email

We have another activity that needs to be added to my July 31, 2023 response.

- Construction of culverts

July 7, 2023 email

1. For the species that May be Affected/ Not Likely Adversely Affected, I would recommend limiting this to species found in coastal waters as any pollution/ waste/ turbidity concerns are not likely to affect pelagic waters. I would suggest that this list only needs to include Central North Pacific green sea turtles, Hawksbill sea turtles, Hawaiian monk seals, and monk seal critical habitat. Does that work for you? Yes
2. Since an alternative has not yet been determined, but they are all likely to produce the same stressors, we would likely review all four alternatives as part of this action. Yes, the stressors are basically the same for all four alternatives.
3. For the four alternatives, it looks like the new highway construction will join up with the old highway at some point along the coast (or use sections of the old highway). Since this will likely result in construction along coastal areas there may be the potential for disturbances from human activity. I would suggest including the following BMPs:

- Constant vigilance will be kept for the presence of ESA-listed species during all aspects of the permitted action. A responsible party, i.e., permittee/site manager/project supervisor, will designate a competent observer to search/monitor work sites and the areas adjacent to the authorized work area for ESA-listed species.
- All work will be postponed or halted when ESA-listed marine species are within 50 m of the proposed work and will only begin/resume after the animals have voluntarily departed the area.
- Project-related personnel will NOT attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species.

  Yes, these can be added to the list of project BMPs.

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Monday, August 21, 2023 10:10 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hi Meesa,

With the ongoing unfolding events in Maui, I wanted to check in and see if we needed to do anything regarding this consultation? If we need to pause it, or withdraw it for resubmittal at a later date please let me know. Or we can just continue so this is ready when necessary for implementation (I'm still holding related to some pending questions about in-water work).

If the FHWA needs to do any emergency consultations related to the disaster please let us know and we can assist.

Hope all is well.
JM

On Mon, Jul 31, 2023 at 1:32 PM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:

Hello Meesa,

Sorry for the continued questions, just trying to gather enough information to do a proper exposure-analysis.
Though the initial submitted ESA letter states, *no noise would be directly generated in the ocean by this project,* I am attempting to determine if any in-stream work may produce noise isopleths which may reach the ocean, or monk seal habitat. From the provided list above, would any of the following activities occur in-stream (and as a result may produce in-water noise)?

- Geotechnical drilling
- Spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts)
- Sheet driving for temporary excavations
- The use of land-based, wetland environment cofferdams
- Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer
- Construction of new bank stabilization and any maintenance/reconstruction

I realize many indicate land-based, but I wanted to ensure that this also did not include within streams.

Thanks again for your continued work on this.

Jamie

On Mon, Jul 31, 2023 at 9:34 AM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

Hi Jamie,

Please see list of construction activities and schedule details below.

- Road construction with minor amounts of resurfacing, and/or reconstruction
- Bridge construction
- Grading and establishment of staging and storage areas
- Geotechnical drilling
- Establishment of new temporary access roads and traffic detours
- Saw cutting
- Spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts)
- Sheet driving for temporary excavations
- Enhancing existing scour protection and establishing new scour protection
- Establishing grated inlets, guardrails, curbs and curb ramps
- Clearing, grubbing
- Grading – cut and fill
- Installing pavement markings and signage and utility manholes

- The use of land-based, wetland environment cofferdams
- Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer
- Construction of new bank stabilization and any maintenance/reconstruction
- Landscaping
- Traffic signals
- Street Lighting; Installing utility poles
- Constructing permanent BMPs

Schedule:

- NEPA complete July 2024
- Project is Design/Build with RFP scheduled for July 2024
- Raise Grant Obligation Expenditure deadline is 9/27/29. However, the funds from the Raise Grant are unlikely to be enough for building project so construction may continue after the Raise Grant Obligation Expenditure deadline.

Please let me know if you have any questions.

Thank you!
Meesa

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Monday, July 31, 2023 8:45 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Yes,
Thanks for the response.
Jamie

On Sat, Jul 29, 2023 at 11:16 AM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

> Hi Jamie,
>
> We are working on getting back to you regarding the latest email sent about the activities. I assume the EFH consultation was shared with you?
>
> Thanks!
> Meesa
>
> ---
>
> **From:** Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
> **Sent:** Friday, July 28, 2023 10:28 AM
> **To:** Otani, Meesa (FHWA) <meesa.otani@dot.gov>
> **Subject:** Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation
>
>

Hi Meesa,
I just wanted to do a quick check-in on this as I was informed the EFH component of this project has been completed. Once I have more information I should be able to finish the ESA document and send it for internal review.

Thanks,
Jamie

On Tue, Jul 18, 2023 at 10:52 AM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:

Hi Meesa,

As I work through the analysis, it would be helpful to have more specific information regarding the various activities that may be associated with the project. It is anticipated that based on the location all alignments will have a mix of raised roadways, bridge structures, and at-grade portions. Based on previous road work and bridge construction, I composed the following list of activities that may occur:

- Road construction, resurfacing, and/or reconstruction
- Bridge construction
- Grading and establishment of staging and storage areas
- Geotechnical drilling
- Establishment of new temporary access roads and traffic detours
- Saw cutting, pile and/or sheet driving
- Upgrading and repairing existing abutments
- Enhancing existing scour protection and establishing new scour protection
- Establishing grated inlets, guardrails, curbs and curb ramps,
- Clearing and grubbing,
- Installing pavement markings and signage and utility manholes.
- The use of cofferdams
- Installation or proofing of steel or concrete pilings and/or sheetpile via impact hammer.
- Construction of new bank stabilization and any maintenance/reconstruction
- Maintenance dredging

Are there any activities on this list that are unlikely to occur as a part of this action? Are there other activities associated with this action that need to be added?

Thanks

Jamie Marchetti

On Fri, Jul 14, 2023 at 11:48 AM Sean Hanser - NOAA Federal <sean.hanser@noaa.gov> wrote:

Hi Meesa,

We have another question for the project. As we are constructing our EFH Conservation Recommendations letter, we write a section that summarizes the action. We are realizing that we are unclear on the schedule for the project. We have a sense of the NEPA schedule, which we know is supposed to wrap up in June 2024 (with a ROD at that time, we assume). We don't know the basic schedule for construction. Will it start right away? We know it will take 2 years or less, but some more detail would be helpful. Is there anything you can share? Is it in the draft EIS?

Thanks for your help.

Regards,
Sean

On Fri, Jul 7, 2023 at 4:14 PM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

Hi Sean,

I will check with the project team and get back to you.

Thanks!
Meesa

From: Sean Hanser - NOAA Federal <sean.hanser@noaa.gov>
Sent: Friday, July 7, 2023 2:47 PM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: kate.taylor@noaa.gov; Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>; Powell, Lisa (FHWA) <lisa.powell@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hi Meesa,

After looking through the document, a few more questions have come to mind:

Your alternatives refer to the County of Maui's Pali to Puamana Parkway 2005 concepts. These concepts have not been built, is that correct? These are not ideas for modifying existing roadways, are they? Are these concepts illustrated in more detail in the EIS? If so, is there a draft we could look at for context? Or will the draft EIS be out for comment sometime soon?

It could be helpful for us to understand a little more about how right of ways work. They are on both sides of the highway or street, right? Will equipment or material be staged in these areas for the roads that you take over from the State?

You say in the document on pages 4 and 5 that "Hui O Ka Wai Ola (huiokawaiola.com) and the Hawaii Department of Health regularly sample water quality, including turbidity, along the project area coast." and "During construction, their monitoring data would allow HDOT to evaluate the effectiveness of the construction BMPs and quickly respond if there are any abnormal turbidity results." This is good to know and is encouraging regarding the monitoring you all tap into. Can you explain a little more about how their data would be used and the rate at which a questionable measurement could be detected and responded to?

Thanks in advance for your help with our questions.

Regards,
Sean

On Wed, Jul 5, 2023 at 2:58 PM Sean Hanser - NOAA Federal <sean.hanser@noaa.gov> wrote:

Hi Meesa,

I cut the list of people down a bit, because I figure that questions don't need to bother everyone if they can be taken care of quickly with you.

In the EFHA (and the ESA) consultation document that you sent, it refers to Figure 1. That label does not show up elsewhere in the document, but I am interpreting the figure on page 11 of the PDF to be Figure 1. Just because I have made the mistake of assuming before, I wanted to check and make sure that was a safe assumption. I did not see other figures in the document, but it is always worth checking.

Thanks for your help,
Sean

On Fri, Jun 30, 2023 at 11:46 AM 'Otani, Meesa (FHWA)' via _NMFS PIR ESHESA <efhesaconsult@noaa.gov> wrote:

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> Attached is the Endangered Species Act and Essential Fish Habitat consultation for the Honoapiilani Highway Improvements, Ukumehame to Launiupoko project on the Island of Maui.
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> Please let me know if you have any questions.
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> Thank you!
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> ***Meesa Otani***
> Environmental Engineer
> Federal Highway Administration, Hawaii Division
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> Honolulu, Hawaii 96850
> (808) 541-2316
> meesa.otani@dot.gov
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Sullivan, James

From:	Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Sent:	Thursday, October 19, 2023 2:12 PM
To:	Jamie Marchetti - NOAA Federal
Cc:	Powell, Lisa (FHWA); Darden, Richard (FHWA); Vaughn, Colleen (FHWA)
Subject:	RE: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hi Jamie,

Yes, that would be great.

Thank you!
Meesa

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Thursday, October 19, 2023 9:01 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: Powell, Lisa (FHWA) <lisa.powell@dot.gov>; Darden, Richard (FHWA) <richard.darden@dot.gov>; Vaughn, Colleen (FHWA) <colleen.vaughn@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hello,
I am nearly finished with your consultation and will shortly be sending it off for internal review.
From the time this project was submitted until now, Green sea turtle critical habitat has become something that we have begun conferencing on. It is at the action agency's discretion. As you mentioned in your prior email: *We are aware of the critical habitat along the Maui coastline, but given the existing conditions, our current mitigation measures and proposed construction activities minimize and are likely to avoid any potential adverse effects migrating from our inland project area to marine waters.*
I can include this as a conference if you like and would concur with an NLAA determination.

Just let me know either way.

Thanks
Jamie Marchetti

On Tue, Oct 10, 2023 at 3:23 PM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:

> Hello,
> Thank you for the followup email. I now have all the information needed to initiate your consultation request. The initiation date is today 10/10/23 and we will have a response within 60 days, though we strive to respond sooner. I will reach out if I have any further questions.
>
> Thank you
> Jamie
>
> On Fri, Oct 6, 2023 at 1:43 PM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

Hi Jamie,

Sorry for not getting back to you quicker regarding the Section 7 consultation. Below, we tried to capture the different questions and noted the date of the email.

For the specific questions, the responses are in red.

Please let me know if you have any additional questions.

Thank you!!!

Meesa

<u>July 31, 2023 email</u>

Based on currently available information, we do not anticipate any in-water work.

To protect monk seal and ocean habitat, all applicable laws would be used in design and construction and enforced throughout the lifetime of the project. These include the Marine Mammal Protection Act, Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, and NOAA/NMFS conservation recommendations, in accordance with the Recovery Plan for the Hawaiian monk seal.

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- The use of land-based, wetland environment cofferdams – Inland wetland areas have been identified in parts of the project (Ukumehame, near the Ukumehame Firing Range) that are isolated from the shoreline and not connected to any stream features. The project currently anticipates spanning over these areas utilizing viaducts which will require construction of foundations for bridge piers. To limit the disturbance within the wetland areas the use of cofferdams may be employed. If this measure is applied, it would be isolated from the streams themselves.
- Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer – Concrete pile driving is not anticipated. Concrete pile driving is generally not done for bridge construction these days as, in general, drilled shafts are preferred because they are more efficient. Sheet piles for cofferdam installation are addressed above.
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July 7, 2023 email

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2. Since an alternative has not yet been determined, but they are all likely to produce the same stressors, we would likely review all four alternatives as part of this action. Yes, the stressors are basically the same for all four alternatives.
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- All work will be postponed or halted when ESA-listed marine species are within 50 m of the proposed work and will only begin/resume after the animals have voluntarily departed the area.
- Project-related personnel will NOT attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species.

Yes, these can be added to the list of project BMPs.

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Monday, August 21, 2023 10:10 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hi Meesa,

With the ongoing unfolding events in Maui, I wanted to check in and see if we needed to do anything regarding this consultation? If we need to pause it, or withdraw it for resubmittal at a later date please let me know. Or we can just continue so this is ready when necessary for implementation (I'm still holding related to some pending questions about in-water work).

If the FHWA needs to do any emergency consultations related to the disaster please let us know and we can assist.

Hope all is well.

JM

On Mon, Jul 31, 2023 at 1:32 PM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:

Hello Meesa,

Sorry for the continued questions, just trying to gather enough information to do a proper exposure-analysis.

Though the initial submitted ESA letter states, *no noise would be directly generated in the ocean by this project,* I am attempting to determine if any in-stream work may produce noise isopleths which may reach the ocean, or monk seal habitat. From the provided list above, would any of the following activities occur in-stream (and as a result may produce in-water noise)?

- Geotechnical drilling
- Spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts)
- Sheet driving for temporary excavations
- The use of land-based, wetland environment cofferdams
- Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer
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Thanks again for your continued work on this.

Jamie

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Hi Jamie,

Please see list of construction activities and schedule details below.

- Road construction with minor amounts of resurfacing, and/or reconstruction
- Bridge construction
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- Geotechnical drilling
- Establishment of new temporary access roads and traffic detours
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- Spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts)
- Sheet driving for temporary excavations
- Enhancing existing scour protection and establishing new scour protection
- Establishing grated inlets, guardrails, curbs and curb ramps
- Clearing, grubbing
- Grading – cut and fill
- Installing pavement markings and signage and utility manholes
- The use of land-based, wetland environment cofferdams
- Land-based, wetland environment installation or proofing of steel or concrete pilings and/or sheet pile via impact hammer
- Construction of new bank stabilization and any maintenance/reconstruction
- Landscaping
- Traffic signals
- Street Lighting; Installing utility poles
- Constructing permanent BMPs

Schedule:

- NEPA complete July 2024
- Project is Design/Build with RFP scheduled for July 2024
- Raise Grant Obligation Expenditure deadline is 9/27/29. However, the funds from the Raise Grant are unlikely to be enough for building project so construction may continue after the Raise Grant Obligation Expenditure deadline.

Please let me know if you have any questions.

Thank you!

Meesa

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Monday, July 31, 2023 8:45 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Yes,

Thanks for the response.

Jamie

On Sat, Jul 29, 2023 at 11:16 AM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

Hi Jamie,

We are working on getting back to you regarding the latest email sent about the activities. I assume the EFH consultation was shared with you?

Thanks!

Meesa

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Friday, July 28, 2023 10:28 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hi Meesa,

I just wanted to do a quick check-in on this as I was informed the EFH component of this project has been completed. Once I have more information I should be able to finish the ESA document and send it for internal review.

Thanks,

Jamie

On Tue, Jul 18, 2023 at 10:52 AM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:

Hi Meesa,

As I work through the analysis, it would be helpful to have more specific information regarding the various activities that may be associated with the project. It is anticipated that based on the location all alignments will have a mix of raised roadways, bridge structures, and at-grade portions. Based on previous road work and bridge construction, I composed the following list of activities that may occur:

- Road construction, resurfacing, and/or reconstruction
- Bridge construction
- Grading and establishment of staging and storage areas
- Geotechnical drilling
- Establishment of new temporary access roads and traffic detours
- Saw cutting, pile and/or sheet driving
- Upgrading and repairing existing abutments
- Enhancing existing scour protection and establishing new scour protection
- Establishing grated inlets, guardrails, curbs and curb ramps,
- Clearing and grubbing,
- Installing pavement markings and signage and utility manholes.
- The use of cofferdams
- Installation or proofing of steel or concrete pilings and/or sheetpile via impact hammer.
- Construction of new bank stabilization and any maintenance/reconstruction
- Maintenance dredging

Are there any activities on this list that are unlikely to occur as a part of this action? Are there other activities associated with this action that need to be added?

Thanks

Jamie Marchetti

On Fri, Jul 14, 2023 at 11:48 AM Sean Hanser - NOAA Federal <sean.hanser@noaa.gov> wrote:

Hi Meesa,

We have another question for the project. As we are constructing our EFH Conservation Recommendations letter, we write a section that summarizes the action. We are realizing that we are unclear on the schedule for the project. We have a sense of the NEPA schedule, which we know is supposed to wrap up in June 2024 (with a ROD at that time, we assume). We don't know the basic schedule for construction. Will it start right away? We know it will take 2 years or less, but some more detail would be helpful. Is there anything you can share? Is it in the draft EIS?

Thanks for your help.

Regards,

Sean

On Fri, Jul 7, 2023 at 4:14 PM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

Hi Sean,

I will check with the project team and get back to you.

Thanks!

Meesa

From: Sean Hanser - NOAA Federal <sean.hanser@noaa.gov>
Sent: Friday, July 7, 2023 2:47 PM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: kate.taylor@noaa.gov; Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>; Powell, Lisa (FHWA) <lisa.powell@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hi Meesa,

After looking through the document, a few more questions have come to mind:

Your alternatives refer to the County of Maui's Pali to Puamana Parkway 2005 concepts. These concepts have not been built, is that correct? These are not ideas for modifying existing roadways, are they? Are these concepts illustrated in more detail in the EIS? If so, is there a draft we could look at for context? Or will the draft EIS be out for comment sometime soon?

It could be helpful for us to understand a little more about how right of ways work. They are on both sides of the highway or street, right? Will equipment or material be staged in these areas for the roads that you take over from the State?

You say in the document on pages 4 and 5 that "Hui O Ka Wai Ola (huiokawaiola.com) and the Hawaii Department of Health regularly sample water quality, including turbidity, along the project area coast." and "During construction, their monitoring data would allow HDOT to evaluate the effectiveness of the construction BMPs and quickly respond if there are any abnormal turbidity results." This is good to know and is encouraging regarding the monitoring you all tap into. Can you explain a little more about how their data would be used and the rate at which a questionable measurement could be detected and responded to?

Thanks in advance for your help with our questions.

Regards,

Sean

On Wed, Jul 5, 2023 at 2:58 PM Sean Hanser - NOAA Federal <sean.hanser@noaa.gov> wrote:

> Hi Meesa,

I cut the list of people down a bit, because I figure that questions don't need to bother everyone if they can be taken care of quickly with you.

In the EFHA (and the ESA) consultation document that you sent, it refers to Figure 1. That label does not show up elsewhere in the document, but I am interpreting the figure on page 11 of the PDF to be Figure 1. Just because I have made the mistake of assuming before, I wanted to check and make sure that was a safe assumption. I did not see other figures in the document, but it is always worth checking.

Thanks for your help,

Sean

On Fri, Jun 30, 2023 at 11:46 AM 'Otani, Meesa (FHWA)' via _NMFS PIR ESHESA <efhesaconsult@noaa.gov> wrote:

> Hello,
>
> Attached is the Endangered Species Act and Essential Fish Habitat consultation for the Honoapiilani Highway Improvements, Ukumehame to Launiupoko project on the Island of Maui.
>
> Please let me know if you have any questions.
>
> Thank you!
>
> ***Meesa Otani***
>
> Environmental Engineer
>
> Federal Highway Administration, Hawaii Division
>
> 300 Ala Moana Blvd., Room 3-229
>
> Honolulu, Hawaii 96850
>
> (808) 541-2316

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
1845 Wasp Blvd., Bldg 176
Honolulu, Hawaii 96818
(808) 725-5000 · Fax: (808) 725-5215

Ms. Richelle M. Takara
Division Administrator, Hawaii Federal-Aid Division
Federal Highway Administration
300 Ala Moana Blvd, Rm 3-229
Box 50206
Honolulu, HI 96850-3229

July 26, 2023

Dear Ms. Takara,

The National Marine Fisheries Service, Pacific Islands Regional Office (NMFS), received the U.S. Department of Transportation, Federal Highway Administration's (hereafter, FHWA) essential fish habitat (EFH) consultation request and EFH Assessment for the improvements to Honoapi'ilani Highway between milepost 11 and milepost 17 on Maui (Federal-aid Project No. RAEM-030-1(059)) on June 30, 2023. In the package you submitted, you have outlined best management practices (BMPs) that, when adhered to and implemented, will avoid and minimize most adverse effects to EFH. We are providing a few conservation recommendations pursuant to the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA; Section 305(b)(2) as described by 50 CFR 600.920). Implementing these recommendations will help you further avoid and minimize potential adverse effects to EFH.

Consultation History

On November 30, 2022, NMFS received an invitation from FHWA to become a Participating and Cooperating Agency for the Honoapi'ilani Highway Improvements project. The letter informed NMFS of a Notice of Intent to prepare an Environmental Impact Statement (EIS), published in the Federal Register on November 22, 2022, and a Hawaii Environmental Policy Act EIS Preparation Notice, published in Hawaii's The Environmental Notice on November 23, 2022. The publication of the two announcements started the scoping process in which the Hawaii Department of Transportation and FHWA were seeking input on of the project and information related to any environmental, social, or economic concerns about resources within the project footprint. NMFS replied in a letter agreeing to be a Cooperating Agency on December 27, 2022.

Members of NMFS Habitat Conservation Division (HCD) attended a meeting on February 16, 2023, hosted by FHWA that presented the background, purpose, and need for the project, a review of action alternatives, and the project schedule. NMFS provided early input on considerations regarding effects to endangered species and EFH. On February 27, 2023, HCD provided a letter of technical assistance to FHWA with suggestions and guidance on how to prepare an EFH Assessment and consult on potential effects to EFH. Lisa Powell at FHWA acknowledged the technical assistance letter and sent meeting minutes from the February 16 meeting on March 27, 2023. After reviewing the submitted EFHA, feedback from NMFS on EFH and the consultation process were incorporated into FHWA's submission.

Project Description

The proposed project is the construction of a new highway inland from the existing Honoapiʻilani Highway between mileposts 11 and 17. The project area is approximately six miles long and three quarters of a mile wide and is composed predominantly of a coastal plain that includes the ahupuaʻa of Ukumehame, Olowalu, and Launiupoko. The stretch of highway between milepost 11 and milepost 17 is within the Hawaii Climate Change Mitigation and Adaptation Commission's Sea Level Rise Exposure Area (SLR-XA). The purpose of the proposed project is to reduce the Honoapiʻilani Highway's vulnerability to coastal hazards, including sea level rise and coastal erosion, and to ensure safe movement of people and goods in West Maui. The coastal highway is currently the primary access route to and from West Maui.

There are four "Build Alternatives" drafts and a no-action alternative that are currently being evaluated under the National Environmental Policy Act (NEPA) process. A Preferred Alternative has not yet been identified. Bridge crossings would be needed to carry the highway over Launiupoko, Olowalu, and Ukumehame Streams and other small streams in the project corridor. As an overall project approach, bridge structures associated with Build Alternatives would either avoid filling placement of Waters within the U.S. by spanning the stream or conform to regional conditions for the U.S. Army Corps of Engineers (USACE) Clean Water Act section 404 Nationwide Permits. Build Alternatives may require dredging or filling of jurisdictional wetlands or other Waters of the U.S., which would also require a Clean Water Act section 404 permit from USACE. The four Build Alternatives were adapted from Maui County Pali to Paumana Parkway 2005 concepts. A brief description of each alternative is below:

> *Build Alternative 1.* This alignment has been "modified" from a County of Maui's Pali to Puamana Parkway 2005 concept to apply American Association of State Highway and Transportation Officials (AASHTO) design standards, bypass erosion areas, and avoid cultural resources. This alternative is just mauka (inland toward the mountains) of most inundation areas in Launiupuoko and Olowalu and maximizes use of the existing right-of-way. At Ukumehame Stream, the alignment returns closer to the existing highway (toward the ocean) to minimize potential impacts to a property identified as a Land Commission Award where cultural practices are conducted. This alternative crosses through the SLR-XA, but avoids a sediment basin, which is identified as a potential wetland area by the U.S. Fish and Wildlife Service's National Wetlands Inventory Mapper (NWI). Roughly 0.6 mile (about 3,330 feet) of this alignment would remain inside the SLR-XA.
>
> Build Alternative 2 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 "middle" concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. This alternative passes through a sediment basin below Ukumehame Firing Range that has been identified as a potential wetland area by the U.S. Fish and Wildlife Service's NWI, and follows a more makai (toward the ocean) route to maximize use of County and State-owned properties, staying close to the existing highway. Roughly 1.1 miles (about 6,000 feet) of this alignment would remain inside the SLR-XA.
>
> Build Alternative 3 has been adapted from the County of Maui's Pali to Puamana Parkway 2005 "mauka" concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. It is identical to

Alternative 2, except in Olowalu, the alignment is further inland. The terrain underlying Alternative 3 may be more variable and challenging than Alternative 2. Roughly 1.1 miles (about 6,000 feet) of this alignment would remain inside the SLR-XA.

Build Alternative 4 was also adapted from the County of Maui's Pali to Puamana Parkway 2005 mauka concept. The alignment has been "corrected" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. The route through Olowalu town, which distinguishes this alignment, is based on landowner input provided in 2007. This alignment meets the 55 miles per hour (mph) design speed, while minimizing curves. Alternative 4 proposes to span a No Build Archaeological Buffer along Ukumehame Stream with a bridge to avoid impacts to an archaeological preservation area that was established as part of the Ukumehame Subdivision project. Roughly 0.3 mile (about 1,600 feet) of this alignment would remain inside the SLR-XA.

The four Build Alternatives converge in several areas, but have two distinct areas where they diverge: Olowalu and Ukumehame. No work will be conducted in the ocean for any of the alternatives. All Build Alternatives will also avoid work on the existing highway in areas where prior emergency stabilizations have occurred. No night work will be conducted without further coordination with NMFS. The NEPA process is expected to take until June 2024 when the final EIS is published. Preparation for construction will start at that time with construction projected to commence in August 2025.

Essential Fish Habitat

The marine water column from the surface to a depth of 3,280.8 feet (1,000 meters) from the shoreline to the outer boundary of the EEZ (200 nautical miles), and the seafloor from the shoreline out to a depth of 2,296.6 feet (700 meters) around each of the Hawaiian Islands, have been designated as EFH. As such, the water column and bottom of the Pacific Ocean around Maui are designated as EFH, and support various life stages for the management unit species (MUS) identified under the Western Pacific Fishery Management Council's Pelagic and Hawai'i Archipelago Fishery Ecosystem Plans. The MUS and life stages found in these waters include eggs, larvae, juveniles, and adults of Bottomfish, Crustacean, and Pelagic MUS. Specific types of habitat considered as EFH include coral reef, patch reefs, hard substrate, artificial substrate, seagrass beds, soft substrate, lagoon, estuarine, surge zone, deep-slope terraces and pelagic/open ocean.

Baseline Condition

Olowalu reef is directly offshore of the planned activities, extending from Ukumehame to Launiupoko. The reef is approximately 1,000 acres across and hosts some of Hawaii's healthiest and oldest living corals in the main Hawaiian Islands. The reef is the largest intact coastal fringing reef system on Maui and contains numerous large *Porites spp.* colonies in shallow water (Sparks et al. 2015). Olowalu reef was designated as the first Hawaiian Hope Spot, a place that is critical to the health the ocean, by Mission Blue, a national non-profit organization that is interested in supporting overall ocean health by conserving areas of concentrated, high-quality marine resources, highlighting its cultural and ecological significance.

West Maui has a history of degraded water quality characterized by high turbidity due to land-based runoff. Nearshore water sampling conducted by the nonprofit Hui O Ka Wai Ola shows a history of high turbidity levels off Olowalu and Ukumehame, regularly well above the Department of Health standards.

Adverse Effects
The proposed activities could result in adverse effects to EFH from sedimentation, turbidity, and introduction of chemical contaminants (e.g., petroleum). Sedimentation and turbidity reduces water quality and may cover and smother nearby habitat forming EFH, including corals and seagrass. Introduction of chemical contaminants may also reduce water quality and adversely affect organismal function, leading to degradation of state and mortality. Coastal erosion may increase due to the planned activities and lead to increased sedimentation and turbidity during or after construction is complete.

NMFS Concerns
With connection to the marine environment, changes or stress that occur nearshore can end up affecting aspects of EFH distant from where a project occurs. Stressors that affect water quality either through turbidity, contamination, or oxygen deprivation can, in turn, affect flora and fauna over time and space (Minton 2017). Land-based runoffs and discharges can subject nearshore benthic communities to adverse exposures and potential degradation of condition. When not properly maintained, equipment could release contaminants (oil, fuel, etc.) into the marine environment. Impacts from contaminants in the marine environment are dependent on the persistence of chemical compounds and their tendency to bio-accumulate in the food web (van Dam et al. 2011). Increase in nutrients, pollutants, and contaminants to the marine environment can reduce fitness and cause mortality of exposed organisms. Some pollutants are environmentally persistent and can take years or even decades to biodegrade (Minton 2017). Nearshore species may spend a portion of their lives in coral reefs, but many of these fish and invertebrates are pelagic spawners (Colin 2011) or broadcast spawners (see, for example Padilla-Gamiño and Gates 2012; Bird et al. 2011). Eggs and larvae are sensitive to water quality changes and can uptake contaminants (Von Westernhagen 1988). They can also spend time in the plankton community where they can be mobilized far offshore (Cowen and Sponaugle 2009; Lobel and Robinson 1988) and bring nutrients and accumulated contaminants to pelagic and benthic communities, including bottomfish, pelagic, and precious coral MUS.

All four Build Alternatives required stream crossings. NMFS is concerned that construction of these steam crossings could cause introduction of sediments and pollutants into the stream and ocean. The above paragraph explained some aspects of the connectivity between the nearshore and offshore habitat. It is important that action proponents recognize that projects that primarily have activities on land can also interact with conduits, such as riparian corridors, which can affect both nearshore and offshore marine environments (Sakamaki et al 2022).

Extreme weather in the Pacific is becoming more frequent and intense because of global climate change (for example, see Hu et al. 2021 and Cai et al. 2014). The project site is also near riparian corridors and rich coral resources, which could be affected by high runoffs, waves, and water levels. The project will also require several years to complete, thus providing a long window of time for one or more major weather events to occur during project execution. NMFS is precautionarily encouraging FHWA to consider the potential effects of extreme weather events on the project. While hurricane season in the Pacific is from June 1 to November 30, tropical storms can and do occur year-round.

FHWA-proposed BMPs
In the package submitted for the consultation, the FHWA provided a thorough list of BMPs which will be incorporated into the overall design and construction methods for the proposed action to minimize and reduce impacts to water quality under NMFS jurisdiction. Adherence to those BMPs during the proposed activities will be effective in addressing most of NMFS concerns about potential adverse effects.

Conservation Recommendations
NMFS provides the following conservation recommendations pursuant to 50 CFR 600.920 that, when implemented, will help to ensure that potential adverse effects are avoided and minimized:

Conservation Recommendation 1: If at all possible, avoid placing bridge footings, foundations, or other structural elements in streambeds. Seek engineering solutions that place bridge structural elements outside a streambed.

Conservation Recommendation 2: Although designs of alternatives will take into account potential future effects of inundation and sea level rise, also plan to accommodate increased water that could come from the land through riparian corridors and flooding pathways. Do not plan bridges or culverts that would restrict the flow of water and could raise water flow rates and increase scour. Consider incorporating low impact design elements into plans that slow water flow, impound sediment, and filter runoff from impermeable surfaces.

Conservation Recommendation 3: Develop a plan for managing equipment, materials, and job site conditions in the event of approaching foul weather (i.e., tropical storms and hurricanes). Equipment and materials may need to be removed from the project site or adequately secured. Stormwater runoff and erosion may require heightened management during storm events.

These conservation recommendations apply to whichever Build Alternative is chosen as the preferred alternative.

Conclusion
Your EFH consultation submission provided a sufficient description of the action needed for the BMPs for a project that will occur on land. We have found necessary to provide only a short list of Conservation Recommendations regarding potential construction over streams, in consideration of extreme weather during the activity period and the potential for increased erosion due to the proposed activity. When implemented and adhered to, these recommendations will help to further ensure that potential adverse effects to EFH are avoided and minimized. Please be advised that regulations (Section 305(b)(4)(B)) to implement the EFH provisions of the Magnuson-Stevens Act requires that federal agencies provide a written response to this letter within 30 days of its receipt, but a preliminary response is acceptable if more time is needed. The final response must include a description of measures to be required or actions to be taken to address the Conservation Recommendations. If the Conservation Recommendations cannot be adopted, an explanation of the reason for not implementing them must be provided at least 10 days prior to final approval of the activities.

Please contact me at alexandria.barkman@noaa.gov or (808) 725-5150 with any comments or questions you may have. Thank you for coordinating on this proposed action.

Sincerely,

Gerry Davis

Gerry Davis
Assistant Regional Administrator
Habitat Conservation Division

cc by e-mail:
Richard Darden, FHWA
Lisa Powell, FHWA
Meesa Otani, FHWA
Coleen Vaughn, FHWA
Pua Aiu, Hawaii DOT
Genevieve Sullivan, Hawaii DOT
Peter Liebowitz, WSP
Jan Reichelderfer, WSP
Wayne Yoshioka, WSP
Malia Chow, NMFS
David Delaney, NMFS
Giannina DiMaio, NMFS
Sean Hanser, NMFS
Jamie Marchetti, NMFS
Kate Taylor, NMFS
Dale Youngkin, NMFS

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U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

October 6, 2023

300 Ala Moana Blvd, Rm 3-229
PO Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
FHWA-Hawaii.Intake@dot.gov

In Reply Refer To:
HDA-HI

Mr. Gerry Davis
Assistant Regional Administrator, Pacific Islands Regional Office
National Oceanic and Atmospheric Administration
NOAA Inouye Regional Center, NMFS/PIRO
1845 Wasp Boulevard, Building 176
Honolulu, HI 96818

Subject: Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Conservation Recommendations
Honoapiilani Highway Improvements, West Maui, Ukumehame to Launiupoko
Lahaina, Island of Maui, State of Hawaii
Federal-aid Project No. RAEM-030-1(059)

Dear Mr. Davis:

Thank you for your letter dated July 26, 2023 in response to the Federal Highway Administration (FHWA)'s essential fish habitat (EFH) consultation request for the Honoapiilani Highway (State Route 30) Improvements project. In this letter, the FHWA and the State of Hawaii Department of Transportation (HDOT), are providing a description of measures to be required or actions to be taken to address the Conservation Recommendations in the July 26, 2023 letter.

Measures and Actions to Address Conservation Recommendations

Conservation Recommendation 1: If at all possible, avoid placing bridge footings, foundations, or other structural elements in streambeds. Seek engineering solutions that place bridge structural elements outside a streambed.

> *All abutments for the bridges over streams would be placed outside of the Ordinary High Water Mark (OHWM). This placement of abutments (the supporting structures at the ends of the bridge) outside of the stream bed, ensures that the critical structural components of the bridge are not intruding into the stream's natural course. This helps protect the streambed and its ecosystem from disruption.*
>
> *In addition to abutments, longer bridges, which require additional support, would have piers placed outside the OHWM but, in some cases, within the stream channel. Based on currently available information, we do not anticipate any construction in-water. This approach minimizes the impact on the streambed and its surroundings, maintaining the natural flow and habitat for aquatic life.*

Conservation Recommendation 2: Although designs of alternatives will take into account potential future effects of inundation and sea level rise, also plan to accommodate increased water that could come from the land through riparian corridors and flooding pathways. Do not plan bridges or culverts that would restrict the flow of water and could raise water flow rates and increase scour. Consider incorporating low impact design elements into plans that slow water flow, impound sediment, and filter runoff from impermeable surfaces.

Several low impact design elements would be incorporated into plans, as required by HDOT's Storm Water Post-Construction Best Management Practices Manual dated February 2022. These elements include appropriate storm event considerations, detention basins, vegetated swales, and minimized site-disturbance as much as practicable.

Off-site flow passing across the highway corridor would be handled by bridges and culverts. Bridges are being designed to allow the flow of existing streams for a 100-year storm event. Per HDOT drainage criteria, off-site bridge crossings would be analyzed for both 50 and 100-year storm events. Based on currently available information, the design of bridges would minimize impact on streams by ensuring that bridge abutments and piers remain positioned above the Ordinary High Water Mark.. The natural stream channels would be retained. Culverts are proposed only for non-stream locations where concentrated flows from smaller offsite drainage areas exist. Culverts would be designed for 50-year storm event and would typically be box culverts or preformed pipes. Per HDOT drainage criteria, culverts would be analyzed for 50-year events. When within FEMA flood zones, culverts would be analyzed for 100-year storm events. When appropriate, culvert slopes would be kept low to reduce the potential for erosion at culvert exits. When slopes are anticipated to be steeper, velocity dissipation strategies would be employed for culverts to eliminate the potential for erosion at culvert outfalls. Designing bridges and culverts to accommodate specific storm events ensures that the structures can handle increased water flow during such events without causing disruptions to the natural water flow.

Drainage from on-site (the roadway) would be designed to accommodate a 25-year storm event. Detention basins, vegetated buffers and vegetated swales would be used as permanent BMPs to filter on-site drainage of pollutants before discharging into State waters. Designing on-site drainage to handle a 25-year storm event and incorporating permanent BMPs help slow water flow, impound sediment, and filter runoff from impermeable surfaces.

These design elements focus on accommodating increased water flow without causing disruptions or restricting natural watercourses while contributing to a more sustainable and ecologically sensitive highway design that mitigates potential impacts from inundation, sea level rise, and increased water flow from adjacent areas.

Conservation Recommendation 3: Develop a plan for managing equipment, materials, and job site conditions in the event of approaching foul weather (i.e., tropical storms and hurricanes). Equipment and materials may need to be removed from the project site or adequately secured. Stormwater runoff and erosion may require heightened management during storm events.

All HDOT projects are subject to the guidelines set forth in the Construction Best Management Practices Field Manual (October 2021), which outlines a plan for the management of equipment, materials and construction activities for projects. Contractors *are also required to comply with requirements of the 2005 Hawaii Standard Specifications for Road and Bridge Construction and Special Provisions, as well as Hawaii Administrative Rules (HAR) Title 11, Chapter 55. These guidelines and requirements form the foundation for the development of a comprehensive plan for management of construction activities and their potential impacts to the environment.*

The project would require a Notice of General Coverage (NGPC) for the National Permit Elimination Discharge System (NPDES) including a Storm Water Pollution Prevention Plan (SWPPP) to ensure that the project complies with all relevant stormwater management regulations. The SWPPP outlines how project design would prevent sediment and other pollutants from entering water bodies during construction. In the SWPPP template for the Hawaii Department of Transportation, Attachment H (and presented below) instructs the contractor what to do in the event a large storm event is approaching. These documents serve to guide management activities during storm events, ensuring that stormwater runoff and erosion are properly controlled to protect the environment and nearby water bodies from potential pollutants and impacts.

SEVERE STORM CONTINGENCY PLAN

The following plan would be implemented by the General Contractor to prevent/respond to polluted discharges resulting from a severe storm or natural disaster. It is the General Contractor's responsibility to abide by the following plan as well as any other binding plan, agreement, regulation, rule, law, or ordinance applicable.

*All contactors associated with the following construction project**: Project Name** would follow this plan when a severe storm is either forecast or anticipated or as directed by the Engineer.*

General Contractors shall:

a. *Regularly monitor local weather reports for forecasted and/or anticipated severe storm events, advisories, watches, warnings or alerts. The Contractor shall inspect and document the condition of all erosion control measures on that day prior, during, and within 24 hours after the event. The Contractor shall prepare for forecasted and/or anticipated severe weather events to minimize the potential for polluted discharges.*

b. *Secure the construction site. Securing the site shall include at a minimum:*
    i. *Removing or securing equipment, machinery, construction materials, and portable toilets. If portable toilets are to remain on-site, they shall be pumped the day prior to the event.*
    ii. *Cleaning up all construction debris.*
    iii. *Stopping scheduled material deliveries.*
    iv. *Locating and turning off jobsite utilities, including electricity, water, and gas.*
    v. *Implementing all Best Management Practices detailed in the SWPPP. This includes BMPs for materials management, spill prevention, and erosion and sediment control. To protect human health, the Engineer will use their discretion as to whether to remove BMPs which may impede flow into*

inlets causing ponding on the roadway. These changes shall be noted on the SWPPP.

vi. *Work crews shall finalize securing the project site, and evacuate until the severe weather condition has passed.*

c. *Upon return to the Site, all BMPs shall be inspected, repaired and/or re-installed as needed. If repair or reinstallation of removed BMPs is necessary, it shall be initiated within 24 hours of the inspection. Note the changes on the SWPPP. To facilitate repair or replacement, the Contractor shall be required to store surplus material on the project site if the site is located where replacement materials will not be readily available.*

d. *When there has been a discharge which violates Hawaii Water Pollution rules and regulations OR there is an imminent threat of a discharge which violates Hawaii Water Pollution rules and regulations and/or endangers human and/or environmental health, the Engineer shall, at a minimum, execute the following steps:*

   i. *Assess whether construction needs to stop or if additional BMPs are needed to stop or prevent a violation.*
   ii. *Direct the Contractor to take all reasonable measures to protect human health and the environment.*
   iii. *Notify responsible parties listed below and immediately notify the DOH of the incident. The notification shall also include the identity of the pollutant sources and the implemented control or mitigation measures.*
      1. *Owner Contact/Emergency Contact Number:* ***XXX, XXX-XXXX***
      2. *Owner Contact/ Emergency Contact Number:* ***XXX, XXX-XXXX***
      3. *Contractor/ Emergency Contact Number:* ***XXX, XXX-XXXX***
      4. *Department of Health Clean Water Branch (During regular working hours): 808-586-4309 Hawaii State Hospital Operator (After hours): 808-247-2191*
   iv. *Document corrective actions, take photographs of discharge and receiving waters.*

   v. *Evaluate the effectiveness of the construction BMPs in the Site-Specific Construction Best Management Plan in relation to the design storm. If the storm was less than the design storm and BMPs were ineffective, revise BMPs to prevent future discharges of a similar nature.*

Conclusion

Based on the nature of the proposed work and implementation of the proposed BMPs and minimization measures discussed in our June 30, 2023 letter along with these Conservation

Recommendations, the FHWA believes there will be no more than minimal adverse effects to EFH.

We are seeking concurrence that the proposed action will have no more than minimal adverse effects to EFH. We respectfully request your response within 30 days of receipt of this letter.

If you have any questions, please feel free to contact Meesa Otani, Environmental Engineer, at (808) 541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

for Richelle M. Takara, P.E.
Division Administrator

cc: Richard Darden, FHWA
Lisa Powell, FHWA
Colleen Vaughn, FHWA
Pua Aiu, HDOT
Genevieve Sullivan, HDOT
Peter Liebowitz, WSP
Jan Reichelderfer, WSP
James Sullivan, WSP
Wayne Yoshioka, WSP
Malia Chow, NMFS
David Delaney, NMFS
Giannina DiMaio, NMFS
Sean Hanser, NMFS
Jamie Marchetti, NMFS
Kate Taylor, NMFS
Dale Youngkin, NMFS
Alexandria Barkman, NMFS

Sullivan, James

From:	Alexandria Barkman - NOAA Federal <alexandria.barkman@noaa.gov>
Sent:	Tuesday, October 10, 2023 6:40 PM
To:	Otani, Meesa (FHWA)
Cc:	Gerry Davis - NOAA Federal; Darden, Richard (FHWA); Powell, Lisa (FHWA); Vaughn, Colleen (FHWA); Aiu, Pua; Sullivan, Genevieve; Reichelderfer, Jan; Liebowitz, Peter; Yoshioka, Wayne; Malia Chow - NOAA Federal; David Delaney - NOAA Federal; Giannina DiMaio - NOAA Federal; Sean Hanser - NOAA Federal; Jamie Marchetti - NOAA Federal; Kate Taylor - NOAA Federal; Dale Youngkin - NOAA Federal; Sullivan, James; Takara, Richelle (FHWA)
Subject:	Re: NMFS EFH Conservation Recommendations Letter for FHWA Honoapi'ilani Highway Improvements
Attachments:	~WRD0000.jpg
Follow Up Flag:	Follow up
Flag Status:	Flagged

Aloha Meesa,

The Habitat Conservation Division of the National Marine Fisheries Service, Pacific Islands Regional Office (NMFS) has received the FHWA's response to the conservation recommendations provided by NMFS. Thank you for your response and acceptance of the conservation recommendations. The EFH consultation for the Honoapi'ilani Highway Improvements is complete.

Regards,
Alex Barkman

On Fri, Oct 6, 2023 at 11:30 AM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

> Hi Gerry,
>
> Thank you for the NMFS's response to FHWA's request for EFH consultation. Attached is the FHWA and HDOT's response to the July 26, 2023 letter.
>
> Please let me know if you have any questions.
>
> Thank you!
>
> Meesa
>
> ***Meesa Otani***

Environmental Engineer

Federal Highway Administration, Hawaii Division

300 Ala Moana Blvd., Room 3-229

Honolulu, Hawaii 96850

(808) 541-2316

meesa.otani@dot.gov

From: Alexandria Barkman - NOAA Federal <alexandria.barkman@noaa.gov>
Sent: Wednesday, July 26, 2023 3:36 PM
To: Takara, Richelle (FHWA) <Richelle.TAKARA@dot.gov>
Cc: Darden, Richard (FHWA) <richard.darden@dot.gov>; Powell, Lisa (FHWA) <lisa.powell@dot.gov>; Otani, Meesa (FHWA) <meesa.otani@dot.gov>; Vaughn, Colleen (FHWA) <colleen.vaughn@dot.gov>; pua.aiu@hawaii.gov; genevieve.h.sullivan@hawaii.gov; jan.reichelderfer@wsp.com; peter.liebowitz@wsp.com; wayne.yoshioka@wsp.com; Malia Chow - NOAA Federal <malia.chow@noaa.gov>; David Delaney - NOAA Federal <david.delaney@noaa.gov>; Gerry Davis - NOAA Federal <gerry.davis@noaa.gov>; Giannina DiMaio - NOAA Federal <giannina.dimaio@noaa.gov>; Sean Hanser - NOAA Federal <sean.hanser@noaa.gov>; Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>; Kate Taylor - NOAA Federal <kate.taylor@noaa.gov>; Dale Youngkin - NOAA Federal <dale.youngkin@noaa.gov>
Subject: NMFS EFH Conservation Recommendations Letter for FHWA Honoapi'ilani Highway Improvements

Aloha Ms. Takara,

The Habitat Conservation Division of the National Marine Fisheries Service, Pacific Islands Regional Office (NMFS) received the Federal Highway Administration's request for an abbreviated essential fish habitat (EFH) consultation regarding Honoapi'ilani Highway Improvements. We reviewed the submitted EFH Assessment and provided conservation recommendations pursuant to the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act in the attached EFH Consultation letter.

Thank you for your early coordination with NMFS during the planning phase of this important project.

Regards,

Alexandria Barkman

--

Alexandria Barkman, PhD.

EFH Consulting Biologist, PIRO Habitat Conservation Division

National Marine Fisheries Service | U.S. Department of Commerce
Office: (808) 725-5150

www.fisheries.noaa.gov

--
Alexandria Barkman, PhD.
EFH Consulting Biologist, PIRO Habitat Conservation Division
National Marine Fisheries Service | U.S. Department of Commerce
Office: (808) 725-5150

www.fisheries.noaa.gov

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-229
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
FHWA-Hawaii.Intake@dot.gov

June 30, 2023

In Reply Refer To:
HDA-HI

Ms. Sarah Malloy
Regional Administrator (Acting), Pacific Islands Regional Office
National Oceanic and Atmospheric Administration
NOAA Inouye Regional Center, NMFS/PIRO
1845 Wasp Boulevard, Building 176
Honolulu, HI 96818

Subject: Endangered Species Act (ESA) Section 7 Consultation
Honoapiilani Highway Improvements, West Maui, Ukumehame to Launiupoko
Lahaina, Island of Maui, State of Hawaii
Federal-aid Project No. RAEM-030-1(059)

Dear Ms. Malloy:

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii Department of Transportation (HDOT), is planning to improve Honoapiilani Highway (State Route 30) between milepost 11 and milepost 17 with State and federal funds. Therefore, the project is required to be in compliance with the National Environmental Policy Act (NEPA) and other federal requirements including Section 7 of the Endangered Species Act (ESA) of 1973 (Section 7), as amended.

We are requesting ESA Section 7 consultation with the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) for the proposed project. The initial consultation meeting with several NOAA representatives (Sean Hanser, David Delaney, Kate Taylor, Jamie Marchetti, and Ron Dean) was held on February 16, 2023. In this letter, the project team is providing a description of the proposed action, a list of ESA protected species and critical habitat, an assessment of potential adverse effects, proposed ways to mitigate for any effects, and a determination as to how the action will affect Federally-protected species and their designated critical habitat.

Description of the Proposed Action

The proposed project is in West Maui, in the areas served by the existing Honoapiilani Highway between milepost 11 and milepost 17. Honoapiilani Highway, which is part of Maui's Belt Road system, is a two-lane principal arterial highway that provides the sole access between communities along the west coast of Maui and the rest of the island. The proposed southeastern terminus at milepost 11 is in Ukumehame, in the vicinity of Papalaua Beach Park, and the northwestern terminus of the project is at milepost 17 in Launiupoko, where Honoapiilani Highway currently intersects the southern terminus of the Lahaina Bypass. This approximately six-mile long and 3/4-mile-wide project area is composed predominantly of a coastal plain that includes the Ahupuaa of Ukumehame, Olowalu, and Launiupoko. Offshore, the Olowalu reef area, which extends from Ukumehame to Launiupoko, hosts about 1,000 acres of some of the healthiest and oldest living corals within the main Hawaiian Islands.

FHWA and HDOT developed four preliminary project alternatives. The project alternatives would be further refined as the Draft Environmental Impact Statement (EIS) is prepared, leading to the selection of a preferred alternative. The proposed project does not include work on the existing highway except where the new project joins the existing highway at the northern and southern connections points and potentially at connector roads to ensure continued access to residences, businesses, and public beaches. Depending on the selected alternative, there may be intersections at Luawai Street in Olowalu and Ehehene Street, Pohaku Aeko Street as well as a new driveway connect for direct access to the Ukumehame Firing Range. It is anticipated that there will be little or no new construction at the existing highway since these primary connector roads all have existing intersections with considerable infrastructure including left and right turn lanes on the existing highway as well as merge lanes for traffic turning from the side street onto the existing highway.

Additional information can be obtained at the project website, www.honoapiilanihwyimprovements.com.

Project Alternatives

A Preferred Alternative has not yet been identified. Four draft “Build Alternatives” have been identified and are being evaluated in the Draft EIS currently underway. Each alternative involves the construction of a new highway, which is mainly along a new alignment, further inland from the ocean. None of the alternatives involve work in the ocean. They may require bridges over the streams. All project alternatives would incorporate Best Management Practices (BMPs). Opportunities to avoid cultural and environmental constraints identified during the EIS technical studies would be considered in ongoing conceptual design work in support of the Draft EIS and determination of the Preferred Alternative.

As a refresher to our previous communication, the four alternatives as presented in the NOI and Scoping Documents are depicted in Figure 1 and brief descriptions are as follows:

> **Build Alternative 1 (Red Line)** has been adapted from the County of Maui’s Pali to Puamana Parkway 2005 coastal or makai concept. This alignment has been “modified” to apply American Association of State Highway and Transportation Officials (AASHTO) design standards, bypass erosion areas, and avoid cultural resources. This alternative is just mauka of most inundation areas in Launiupuoko and Olowalu and maximizes use of the existing right-of-way (ROW).
>
> **Build Alternative 2 (Yellow Line)** has been adapted from the County of Maui’s Pali to Puamana Parkway 2005 “middle” concept. The alignment was “modified” to apply AASHTO standards, bypass erosional areas, and avoid cultural resources.

Build Alternative 3 (Bright Green Line) has been adapted from the County of Maui's Pali to Puamana Parkway 2005 "mauka" concept. The alignment was "modified" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources.

Build Alternative 4 (Purple Line) was also adapted from the County of Maui's Pali to Puamana Parkway 2005 mountain-ward or mauka concept. The alignment has been "corrected" to apply AASHTO standards, bypass erosional areas, and avoid cultural resources. The route through Olowalu town, which distinguishes this alignment, is based on landowner input provided in 2007. This alignment meets the 55 miles per hour (mph) design speed (with speed signs to be posted at 45 mph), while minimizing curves.

The alignments converge at several points and there are two distinct areas where the alignments all differ from one another: one in Olowalu and the other in Ukumehame. The preferred alternative may be selected from two proposed alternatives, one in each of the two differing areas.

The No-Build Alternative reflects future conditions if the proposed project were not constructed. Future conditions are based on projections of land-use and development that are likely to occur in 2045 Build Analysis timeframe. The roadway would continue to operate in its current location and condition, including at the several locations along the existing highway where the highway has been protected by various emergency stabilization projects. Additional stabilization efforts could be required in the future under the No Build Alternative.

For the proposed project, none of the four alternatives would require any disturbance or work in the ocean. While it is intended that the existing highway right-of-way would be transferred from the State to Maui County (where, consistent with Maui County park planning, it would be used to provide continued access to beaches and local residential and commercial uses) the proposed project does not include any work on the existing highway in the areas where prior emergency stabilizations have occurred.

It is also noted that no night work is anticipated during construction, and construction duration is anticipated to be no longer than two years. However, should night work be required, additional coordination would be conducted with NMFS to agree upon any other appropriate conservation measures.

Analysis of Potential Adverse Effects on ESA

NMFS expressed specific concerns for the potential impacts to Hawaiian Monk Seal (*Neomonachus schauinslandi)* critical habitat and water from polluted runoff at the February 16, 2023 consultation meeting. Other species of concern are listed on the [Marine Protected Species of the Hawaiian Islands | NOAA Fisheries] website (accessed 6/19/2023).

Hawaiian Monk Seals are in the Olowalu reef area offshore of the project. In the project area, the Monk Seal's critical habitat is not only in the ocean but also extends 5 feet on to the shoreline to account for the seals going onto the beach. In addition, False Killer Whale (*Pseudorca crassidens*) critical habitat is found offshore of Maui.

Both the Hawaiian Monk Seal and the False Killer Whale are listed as endangered. Additional marine mammals in the Hawaiian Islands listed as endangered are:

Blue Whale *Balaenoptera musculus*
Fin Whale *Balaenoptera physalus*
North Pacific Right Whale *Eubalaena japonica*
Sei Whale *Balaenoptera borealis*
Sperm Whale *Physeter macrocephalus*

There are several species of sea turtles protected under the ESA:

Central North Pacific Green Turtle *Chelonia mydas* (Threatened)
Hawksbill Turtle *Eretmochelys imbricata* (Endangered)
Leatherback Turtle *Dermochelys coriacea* (Endangered)
North Pacific Loggerhead Turtle *Caretta caretta* (Endangered)
Olive Ridley Turtle *Lepidochelys olivacea* (Threatened)

The protected fish species are:

Giant Manta Ray *Manta birostris* (Threatened)
Oceanic Whitetip Shark *Carcharhinus longimanus* (Threatened)
Shortfin Mako Shark *Isurus oxyrinchus* (Candidate Species)

There are currently no known ESA-listed coral species found in the Hawaiian Archipelago. However, the Olowalu coral reef is home to an incredible diversity of marine life including large populations of manta rays, sea turtles, reef sharks, and a multitude of tropical fish species and is vitally important to the surrounding underwater ecosystems of Maui, Molokai and Lanai, serving as a nursery to replenish and populate nearby reefs.

NMFS sent HDOT suggested BMPs that have been used for a similar project. The provided BMPs address physical damage to the benthos (e.g., corals and seagrass), sedimentation and turbidity, introduction of chemical contaminants, introduction of invasive species, and noise.

Physical damage to the benthos (e.g., corals and seagrass)

Physical damage to corals can occur due to abrasion or breaking of colonies. Activities that may impart physical damage from the construction projects can include dredging, filling discharge (e.g., rocks, dirt, cement, etc.), anchoring vessels/barges and silt curtains, and using heavy equipment in-water.

The proposed project does not include any work in the ocean so would not impart physical damage to the corals or other ocean life. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Sedimentation and Turbidity

Increased sedimentation and turbidity can cause smothering of benthic species and block sunlight necessary for species that rely on photosynthesis. For fish, sedimentation is less likely to cause significant impacts because of their mobility, but some effects are still possible.

Sedimentation and turbidity are potential adverse effects. Use of proper BMPs, as detailed below, would avoid or minimize potential adverse effects and no additional mitigation would be anticipated. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions. The project would require a National Pollutant Discharge Elimination System (NPDES) permit and the associated Stormwater Pollution Prevention Plan (SWPPP) to minimize sedimentation and turbidity effects.

Hui O Ka Wai Ola (huiokawaiola.com) and the Hawaii Department of Health regularly sample water quality, including turbidity, along the project area coast. Their work since 2006 provides a valuable record of nearshore water quality conditions. During construction, their monitoring data would allow HDOT to evaluate the effectiveness of the construction BMPs and quickly respond if there are any abnormal turbidity results.

Introduction of Nutrients, Chemical Contaminants, and Freshwater

Increases in nutrients (i.e., from earthmoving, land use changes, and runoff), pollutants and contaminants (i.e., from earthmoving and equipment), and freshwater to the marine environment can reduce fitness and cause mortality of exposed organisms. Increases of land-based runoffs and discharges can subject benthic communities to adverse exposures and potential degradation of condition and mortality. Water conditions around coral reefs are often oligotrophic, and introduction of nutrients can change water conditions from a clear, nutrient limited baseline. The construction site’s primary potential sources of nutrient loading are sediment runoff from ground disturbance and the storage and use of construction equipment. When not properly maintained, equipment could release contaminants (oil, fuel, etc.) into the marine environment. Accidental releases or spills due to unanticipated circumstances are also possible. Contaminant runoff could be generated from storage and use of construction equipment that is leaking fuel or oil, and/or improperly stored construction materials being exposed to stormwater runoff.

The release of contaminants such as oil or fuel and the introduction of nutrients are potential adverse effects addressed by proposed BMPs which would avoid or minimize potential adverse effects and no additional mitigation would be anticipated. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Introduction of Invasive Species

Introduced species are organisms that have been moved, intentionally or unintentionally, into areas where they do not naturally occur. Species can be introduced to new biogeographies, typically via transport on vessel hulls, in ballast waters, or on equipment. Invasive species can rapidly increase in abundance to the point that they come to dominate their new environment, creating adverse ecological effects to other species of the ecosystem and the functions and services it may provide. Invasive species can decrease species diversity, change trophic structure, and diminish physical structure, but adverse effects are highly variable and species-specific.

Invasive species are both a threat to the ocean and the land ecosystems. Specific BMPs to prevent invasive species from being spread by the project would avoid or minimize potential adverse effects and no additional mitigation would be anticipated. It is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Noise

Construction noise has been shown to have a broad range of potential effects. However, no noise would be directly generated in the ocean by this project. BMPs suggested are directed at any bridge construction on the streams entering the ocean.

Given the proposed implementation of BMPs and minimization measures, which are described further below, potential adverse effects would be avoided and no additional mitigation would be anticipated. Noise is not anticipated to have cumulative effects based on any reasonably foreseeable actions.

Project Best Management Practices and Avoidance and Minimization Measures

BMPs would be implemented during construction to minimize the potential for impacts to water quality. BMPs for in-water and land-based construction would be implemented in accordance with the documented approach, "*An Integrated Storm Water Management Approach and a Summary of Clear Water Diversion and Isolation Best Management Practices for Use in the State of Hawaii*" by the Federal Highway Administration and Hawaii Department of Transportation Practitioners Guide (2016) or the *Construction Best Management Practices Field Manual* by the State of Hawaii Department of Transportation (2008).

Specific BMPs and minimization measures to be implemented include:

1. Waste Management – Concrete wastes, solid wastes, and any sanitary/septic wastes would be located away from and managed to assure no contamination to the ocean or critical habitats.

2. Vehicle and Equipment Management – All vehicles and equipment cleaning, maintenance, and refueling would be located away from and managed to assure no contamination to the critical habitats. Invasive species controls shall be maintained to ensure that all materials transported from off-site are free of such species.

3. Stormwater Management and Erosion Control – The project would require an NPDES permit with a SWPPP. The Contractor would be required to install and maintain BMPs as part of the proposed project. Site-specific stormwater BMPs would be implemented and/or installed at the staging and work areas to prevent water quality degradation associated with stormwater runoff. Stormwater BMPs would include maintaining equipment in good working order, storing equipment and materials away from the ocean or stream bank with strategic placement of absorbent material, such as fiber rolls, as a buffer between equipment and nearby waterbodies. Drip pans shall also be maintained beneath construction equipment. The Contractor would be required to prevent any debris from falling into the water.

4. The HDOT Standard Specifications for Road and Bridge Construction Section 209 Temporary Water Pollution, Dust, and Erosion Control would be followed.

5. The project would require temporary construction laydown areas. Stockpiling, storage, and equipment staging would utilize appropriate BMPs to prevent potential surface runoff from entering the stream. No stockpiling, storage, or heavy equipment would be placed in the streams.

In addition, NMFS provided a list of standard BMPs (Enclosure: Initial BMPs to Consider for Road Construction Projects Version 27 Feb 2023). These BMPs have been evaluated for applicability to the proposed project and those that are appropriate are presented below and would be used in the design and construction of the Project.

Specific BMPs and minimization measures to be implemented include:

A. For Physical Impacts to Benthic Communities (most of these are not considered applicable since there is no anticipated construction in the marine environment).
    1. Prevent trash and debris from entering the marine environment during the project.
    2. For anticipated stream crossings, all temporary structures must be removed at the completion of in-water work.
    3. For anticipated stream crossings, do not stockpile or stage materials in the marine environment unless absolutely necessary. Place material that is stored in the marine environment on unconsolidated sediments devoid of coral and seagrass.

B. For Increase in Sedimentation and/or Turbidity
    1. Install sediment, turbidity, and/or pneumatic curtains, and use real-time monitoring (automated or manual) to detect failure and implement stop-work processes if pre-determined project thresholds are reached (use standards from Clean Water Act 401 water quality certification). In areas of soft sediment, consider partial length turbidity curtains to reduce resuspension of sediment during high winds and currents.
    2. Maintain baseline water flow, volume, and velocity of the waterbody.
    3. Use natural or bio-engineered solutions when feasible.
    4. Fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.
    5. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction conditions and elevations.
    6. Minimize disturbances to stream banks, and place abutments outside of the floodplain whenever possible. Seek to maintain baseline water flow volume and velocity within the system.
    7. Design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable.
    8. Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.

C. For Increase in Nutrients, Pollution, Contaminants, and Freshwater
    1. Conduct work during the dry season when possible; stop work during storms or heavy rains.
    2. Prevent discharges into the water.
    3. Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (e.g., oil, fuel) leaks. Work

must be stopped until leaks are repaired, and equipment is cleaned. Equipment should always be stored in appropriate staging area designed to be preventative in terms of containing unexpected spills when equipment is not in use or during fueling.

4. All fueling or repairs to equipment must be done in a location with the appropriate controls that prevent the introduction of contaminants to marine environment.
5. Fueling of project-related vehicles and equipment shall take place at least 50 feet, or the maximum distance possible, from the water and within a containment area, preferably over an impervious surface.
6. Use of treated wood that would be in contact with the water is not authorized.
7. Use materials that are nontoxic to aquatic organisms, such as untreated wood, concrete, or steel (avoid pressure treated lumber).
8. Prevent bentonite and other drilling fluids from contacting benthic organisms.
9. Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column.

As provided by NMFS, these remaining BMPs and minimization measures do not apply to the project primarily since there is no anticipated in-water ocean construction associated with the Project.

A. For Physical Impacts to Benthic Communities
    1. Restrict all physical contact with the bottom to unconsolidated sediments devoid of coral and seagrass.
    2. Perform pre-deployment reconnaissance (e.g., divers, drop cameras) to ensure that all anchors are set on hard or sandy bottom devoid of corals and seagrass and that chosen anchor locations take into consideration damage that could occur from the anchor chain if the vessel swings due to currents or tides.
    3. Prior to mobilizing, ensure all equipment, ballast, and vessel hulls do not pose a risk of introducing new invasive species and will not increase abundance of invasive species present at the project location.
    4. Relocate infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities according to an approved relocation plan. If infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities will be removed or destroyed as part of permitted activities, relocate these materials to an appropriate receiving site. Equipment, anchors, structures, or fills shall not be deployed in project areas containing live corals, seagrass beds, or visible benthic organisms. Perform pre-deployment reconnaissance (e.g., divers, drop cameras, etc.) to ensure these resources are avoided.
    5. Minimize direct impact (direct or indirect contact causing damage) by divers and construction related tools, equipment, and materials with benthic organisms, regardless of size, especially corals and seagrass.
    6. Maintain all structures, gears, instruments, mooring lines, and equipment to prevent failures.
    7. All objects lowered to the bottom shall be lowered in a controlled manner. Note: This can be achieved using buoyancy controls such as lift bags, or the use of cranes, winches, or other equipment that affect positive control over the rate of descent. This often requires skilled in-water observation.
    8. Select work platforms based on the following preferential hierarchy:

        A. conduct all work from land or an existing structure;
        B. use a barge with auto-positioning systems where thrusters will not cause increased turbidity;
        C. anchor barges to (1) shoreline infrastructure; (2) nearby existing moorings; and, (3) anchors or spuds on sand only (as possible, have SCUBA divers lay anchors by hand in sand areas).
    10. Ensure new structures minimize shading impacts to marine habitats.
    11. Mooring systems (e.g., buoys, chains, ropes) must:
        A. be kept taut to the minimum length necessary.
        B. employ the minimum line length necessary to account for expected fluctuations in water depth due to tides or waves.
        C. use a mid-line floats or other buoyancy devices to prevent contact with the ocean floor.
        D. be properly maintained.
    12. Ensure structures are properly weighted to prevent movement from currents or waves and implement a maintenance plan to ensure integrity over time.
    13. Require a long-term maintenance plan for gear, instruments, and equipment to prevent failures leading to permanent adverse effects to EFH (e.g. scour or vessel groundings).

B. For Increase in Sedimentation and/or Turbidity
    1. Collect all accumulated sediment and/or debris and remove them entirely from the water and place onto a surface vessel; debris should not be towed outside a containment.
    2. Debris and sediment that is removed from the water shall be disposed of at an appropriate upland location. Sediment and debris must be contained while in transit or on the shore.
    3. Project operations must cease under unusual conditions, such as large tidal events, storms, and high surf conditions.
    4. Conduct intertidal work at low and/or slack tide to the greatest extent feasible.
    5. To minimize impacts to coral larvae, you should avoid in-water work during mass-coral spawning times or peak coral spawning seasons. Permittees should coordinate with local NMFS Habitat Conservation Division representatives to determine the exact period when coral spawning would occur for the given year at the project site.
    6. Use cofferdams to dewater the project impact site for activities.
    7. Utilize environmental clamshell buckets for mechanical dredging.

C. For Increase in Nutrients, Pollution, Contaminants, and Freshwater
    1. Use diffusers on the end of subtidal discharge pipes to minimize impacts from discharges.

D. For Increase in Acoustic Impacts
    1. Use a vibratory hammer to install piles when possible. Under conditions where impact hammers are required, drive as deep as possible with a vibratory hammer prior to the use of an impact hammer.
    2. Implement measures to attenuate the sound or minimize impacts to aquatic resources during pile installation. Methods to mitigate sound impacts include but are not limited

to the following: surround the pile with a dewatered cofferdam and/or air bubble curtain system.

Conclusion

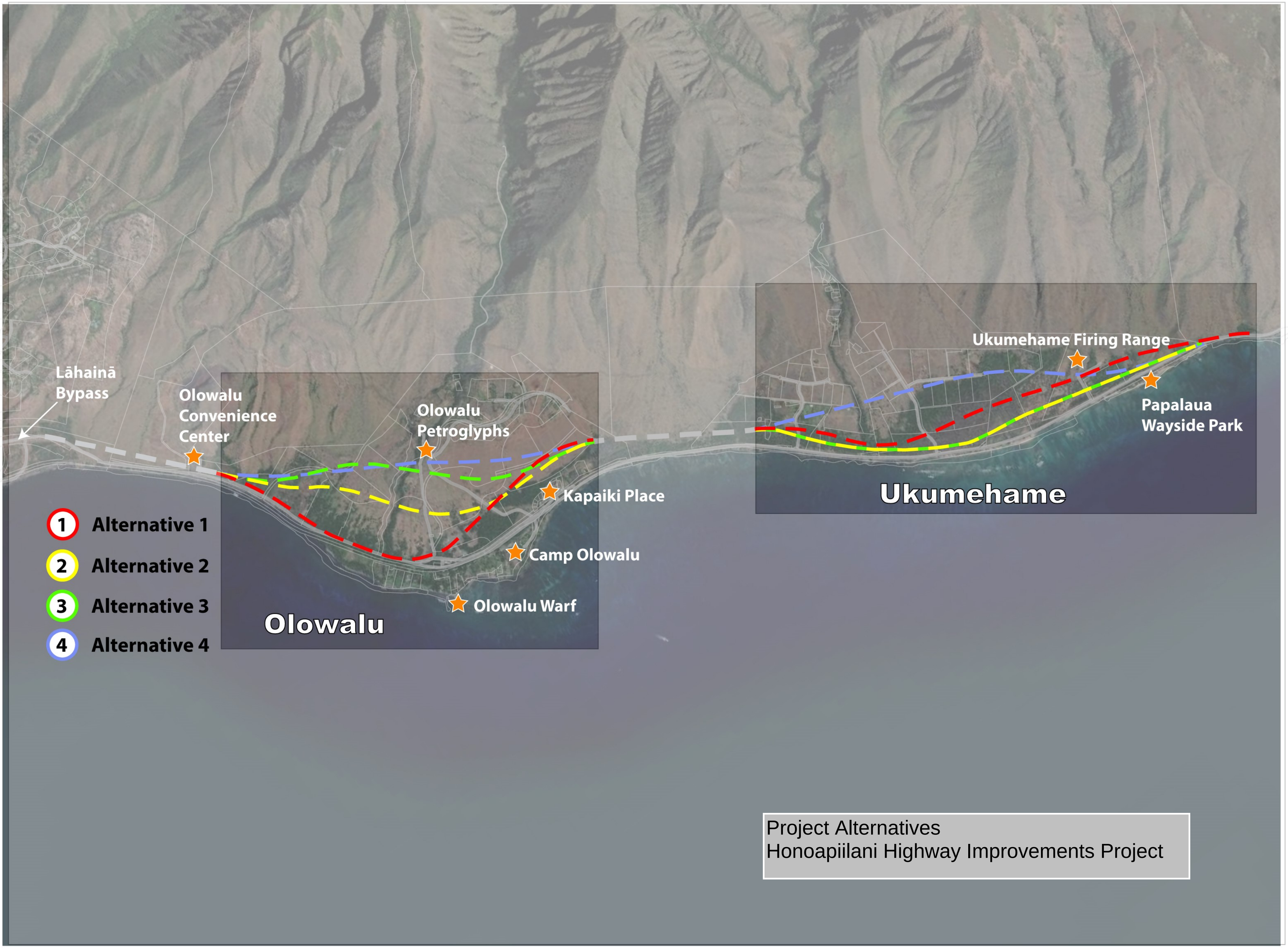
Based on the nature of the proposed work and implementation of the proposed BMPs and minimization measures, the FHWA has determined that the proposed action may affect, but is not likely to adversely affect Federally-protected species or their designated critical habitat, including Hawaiian Monk Seal and False Killer Whale designated critical habitat. We request your concurrence with our may affect, but not likely to adversely affect determination. We respectfully request your response within 60 days of receipt of this letter.

If you have any questions, please feel free to contact Meesa Otani, Environmental Engineer, at (808) 541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

for Richelle M. Takara, P.E.
Division Administrator

Enclosures



Project Alternatives
Honoapiilani Highway Improvements Project

Enclosure: Initial BMPs to Consider for Road Construction Projects
Version 27 Feb 2023

A. For Physical Impacts to Benthic Communities

1. Restrict all physical contact with the bottom to unconsolidated sediments devoid of coral and seagrass.
2. Perform pre-deployment reconnaissance (e.g., divers, drop cameras) to ensure that all anchors are set on hard or sandy bottom devoid of corals and seagrass and that chosen anchor locations take into consideration damage that could occur from the anchor chain if the vessel swings due to currents or tides.
3. Prior to mobilizing, ensure all equipment, ballast, and vessel hulls do not pose a risk of introducing new invasive species and will not increase abundance of invasive species present at the project location.
4. Relocate infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities according to an approved relocation plan. If infrastructure materials (e.g., riprap, piles, boulders) that are colonized with benthic communities will be removed or destroyed as part of permitted activities, relocate these materials to an appropriate receiving site. Equipment, anchors, structures, or fills shall not be deployed in project areas containing live corals, seagrass beds, or visible benthic organisms. Perform pre-deployment reconnaissance (e.g., divers, drop cameras, etc.) to ensure these resources are avoided.
5. Minimize direct impact (direct or indirect contact causing damage) by divers and construction related tools, equipment, and materials with benthic organisms, regardless of size, especially corals and seagrass.
6. Prevent trash and debris from entering the marine environment during the project.
7. Maintain all structures, gears, instruments, mooring lines, and equipment to prevent failures.
8. All objects lowered to the bottom shall be lowered in a controlled manner. Note: This can be achieved using buoyancy controls such as lift bags, or the use of cranes, winches, or other equipment that affect positive control over the rate of descent. This often requires skilled in-water observation.
9. Select work platforms based on the following preferential hierarchy:
    A. conduct all work from land or an existing structure;
    B. use a barge with auto-positioning systems where thrusters will not cause increased turbidity;
    C. anchor barges to (1) shoreline infrastructure; (2) nearby existing moorings; and, (3) anchors or spuds on sand only (as possible, have SCUBA divers lay anchors by hand in sand areas).
10. Ensure new structures minimize shading impacts to marine habitats.
11. Mooring systems (e.g., buoys, chains, ropes) must:
    A. be kept taut to the minimum length necessary.
    B. employ the minimum line length necessary to account for expected fluctuations in water depth due to tides or waves.
    C. use a mid-line floats or other buoyancy devices to prevent contact with the ocean floor.
    D. be properly maintained.
12. Ensure structures are properly weighted to prevent movement from currents or waves and implement a maintenance plan to ensure integrity over time.

13. Require a long-term maintenance plan for gear, instruments, and equipment to prevent failures leading to permanent adverse effects to EFH (e.g. scour or vessel groundings).
14. All temporary structures must be removed at the completion of in-water work.
15. Do not stockpile or stage materials in the marine environment unless absolutely necessary. Place material that is stored in the marine environment on unconsolidated sediments devoid of coral and seagrass.

B. For Increase in Sedimentation and/or Turbidity

1. Install sediment, turbidity, and/or pneumatic curtains, and use real-time monitoring (automated or manual) to detect failure and implement stop-work processes if pre-determined project thresholds are reached (use standards from Clean Water Act 401 water quality certification). In areas of soft sediment, consider partial length turbidity curtains to reduce resuspension of sediment during high winds and currents.
2. Collect all accumulated sediment and/or debris and remove them entirely from the water and place onto a surface vessel; debris should not be towed outside a containment.
3. Debris and sediment that is removed from the water shall be disposed of at an appropriate upland location. Sediment and debris must be contained while in transit or on the shore.
4. Project operations must cease under unusual conditions, such as large tidal events, storms, and high surf conditions.
5. Conduct intertidal work at low and/or slack tide to the greatest extent feasible.
6. To minimize impacts to coral larvae, you should avoid in-water work during mass-coral spawning times or peak coral spawning seasons. Permittees should coordinate with local NMFS Habitat Conservation Division representatives to determine the exact period when coral spawning would occur for the given year at the project site.
7. Maintain baseline water flow, volume, and velocity of the waterbody.
8. Use natural or bio-engineered solutions when feasible.
9. Fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.
10. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction conditions and elevations.
11. Use cofferdams to dewater the project impact site for activities.
12. Utilize environmental clamshell buckets for mechanical dredging.
13. Minimize disturbances to stream banks, and place abutments outside of the floodplain whenever possible. Seek to maintain baseline water flow volume and velocity within the system.
14. Design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable.
15. Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures.

C. For Increase in Nutrients, Pollution, Contaminants, and Freshwater

1. Conduct work during the dry season when possible; stop work during storms or heavy rains.
2. Prevent discharges into the water.
3. Inspect all equipment prior to beginning work each day to ensure the equipment is in good working condition, and there are no contaminant (e.g., oil, fuel) leaks. Work must be stopped until leaks are repaired, and equipment is cleaned. Equipment should always be stored in appropriate

staging area designed to be preventative in terms of containing unexpected spills when equipment is not in use or during fueling.

4. All fueling or repairs to equipment must be done in a location with the appropriate controls that prevent the introduction of contaminants to marine environment
5. Fueling of project-related vehicles and equipment shall take place at least 50 feet, or the maximum distance possible, from the water and within a containment area, preferably over an impervious surface.
6. Use of treated wood that would be in contact with the water is not authorized.
7. Use materials that are nontoxic to aquatic organisms, such as untreated wood, concrete, or steel (avoid pressure treated lumber).
8. Use diffusers on the end of subtidal discharge pipes to minimize impacts from discharges.
9. Prevent bentonite and other drilling fluids from contacting benthic organisms.
10. Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column.

D. For Increase in Acoustic Impacts

1. Use a vibratory hammer to install piles when possible. Under conditions where impact hammers are required, drive as deep as possible with a vibratory hammer prior to the use of an impact hammer.
2. Implement measures to attenuate the sound or minimize impacts to aquatic resources during pile installation. Methods to mitigate sound impacts include, but are not limited to the following: surround the pile with a dewatered cofferdam and/or air bubble curtain system.

Sullivan, James

From: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Sent: Thursday, October 19, 2023 2:12 PM
To: Jamie Marchetti - NOAA Federal
Cc: Powell, Lisa (FHWA); Darden, Richard (FHWA); Vaughn, Colleen (FHWA)
Subject: RE: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hi Jamie,

Yes, that would be great.

Thank you!
Meesa

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Thursday, October 19, 2023 9:01 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: Powell, Lisa (FHWA) <lisa.powell@dot.gov>; Darden, Richard (FHWA) <richard.darden@dot.gov>; Vaughn, Colleen (FHWA) <colleen.vaughn@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello,
I am nearly finished with your consultation and will shortly be sending it off for internal review.
From the time this project was submitted until now, Green sea turtle critical habitat has become something that we have begun conferencing on. It is at the action agency's discretion. As you mentioned in your prior email: *We are aware of the critical habitat along the Maui coastline, but given the existing conditions, our current mitigation measures and proposed construction activities minimize and are likely to avoid any potential adverse effects migrating from our inland project area to marine waters.*
I can include this as a conference if you like and would concur with an NLAA determination.

Just let me know either way.

Thanks
Jamie Marchetti

On Tue, Oct 10, 2023 at 3:23 PM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:

> Hello,
> Thank you for the followup email. I now have all the information needed to initiate your consultation request. The initiation date is today 10/10/23 and we will have a response within 60 days, though we strive to respond sooner. I will reach out if I have any further questions.
>
> Thank you
> Jamie
>
> On Fri, Oct 6, 2023 at 1:43 PM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Regional Office
1845 Wasp Blvd., Bldg 176
Honolulu, Hawaii 96818
(808) 725-5000 · Fax: (808) 725-5215

November 27, 2023

Meesa Otani
Federal Highway Administration, Hawaii Division
300 Ala Moana Blvd # 3-229, Honolulu, Hawaii 96850

RE: Request for Informal ESA Consultation and Conference on Honoapiilani Highway Improvements, West Maui, milepost 11 (Ukumehame) to milepost 17 (Launiupoko) (PIRO-2022-03611, I-PI-23-2170-DG).

Dear Ms. Otani:

On June 30, 2023, NOAA's National Marine Fisheries Service (NMFS) received your written request for informal consultation on the Federal Highway Administration's (FHWA), in cooperation with the State of Hawaii Department of Transportation (HDOT), proposed action to construct a new alignment of Honoapiilani Highway further inland from the ocean, between milepost 11 (near Ukumehame) and milepost 17 (near Launiupoko) with state and federal funds.

The proposed action may affect the endangered or threatened species and/or designated critical habitat under our jurisdiction, as identified below in Table 1. On November 30, 2022, NMFS received an invitation from FHWA to become a cooperating agency for this project. The letter informed NMFS of a Notice of Intent to prepare an Environmental Impact Statement (EIS), published in the Federal Register on November 22, 2022, and a Hawaii Environmental Policy Act EIS Preparation Notice, published in Hawaii's The Environmental Notice on November 23, 2022. The publication of the two announcements started the scoping process in which the FHWA and HDOT were seeking input on the project. NMFS agreed to be a cooperating agency on December 27, 2022. On July 7, 2023, we requested clarification on the proposed activities included in the action and provided a list of additions to the Best Management Practices related to these activities. On October 10, 2023, we received all the necessary information to evaluate the proposed action and initiated section 7 consultation.

We prepared this response to your request pursuant to section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §1531 *et seq*.), implementing regulations at 50 CFR 402, and agency guidance for the preparation of letters of concurrence. This letter also underwent pre-dissemination review using standards for utility, integrity, and objectivity in accordance with applicable guidelines issued under the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). A complete record of this consultation is on file at the Pacific Island Regional Office, Honolulu, Hawaii.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On

September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court's July 5 order. On November 14, 2022, the Northern District of California issued an order granting the government's request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. On June 22, 2023, we proposed clarifications to the language in the regulations. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in the letter of concurrence would be any different under the pre-2019 regulations, the 2019 regulation, or the 2023 proposed regulations. We have determined that our analysis and conclusions would not be any different.

Under section 7(a)(4) of the ESA, each Federal agency shall confer with the Secretary on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed or result in the destruction or adverse modification of critical habitat proposed to be designated for such species. While consultations are required when the proposed action may affect listed species, a conference is required only when the proposed action is likely to jeopardize the continued existence of a proposed species or destroy or adversely modify proposed critical habitat. However, Federal action agencies may request a conference on any proposed action that may affect proposed species or proposed critical habitat (USFWS & NMFS 1998).

Proposed Action

The FHWA, in cooperation with HDOT, proposes using state and federal funds to move Honoapiilani Highway further inland between milepost 11 and milepost 17. The current alignment of Honoapiilani Highway lies within the projected Sea Level Rise Exposure Area (SLR-XA), as defined by the State of Hawaii's Climate Change Mitigation and Adaptation Commission and the State Department of Land and Natural Resources. The project design allows the realigned roadway to improve resilience to the anticipated 3.2 feet of average sea level rise within the SLR-XA (Figure 1) (FHWA 2022).

Figure 1: Projected sea level rise exposure area.

A preferred alternative has not yet been identified (Figure 2). However, all build alternatives would move a portion of the highway and connect the improved Honoapiilani Highway with the current Lahaina Bypass (Hawaii Route 3000).

- Alternative 1 would avoid approximately 84 percent of the SLR-XA encroachment area on the existing highway. Roughly 0.6 miles (3,330 feet) of this alignment would remain inside the SLR-XA.
- Alternative 2 would avoid approximately 71 percent of the SLR-XA encroachment area on the existing highway. Roughly 1.1 miles (about 6,000 feet) of this alignment would remain inside the SLR-XA.
- Alternative 3 would avoid approximately 71 percent of the SLR-XA on the existing highway, similar to Alternative 2. Roughly 1.1 miles (about 6,000 feet) of this alignment would remain inside the SLR-XA.
- Alternative 4 would avoid approximately 92 percent of the SLR-XA on the existing highway. Roughly 0.3 miles (about 1,600 feet) of its alignment would remain inside the SLR-XA.

Figure 2: Preferred alternatives for Honoapiilani Highway realignment.

Each alignment assumes a typical 140-foot-wide cross-section, each with a two-lane roadway with sufficient right-of-way width to accommodate up to four lanes in the future. HDOT may seek design solutions to elevate the highway by a height in areas where there is still overlap with the SLR-XA. The proposed project only includes work on the existing highway where the new project joins it at the northern and southern connection points and potentially at connector roads to ensure continued access to residences, businesses, and public beaches. Heavy equipment would be used for the demolition of existing structures, removal of structural components/debris, excavation, filling, grading, laying pavement, road construction, and new bridge construction. None of these alternatives involve in-water work.

Any given alignment will have a mix of the following activities:

- Road construction, resurfacing, and reconstruction,
- Grading and establishment of staging and storage areas,

- Establishment of new temporary access roads and traffic detours,
- Enhancing existing scour protection and establishing new scour protection,
- Establishing grated inlets, guardrails, curbs, and curb ramps,
- Installing pavement markings and signage and utility manholes,
- Installation of spread footings and drilled shafts with pile caps (i.e. large caps combining multiple drilled shafts) not anticipated to involve in-water work,
- In-land sheet pile driving for temporary excavations,
- Clearing, grubbing of vegetation,
- Grading – cut and fill,
- The use of land-based, wetland environment cofferdams,
- Construction of new bank stabilization and any maintenance/reconstruction,
- Installing traffic signals, street lighting, and utility poles,
- New bridges construction at three primary streams, Launiupoko, Olowalu, and Ukumehame, as well as other surface water bodies, and
- Construction of box culverts.

Construction is scheduled to begin August 2025 with the duration anticipated to last no longer than two years.

Best Management Practices

In order to avoid or minimize effects on the Central North Pacific green, hawksbill sea turtles, and the Hawaiian monk seal, the FHWA/HDOT will implement the following BMPs to ensure that impacts to ESA-listed species and Hawaiian monk seal critical habitat are minimal and would not adversely modify the habitat.

These include:

1. Contractors will monitor for the presence of ESA-listed species during all aspects of the permitted action.
    a. A responsible party, i.e., permittee/site manager/project supervisor, will designate a competent observer to search/monitor work sites and the areas adjacent to the authorized work area for ESA-listed species.
    b. Observers will survey the area before the start of work each day, including before resumption of work following any break of more than one-half hour.
2. The Action Agency will ensure that a monitoring plan identifies the methods, equipment, communication, and all necessary measures to adequately observe ESA-listed species in the affected areas and communicate with workers.
    a. The Action Agency will ensure that observers are exclusively looking for ESA-listed species at the work site and not assigned to other tasks.
    b. Observers shall report to the workers when motile ESA-listed marine species are within 50 meters (54.7 yards, 164 feet) of the proposed work and halt work, and shall only begin/resume after the animals have voluntarily departed the area
    c. If listed species are noticed in the area after work has already begun, that work may continue only if, in the best judgment of the project supervisor, there is no way for the activity to adversely affect the animal(s).
3. Project-related personnel will NOT attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species.

4. The project manager or heavy equipment operators will perform daily pre-work equipment inspections for leaks. Detection of leaks will result in postponing or halting the use of heavy equipment until the leak is repaired and the equipment cleaned.
    a. The worksite will have sufficient materials to contain and clean possible spills.
    b. Equipment storage will occur in an appropriate staging area designed to prevent unexpected spills when equipment is not in use or during fueling.
    c. Drip pans will also be maintained beneath construction equipment. The contractor must keep the water free of debris.
5. Avoid nighttime work during the nesting and hatching season, which extends from May through December.
6. Turbidity and sediment from project-related work will be minimized and contained to the immediate vicinity of the project through the appropriate use of effective sediment containment devices and the curtailment of work during adverse tidal and weather conditions.
    a. All silt fences, curtains, and other structures will be installed properly and maintained in a functioning manner for the life of the construction period and until the impact area is permanently stabilized, self-sustaining, and/or turbidity levels, elevated due to construction, return to ambient levels.
    b. Use real-time monitoring (automated or manual) to detect failure and implement stop-work processes if predetermined project thresholds are reached (use standards from Clean Water Act 401water quality certification).
    c. In areas of soft sediment, consider partial-length turbidity curtains to reduce the resuspension of sediment during high winds and currents.
7. Minimize disturbances to stream banks. Seek to maintain baseline water flow volume and velocity within the system.
8. Revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas before removing silt fences and erosion prevention measures.
9. Project construction-related materials (fill, revetment rock, pipe, etc.) will not be stockpiled in or near aquatic habitats, to prevent materials from being carried into waters by wind, rain, or high surf.
10. For anticipated stream crossings, removal of all temporary structures will occur at the completion of in-water work.
11. For anticipated stream crossings, do not stockpile or stage materials in the marine environment unless necessary.
12. The use of treated wood for in-water work is not authorized.
13. Prevent discharges of chemicals and other fluids dissimilar from seawater into the water column.
    a. Concrete wastes, solid wastes, and any sanitary/septic wastes would be located away from and managed to ensure no contamination of the ocean or critical habitats.
    b. Site-specific storm water BMPs will be implemented and/or installed at the road staging and work areas to prevent water quality degradation associated with storm water runoff.
    c. Project-related materials and equipment placed in the water will be free of pollutants.

d. Fueling of land-based vehicles and equipment will take place away from the water, preferably over an impervious surface.

Action Area

The action area is defined by regulation as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR §402.02). The action area for the proposed activities encompasses the full extent of the action's modifications to land, water, and air. For this action, the full extent of direct and indirect effects is the potential exposure to increased turbidity and waste and discharge.

The proposed project is located in West Maui, in the area served by the existing Honoapiilani Highway between milepost 11 and milepost 17. Regardless of which alternative the FHWA implements, the action area will extend from the base of the West Maui Mountains to the existing highway along the coastline (Figure 3). This area is approximately six miles long and ¾ miles wide and contains all four build alternatives and the immediately adjacent coastal waters.

Figure 3: Proposed Action Area.

Listed Species in the Action Area

We are reasonably certain the ESA-listed species and designated critical habitat under our jurisdiction listed in Table 1 occur in the action area, and may be affected by the proposed activities. Detailed information about the biology, habitat, and conservation status of the animals listed in Table 1 is available in their status reviews, recovery plans, federal register notices, and other sources at https://www.fisheries.noaa.gov/species-directory/threatened-endangered.

Table 1. Common name, scientific name, ESA status, effective listing date, critical habitat designation, and recovery plans, with Federal Register reference for ESA-listed species considered in this consultation.

Species/ common name	ESA Status	Effective Listing Date/ FR Notice	Critical Habitat	Recovery Plan
Central North Pacific Green Sea Turtle	Threatened	05/06/2016 81 FR 20057		
Eretmochelys imbricata Hawksbill Sea Turtle	Endangered	06/03/1970 35 FR 8491		5/22/98 63 FR 28359
Neomonachus schauinslandi Hawaiian Monk Seal	Endangered	11/23/1976 41 FR 51612	9/21/2015 (revised) 80 FR 50925	8/22/07 72 FR 46966

We acknowledge that the FHWA considered blue whales, fin whale*s,* North Pacific Right whales*,* sei whales, sperm whales*,* leatherback sea turtles, North Pacific loggerhead sea turtles, olive ridley sea turtles, giant manta rays, oceanic whitetip sharks, shortfin mako sharks, and Main Hawaiian Island insular false killer whales and their critical habitat in their biological assessment. However, based on discussions with the FHWA, they removed these species from the request for consultation. These species' geographic locations do not overlap with the full extent of direct effects and indirect effects, and therefore there would be "no effect" from the listed stressors.

Critical Habitat in the Action Area

Hawaiian monk seal. In designated areas of the Main Hawaiian Islands (MHI), critical habitat for monk seals includes the marine environment with a seaward boundary that extends from the 200-meter depth contour line (relative to mean lower low water), including the seafloor and all subsurface waters and marine habitat within 10 meters of the seafloor, through the water's edge 5 meters into the terrestrial environment. Detailed information on Hawaiian monk seal critical habitat is available at https://www.fisheries.noaa.gov/action/critical-habitat-hawaiian-monk-seals.

The specific areas within the designation, with their physical and biological features are:

1. Terrestrial areas preferred by monk seals for pupping and nursing with adjacent shallow, sheltered aquatic areas
2. Marine areas from 0 to 200 meters in depth with water quality and sediment characteristics that support adequate prey quality and quantity for juvenile and adult monk seal foraging
3. Significant areas used by monk seals for hauling out, resting or molting

Proposed Central North Pacific Green Sea Turtle. Proposed critical habitat for Central North Pacific green sea turtles includes the marine environment from the mean high water line to 20 m depth. Detailed information on proposed Central North Pacific green sea turtle critical habitat is available at: https://www.fisheries.noaa.gov/action/proposed-rule-designate-critical-habitat-green-sea-turtles.

The specific areas within the proposed designation, with their physical and biological features are:

1. From the mean high water line to 20 m depth, sufficiently dark and unobstructed nearshore waters adjacent to nesting beaches proposed as critical habitat by USFWS, to allow for the transit, mating, and internesting of reproductive individuals, and the transit of post-hatchlings.
2. From the mean high water line to 20 m depth, underwater refugia (*e.g.,* caves, reefs, protective outcroppings, submarine cliffs, and "potholes") and food resources (*i.e.,* seagrass, marine algae, and/or marine invertebrates) of sufficient condition, distribution, diversity, abundance, and density necessary to support survival, development, growth, and/or reproduction.

Analysis of Effects

Under the ESA (50 CFR 402.02), "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

The applicable standard to find that a proposed action is "not likely to adversely affect" listed species or critical habitat is that all of the effects of the action are expected to be discountable, insignificant, or completely beneficial (USFWS & NMFS 1998). Discountable effects are those extremely unlikely to occur. Insignificant effects relate to the size of the impact and should never reach the scale where take[1] occurs. Beneficial effects are contemporaneous positive effects without any adverse effects.

Despite the FHWA/HDOT's use of all BMPs, we identified the following stressors remain, and have the potential to affect listed marine species and/or critical habitat in the action area:

- Disturbance from human activity,
- Increased turbidity,
- Exposure to waste and discharge, and
- Exposure to elevated noise.

To assess the effects of proposed actions, we use an exposure-response assessment framework. Effects are discountable if exposure is extremely unlikely to occur. For this reason we first determine the probability of stressors co-occurring with individuals from the listed species, or features of critical habitat. For stressors where exposure is not discountable, we discuss the significance of the species' response.

Disturbance from human activity

The proposed action involves construction activities near coastal waters at the juncture of the new highway and the existing highway. In these areas, disturbances from human activities may affect Central North Pacific green sea turtles, hawksbill sea turtles, and Hawaiian monk seals.

[1] The term take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (16 U.S.C. §1532). We define harass as to create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (Wieting 2016).

These disturbances may include visual disturbances from land-based equipment operations (i.e., excavator, bulldozer, etc.) and the presence of construction workers. At no time would construction equipment or material enter the water.

Land-based activities involving equipment and construction workers could disturb Central North Pacific green sea turtles, hawksbill sea turtles, and Hawaiian monk seals. However, the most frequent response to this type of interaction is low-energy behavioral avoidance, leading to a temporary displacement of feeding and resting activities.

In order to avoid or minimize these effects, the FHWA/ HDOT will implement appropriate BMPs. These include constant vigilance for the presence of ESA-listed species during all aspects of the permitted action, work being postponed or halted when ESA-listed marine species are within 50 m of the proposed activities and will only begin/resume after the animals have voluntarily departed the area, and project-related personnel will not attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species. With the implementation of these BMPs, we are reasonably certain the effects of disturbances from human activities on Central North Pacific green sea turtles, hawksbill sea turtles, and Hawaiian monk seals will not reach the scale where harm or harassment occur and are therefore insignificant.

Exposure to waste and discharge
The action involves construction activities that may expose Central North Pacific green sea turtles, hawksbill sea turtles, and Hawaiian monk seals to waste and discharge. Construction waste and debris, including plastic bags and other items, may enter the water, and construction equipment can cause accidental spills of petroleum-based products (lubricants, oil, and fuel).

Local and Federal regulations prohibit intentionally discharging toxic wastes and plastics into the marine environment. Additionally, the proposed action includes BMPs that include a chemical spill contingency plan, pre-work equipment inspections for cleanliness and leaks, and fueling of land-based equipment at least 50 feet away from the water. With proper planning and contingencies in place, discharges and spills are extremely unlikely to occur, and if they do occur, they are expected to be infrequent, small, and quickly cleaned up.

Based on the low likelihood of an ESA-listed species being in the vicinity, the unlikely event of a spill occurring, and adherence to the BMPs that would prevent or minimize potential exposure from spills, we are reasonably certain the effects of exposure to waste and discharge on Central North Pacific green sea turtles, hawksbill sea turtles and Hawaiian monk seals to wastes and discharges would be extremely unlikely to occur and potential effects from this stressor would therefore be discountable.

Increased turbidity
While no in-water work will occur, construction activities and heavy machinery associated with new bridge construction could mobilize additional sediments and cause increased turbidity at Launiupoko, Olowalu, and Ukumehame streams or other surface water bodies. Launiupoko, Olowalu, and Ukumehame are perennial streams that support flow to the ocean at least 95 percent of the time (Cheng 2014). An increase in turbidity may affect Central North Pacific green sea turtles, hawksbill sea turtles, and Hawaiian monk seals if it were to reach the ocean.

Green sea turtles, hawksbill sea turtles, and Hawaiian monk seals may encounter localized, temporary turbidity increases generated during new bridge construction. Sea turtles and seals breathe air, and increased turbidity will not affect their respiration. They are highly motile and can quickly leave turbid areas or avoid localized turbidity plumes in favor of clear water, reducing their exposure risk.

West Maui has a history of degraded water quality characterized by high turbidity due to land-based runoff. Nearshore water sampling conducted by the nonprofit Hui O Ka Wai Ola shows a history of turbidity levels well above the Department of Health (DOH) standards at Olowalu and Ukumehame (Hui O Ka Wai Ola 2022). The FHWA/HDOT will employ BMPs to minimize and contain turbidity and sediment from project-related work through the appropriate use of effective sediment containment devices and the curtailment of work during adverse tidal and weather conditions for the entire construction period. Real-time monitoring (automated or manual), in conjunction with records of nearshore water quality conditions from the DOH and Hui O Ka Wai Ola, will allow the FHWA/HDOT to evaluate the effectiveness of the BMPs and quickly respond if there are any abnormal turbidity results during construction. Implementation of stop-work processes will occur if the project reaches its thresholds for turbidity, as predetermined in the Storm water Pollution Prevention Plan and National Pollutant Discharge Elimination System permit.

Additionally, the FHWA/HDOT will follow *The HDOT Standard Specifications for Road and Bridge Construction Section 209: Temporary Water Pollution, Dust, and Erosion Construction Control* (HDOT 2017), which includes detailed plans, diagrams, and site-specific BMPs to comply with applicable State and Federal permit conditions. Given the temporary nature of turbidity caused by the project activities and the implemented BMPs, we are reasonably certain that the probability of exposure to appreciably increased turbidity on Central North Pacific green sea turtles, hawksbill sea turtles, and the Hawaiian monk seals is extremely unlikely, and therefore discountable.

Exposure to elevated noise

The proposed activities may expose North Pacific green sea turtles, hawksbill sea turtles, and Hawaiian monk seals to elevated sound from land-based sources. The effects of exposure to sound vary with the frequency, intensity, duration of the sound source, and the hearing characteristics of the affected animal. The project area is inland of the beach, providing a buffer distance to attenuate any sound waves that transfer from air into the water column.

Land-based equipment operation and construction activities will occur from shore and produce in-air noise. Typical construction noise associated with the equipment used in this project is between 77 and 85 dBA at 50 feet (FHWA 2017), while noise associated with existing average highway traffic at 50 feet is from 70 to 80 dBA (Corbisier 2003). Temporary displacement or avoidance of the area would likely be the predominant effect on most species. Most sounds generated from construction are non-continuous, and we do not expect ESA-listed Hawaiian monk seals and sea turtles to be exposed to this level of sound continuously as the noise dissipates from the source.

In-land bridge construction over streams using drilled shafts will produce in-air noise. Bridge abutments over streams will occur outside the Ordinary High Water Mark. Elevated in-air noise from construction is unlikely to generate underwater noise above ambient levels because the sound does not efficiently transfer from the air into the water column. Sound waves are also attenuated or blocked by encountering obstructions such as shallow water, land masses, or rocks. As both the Olowalu and Ukumehame Streams are shallow and rocky with numerous riffles, potential effects on monk seals and sea turtles will diminish with distance from construction activities. Given FHWA/HDOT's BMPs that require work to stop if an ESA-listed individual is within 50 m of the proposed activity and the lack of in-water construction, we are reasonably certain that the probability of exposure to elevated sound levels from the construction activities is extremely unlikely, and therefore discountable.

Critical Habitat

The action area overlaps with the proposed critical habitat for the Central North Pacific green sea turtle and Hawaiian monk seal critical habitat. Construction activities near coastal waters and the construction of new bridges may expose essential features of the critical habitats to elevated turbidity and exposure to waste and discharges.

Essential features of Hawaiian monk seal critical habitat that could be affected by elevated turbidity include shallow, sheltered aquatic areas preferred by monk seals for pupping and nursing and areas less than 200 m in depth that support adequate prey quality and quantity for juvenile and adult monk seal foraging. As discussed in the Exposure to Increased Turbidity section, silt containment devices will minimize turbidity and siltation associated with construction activities and bridge construction and contain any short-term turbidity events. Additionally, no work will occur during flooding or adverse tidal and weather conditions. Based on the implemented BMPs, we are reasonably certain the probability of exposure to elevated turbidity to essential features of monk seal critical habitat is extremely unlikely and therefore discountable.

Essential features of the Central North Pacific green sea turtle's proposed critical habitat from the mean high water line to 20 m depth that could be affected by elevated turbidity include underwater refugia and food resources of sufficient condition, distribution, diversity, abundance, and density necessary to support survival, development, growth, and reproduction. As discussed in the Exposure to Increased Turbidity section, silt containment devices will minimize turbidity and siltation associated with construction activities and bridge construction and contain any short-term turbidity events. Additionally, no work will occur during flooding or adverse tidal and weather conditions. Based on the implemented BMPs, we are reasonably certain the probability of exposure to elevated turbidity to essential features of the Central North Pacific green sea turtle's proposed critical habitat is extremely unlikely and therefore discountable.

Exposure of the essential features of Hawaiian monk seal marine critical habitat and Central North Pacific green sea turtle's proposed critical habitat to waste and discharge could occur due to trash, accidental leaks, or spills from equipment associated with the action. As discussed in the Exposure to Waste and Discharges section above, several BMPs will prevent discharges into the marine environment and manage any leaks or spills. Based on the implemented BMPs, we are reasonably certain the probability of exposure to waste and discharge to essential features of designated monk seal and proposed green sea turtle critical habitat is extremely unlikely and therefore discountable.

Conclusion

Considering the information and assessments presented in the consultation request and available reports and information, and in the best scientific information available about the biology and expected behaviors of the ESA-listed marine species considered in this consultation, all effects of the proposed action are either discountable or insignificant. Accordingly, we concur with your determination that the proposed action is not likely to adversely affect the following ESA-listed species and designated critical habitats: endangered Hawaiian monk seals; threatened Central North Pacific green turtles; endangered hawksbill turtles; and designated critical habitat for Hawaiian monk seals.

This concludes informal consultation under section 7 of the ESA for species under our jurisdiction. Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect essential fish habitat (EFH). If necessary, it is your responsibility to request EFH consultation for this action with NMFS' Habitat Conservation Division.

Reinitiation Notice

Reinitiation of consultation is required and shall be requested by the FHWA or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and if:

a. Take occurs to an ESA-listed species;
b. New information reveals effects of the action that may affect ESA-listed species or designated critical habitat in a manner or to an extent not previously considered;
c. The identified action is subsequently modified in a manner that causes an effect to ESA-listed species or designated critical habitat that was not considered in this concurrence; or
d. A new species is listed or critical habitat designated that may be affected by the identified action.

If you have further questions, please contact Jamie Marchetti at (808) 725-5108 or Jamie.marchetti@noaa.gov. Thank you for working with us to protect our nation's living marine resources.

Sincerely,

Dawn Golden

Dawn Golden
Assistant Regional Administrator
Protected Resources Division

NMFS File No.: PIRO-2022-03611
PIRO Reference No.: I-PI-23-2170-DG

Literature Cited

Cheng, C.L. 2014. Low-flow characteristics of streams in the Lahaina District, West Maui, Hawai‘i: U.S. Geological Survey Scientific Investigations Report 2014–5087, 58 p., http://dx.doi.org/10.3133/sir20145087.

Corbisier, C. 2003. Living with Noise. US Department of Transportation, Federal Highway Administration. *Public Roads* 67(1). July/August 2003. https://www.fhwa.dot.gov/publications/publicroads/03jul/06.cfm

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Wieting, D. S. 2016. Interim Guidance on the Endangered Species Act Term "Harass". U.S. Dept. of Commerce, NOAA, NMFS, Office of Protected Resources, Silver Spring, MD, October 21, 2016. Memorandum from the Director of the NMFS Office of Protected Resources to NMFS Regional Administrators.

Sullivan, James

From: Sullivan, Genevieve <genevieve.h.sullivan@hawaii.gov>
Sent: Wednesday, November 29, 2023 3:21 PM
To: Liebowitz, Peter; Sullivan, James; Shahin Ansari; Kelly Hardwicke
Cc: Yoshioka, Wayne
Subject: Fw: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation
Attachments: LoC Honoapiilani Highway Improvements (PIRO-2022-03611, I-PI-23-2170-DG)+rjd (2) DG.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

FYI

From: Powell, Lisa (FHWA) <lisa.powell@dot.gov>
Sent: Wednesday, November 29, 2023 9:29 AM
To: Sullivan, Genevieve <genevieve.h.sullivan@hawaii.gov>; Aiu, Pua <Pua.Aiu@hawaii.gov>
Subject: [EXTERNAL] FW: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Lisa Powell, P.E.
Transportation Engineer
FHWA-Hawaii Division
300 Ala Moana Boulevard Room 3-229
Honolulu, HI 96850

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Wednesday, November 29, 2023 9:28 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: Powell, Lisa (FHWA) <lisa.powell@dot.gov>; Darden, Richard (FHWA) <richard.darden@dot.gov>; Vaughn, Colleen (FHWA) <colleen.vaughn@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

Hello,

Please see your attached Letter of Concurrence for FHWA's Honoapiilani Highway Improvements. Please feel free to reach out if you have any further questions.

Thank you,
Jamie Marchetti

On Thu, Oct 19, 2023 at 9:12 AM Otani, Meesa (FHWA) <meesa.otani@dot.gov> wrote:

> Hi Jamie,

Yes, that would be great.

Thank you!
Meesa

From: Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov>
Sent: Thursday, October 19, 2023 9:01 AM
To: Otani, Meesa (FHWA) <meesa.otani@dot.gov>
Cc: Powell, Lisa (FHWA) <lisa.powell@dot.gov>; Darden, Richard (FHWA) <richard.darden@dot.gov>; Vaughn, Colleen (FHWA) <colleen.vaughn@dot.gov>
Subject: Re: RAEM-030-1(059) Honoapiilani Highway Improvements ESA and EFH Consultation

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello,
I am nearly finished with your consultation and will shortly be sending it off for internal review.
From the time this project was submitted until now, Green sea turtle critical habitat has become something that we have begun conferencing on. It is at the action agency's discretion. As you mentioned in your prior email: *We are aware of the critical habitat along the Maui coastline, but given the existing conditions, our current mitigation measures and proposed construction activities minimize and are likely to avoid any potential adverse effects migrating from our inland project area to marine waters.*
I can include this as a conference if you like and would concur with an NLAA determination.

Just let me know either way.

Thanks
Jamie Marchetti

On Tue, Oct 10, 2023 at 3:23 PM Jamie Marchetti - NOAA Federal <jamie.marchetti@noaa.gov> wrote:

> Hello,
> Thank you for the followup email. I now have all the information needed to initiate your consultation request. The initiation date is today 10/10/23 and we will have a response within 60 days, though we strive to respond sooner. I will reach out if I have any further questions.
>
> Thank you
> Jamie

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-306
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
Fax: (808) 541-2704

November 13, 2023

VIA EMAIL: pifwo_admin@fws.gov

In Reply Refer To:
HDA-HI

Earl Campbell, Ph.D.
Field Supervisor, Pacific Islands Fish and Wildlife Office
U.S Fish and Wildlife Service
300 Ala Moana Boulevard, Rm 3-122
Honolulu, HI 96850

Subject: Honoapiʿilani Highway Improvements Project
Endangered Species Act Section 7 Informal Consultation and
Migratory Bird Treaty Act Coordination
Request for Concurrence on Effect Determination

Dear Dr. Campbell:

The Federal Highway Administration (FHWA), in cooperation with the State of Hawaii Department of Transportation (HDOT), is planning the Honoapiʿilani Highway Improvements Project (the Project). Pursuant to Section 7 of the Endangered Species Act and the Migratory Bird Treaty Act, the FHWA is requesting concurrence from the U.S. Fish and Wildlife Service (USFWS) that the proposed Project may affect, but is not likely to adversely affect the following federally listed species: Hawai'ian hoary bat (*Lasiurus cinereus semotus*); four Hawai'ian waterbird taxa - Hawai'ian stilt or ae'o (*Himantopus mexicanus knudseni*), Hawai'ian coot (*Fulica alai*), Hawai'ian duck (*Anas wyvilliana*), and the threatened Hawai'ian goose or nēnē (*Branta sandvicensis*); three Hawai'ian seabirds—Hawai'ian petrel (*Pterodroma sandwichensis*), Band-rumped-storm-petrel (*Hydrobates castro*), and the threatened Newell's shearwater (*Puffinus newelli*); one reptile—the green sea turtle or honu (*Chelonia mydas*), and one insect—Blackburn's sphinx moth (*Manduca blackburni*). Other than the nēnē and Hawai'ian stilt, none of the other nine endangered animals identified in the USWFS Information for Planning and Consultation (IPaC) List were observed in the Biological Survey Area (BSA) during biological surveys.

Field reconnaissance surveys conducted by qualified ecologists, HT Harvey & Associates Inc., along with review of aerial photographs and topographic maps, thorough literature review including IPaC, informal pre-consultation meetings with USFWS staff, and a March 22, 2023 site visit with USWFS staff identified and documented potential concerns regarding species and habitats within the Project Area. Results from these efforts, documented in the Biological Survey Report, indicate that there are no botanical concerns in the Project Area, and it is unlikely that the proposed Project would result in a substantial adverse effect on any plant species that is state or federally listed as threatened or endangered, a candidate species for listing, a rare native plant species, or a native plant species of concern. None of these species or taxa were observed in the Project Area. Based on additional findings, it is highly unlikely that the Project Area contains the nine endangered plant taxa identified in IPaC list of threatened and endangered species that potentially may occur in the proposed Project location or may be affected by the proposed Project: `Ena`ena (*Pseudognaphalium sandwicensium var. molokaiense)*, Awiwi (*Schenkia sebaeoides),* Carter's Panicgrass (*Panicum fauriei var. carteri),* Dwarf Naupaka (*Scaevola coriacea*)*,* Ihi (*Portulaca villosa*)*,* Ko`oloa`ula (*Abutilon menziesii*), Ohai (*Sesbania tomentosa*), and two Round-leaved Chaff-flower (*Achyranthes splendens var. rotundata*), (*Vigna o-wahuensis).*

No terrestrial critical habitat has been identified in the highly disturbed environment of the Project Area. There is possible presence of endangered Hawai'ian monk seal in offshore environments beyond our Project Area, but current mitigation measures minimize and are likely to avoid any potential adverse effects migrating from inland activities to marine waters. Additionally, because the Project is entirely terrestrial, marine environments are not anticipated to experience any direct exposure to Project activities.

Description of the Proposed Action

The proposed Project is in West Maui, in the areas served by the existing Honoapiʿilani Highway between milepost 11 in Ukumehame in the vicinity of Pāpalaua Beach Park, and milepost 17 in Launiupoko where Honoapiʿilani Highway currently intersects the southern terminus of the Lāhainā Bypass. Honoapiʿilani Highway, which is part of Maui's Belt Road system, is a two-lane principal arterial highway that provides the main access between communities along the west coast of Maui and the rest of the island. This approximately six-mile-long and 3/4-mile-wide Project Area is composed predominantly of a coastal plain that includes the Ahupuaʿa of Ukumehame, Olowalu, and Launiupoko. Offshore, the Olowalu reef area, which extends from Ukumehame to Launiupoko, hosts about 1,000 acres of some of the healthiest and oldest living corals within the main Hawai'ian Islands.

FHWA and HDOT have developed four preliminary Project alternatives. The Project alternatives will be further refined as the Draft EIS is prepared, leading to the selection of a preferred alternative. The proposed Project does not include work on the existing highway except where the new Project joins the existing highway at the northern and southern connections points and potentially at connector roads to ensure continued access to residences, businesses, and public beaches. Planned intersections occur at Luawai Street in Olowalu and Ehehene Street, Pohaku Aeko Street and Paeki'i Place and the Ukumehame Firing Range access road in Ukumehame with configurations depending on the selected alternative. These streets already have full interchanges with the existing highway (i.e., left and right turning lanes) and additional construction on the existing highway would not be needed as part of the Project.

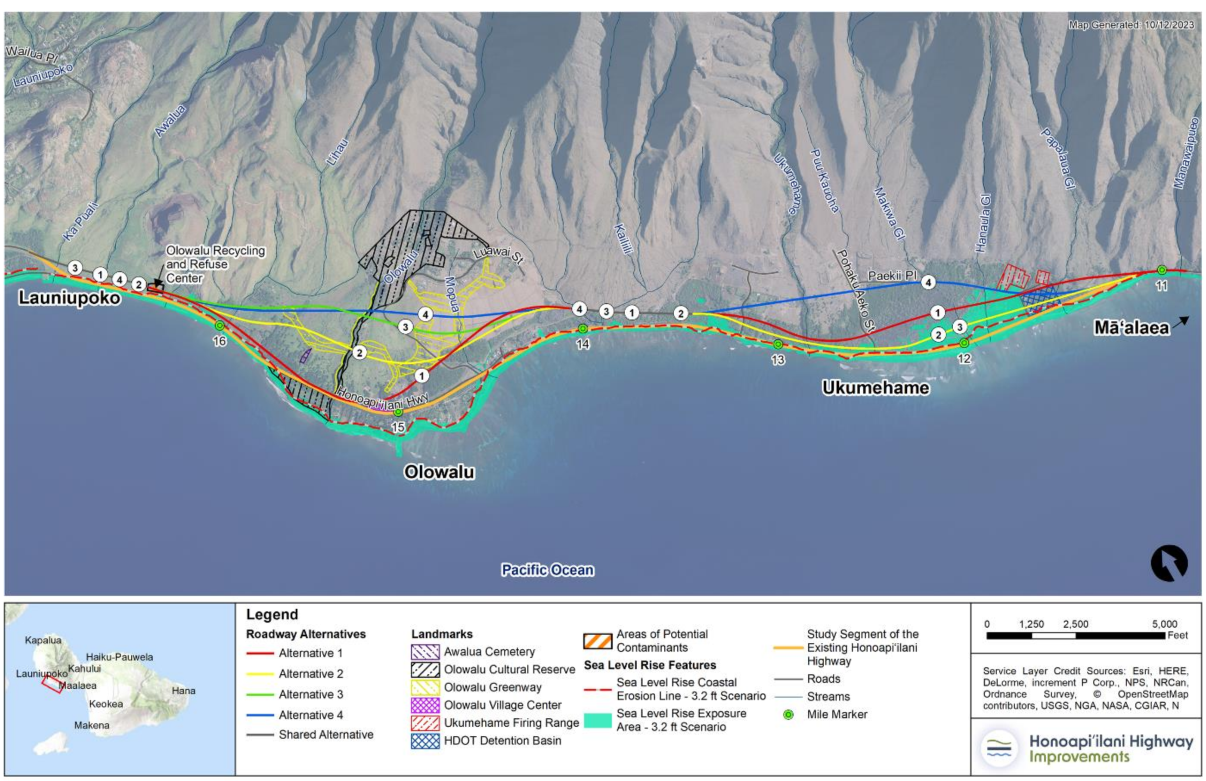
Additional information can be obtained at the Project website, www.honoapiilanihwyimprovements.com.

Project Alternatives

A Preferred Alternative has not yet been identified. Four draft "Build Alternatives" have been identified and are being evaluated in the Draft EIS currently underway. Each alternative involves the construction of a new highway, which is mainly along a new alignment, further inland from the ocean. None of the alternatives involve work in the ocean. The Build Alternatives would have approximately the same number of stream crossings and would require four bridges and approximately seven or eight culverts. All the bridge structures would be built outside of the Ordinary High Water Mark (OHWM). Preliminary planning includes bridges over the two perennial streams, the Olowalu and Ukumehame, along with two over the intermittent Ka'ili'ili and Lihau. Culverts will be located at KaPu'ali Stream, Awalua Stream, Līhau Stream North, Mōpua Stream, and Līhau Stream South. Each Build Alternative would also include a viaduct at Pāpalaua to minimize wetland impacts around the Ukumehame Firing Range and stay above projected sea level rise exposure areas. All Project alternatives will incorporate Best Management Practices (BMPs) as prescribed by FHWA, USFWS, National Oceanic and Atmospheric Administration (NOAA) and other regulatory agencies participating in the review and approval of the proposed Project.

These four alternatives are depicted in Figure 1. All alignments were adapted from the County of Maui's Pali to Puamana Parkway Plan of 2005. This Plan never moved forward but HDOT and FHWA were able to build on the proposed alignments presented in this County Plan by modifying them to apply American Association of State Highway and Transportation Officials (AASHTO) design standards, bypass erosion areas, and to avoid cultural resources.

Figure 1: Alignment Alternatives



Source: WSP (2023)

The No-Build Alternative reflects future conditions if the proposed Project were not constructed. Future conditions are based on projections of land-use and development that are likely to occur 25 years after the Project construction is completed. The roadway would continue to operate in its current location and condition, including at the several locations along the existing highway where the highway has been protected by various emergency stabilization projects. Additional stabilization efforts could be required in the future under the No Build Alternative. The No Build Alternative would not affect flora and fauna in any new ways.

For the proposed Project, none of the four Build Alternatives would require any disturbance or work in the ocean.

It is also noted that no night work is anticipated during construction, and construction duration is anticipated to be no longer than two years. However, should night work be required, additional coordination will be conducted with USFWS to agree upon any other appropriate conservation measures.

Coordination with USFWS

The Project team met with Lindsy Asman and James Yrigoyen of the USFWS on February 2, 2023, and again in the field on March 22. The protected species list for both flora and fauna was initially downloaded from IPaC on February 3, 2023, and the USFWS General Project Design Guidelines were accessed. Since then, USFWS General Project Design Guidelines have not changed, and the IPaC species list was redownloaded on September 19, 2023. There was no change between the February and September IPaC species lists. Field studies were conducted in January, March, April, May, and July 2023 and the report from H.T. Harvey and Associates with appendices is provided as an enclosure.

Potential Impacts to Protected Species

Hawai'ian Hoary Bat *(Lasiurus cinereus semotus)*
The only native Hawai'ian terrestrial mammal, the endangered Hawai'ian hoary bat is known to occur on Maui and possible presence in the Project Area cannot be ruled out. Hawai'ian hoary bats are known to roost in large (typically greater than 15-foot-tall) dense-canopy trees, sometimes at the edges of water bodies, such as streams and lakes. Hawai'ian hoary bats may hunt for flying insect prey along roadways, gulches, and open areas and occasionally roost in large, dense-foliage trees. There are numerous large trees in the Project Area that could potentially provide suitable day roosting habitat for Hawai'ian hoary bats, so it is assumed that this species is present within the Project Area. Additionally, Hawai'ian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing. Adherence to mitigation measures listed below, coupled with the availability of roosting elsewhere (outside of the Project Area) adverse impacts would be minimized and avoided to the population of Hawai'ian hoary bat.

*Hawai'ian goose (*nēnē) (*Branta sandvicensis*)
Nēnē use a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. Six nēnē have been seen loafing at the Ukumehame Firing Range on multiple occasions. Two of them were banded individuals. One individual nēnē was also seen loafing in the open grassy area in Ukumehame subdivision. There were no observations of nēnē in the Olowalu area, but are often seen here near the water reservoir outside of the Project Area. The appearance of ephemeral aquatic habitat could attract these species. Threats to the species include introduced mammalian and avian predators, wind facilities, and vehicle strikes. With adherence to mitigation measures included below, Project activities are not likely to adversely affect nēnē.

Hawai'ian Stilts (ae'o)(*Himantopus mexicanus knudseni*)
There is an abundance of suitable habitats, such as open water bodies (e.g. streams, ditches), wetlands, and open grassy areas for Hawai'ian stilts within the Project Area. the Hawai'ian stilt is known to nest in sub-optimal locations (e.g. any ponding water), if water is present. Hawai'ian stilts were observed at the Ukumehame Firing Range and were either feeding or loafing as no nests were found. Other sightings occurred at a ditch in Ukumehame where the individual was seen feeding. Although, given the availability of a range of suitable habitats, nesting within the Project Area cannot be ruled out. Threats to these species include non-native predators, habitat loss, and habitat degradation. With adherence to mitigation measures included below, Project activities are not likely to adversely affect Hawai'ian stilts.

Other Hawai'ian Waterbirds
Even though the endangered Hawai'ian coot (*Fulica alai*), Hawai'ian duck (*Anas wyvilliana*), and Hawai'ian common gallinule (*Gallinula galeata sandvicensis*) were not seen during this survey, it should be noted that the Hawai'ian coot does occur on Maui. The Hawai'ian duck is considered rare, and very difficult to distinguish from mallard hybrid taxa which have genetically "swamped out" Hawai'ian ducks on most islands other than Kauai Birds reported as Hawai'ian ducks on Maui are likely mallard-Hawai'ian duck hybrids, .and currently pure Hawai'ian ducks are considered restricted to Kaua'i and (via reintroductions) the island of Hawai'i . Hawai'ian ducks were re-established on islands of O'ahu and Maui through captive propagation and release programs, but populations now almost entirely comprise hybrids with introduced Mallard. The Hawai'ian common gallinule (*Gallinula galeata sandvicensis*) generally occurs in wetland habitats below 125 meters (410 feet) elevation on the islands of Kaua'i and O'ahu, although there have been reports from Ke'anae Peninsula on Maui and from the island of Hawai'i. Despite reported sighting in June 2013, there is no documentation to support the identification of the reported gallinules on Maui. Historically, the Hawai'ian common gallinule occurred on all the Main Hawai'ian Islands except for Lāna'i and Kaho'olawe. The apparent absence of this species, or extreme rarity, on Maui makes it very unlikely to occur in the Project Area. Commitment to conservation measures below coupled with suitable habitat occurring elsewhere on Maui, the Project activities are not likely to adversely affect other Hawai'ian Waterbirds.

Hawai'ian Seabirds
Hawai'ian federally and state listed Seabirds including the Hawai'ian petrel (*Pterodroma sandwichensis),* Newell's Townsend's Shearwater (*Puffinus auricularis newelli*), and the band-rumped storm-petrel (*Hydrobates castro)* may traverse over the Project Area at night during the breeding, nesting, and fledging seasons (March 1 through December 15).The endangered short-

tailed albatross (*Phoebastria albatrus)*, the largest of three north Pacific albatross species breeds almost exclusively on islands off Japan, with recent nesting at Midway Atoll (average one pair per year). This species has a broad foraging range that includes offshore Japan, Russia, Alaska, Washington, Oregon, California, Baja California and portions of the Pacific Islands. There are no records for this rare species on or near Maui (nor for any of the main Hawai'ian islands).

Outdoor lighting attracts seabirds and could result in seabird disorientation, fallout, and injury or mortality. After circling the lights, seabirds may become exhausted and collide with nearby wires, buildings, or other structures, or they land on the ground. If not detected and rescued, downed seabirds may experience increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the Project Area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction. With adherence to mitigation measures included below, Project activities are not likely to adversely affect Hawai'ian Seabirds.

Sea Turtles

Green sea turtles or honu (*Chelonia mydas*) are known to bask or nest on select sandy beaches in Hawaii, however it is unlikely that the Project activities would impact honu as the NOAA Pacific Island Fisheries Science Center (PIFSC) does not identify the shoreline adjacent to the Project Area as preferred basking or nesting areas for honu

Hawksbill sea turtles or honu'ea (*Eretmochelys imbricata)* exhibit a wide tolerance for nesting substrate (ranging from sandy beach to crushed coral) with nests typically placed under vegetation. Hawksbill sea turtles are known to rarely establish nest sites along the beach between Sugar Beach and Haycraft Beach Park along Maalaea Bay. Even though no Hawksbill sea turtles were observed in the Project Area during the reconnaissance level surveys, it is possible the species at times may visit the nearshore reefs along the coast adjacent to the Project Area. However, map guides published by NOAA-PIFSC do not identify the beaches between Ukumehame and Olowalu as important basking or nesting sites for Hawksbill sea turtles

Both species exhibit strong nest-site fidelity. Nesting occurs on beaches from May through September, peaking in June and July, with hatchlings emerging through November and December. Although there is no in-water work proposed for the Project, construction in the vicinity of beaches can result in sediment, contaminant and nutrient runoff. However, BMPs will be in place to mitigate these potential impacts. Additionally, an increase in direct and ambient light pollution may disorient hatchlings or deter nesting females. Proposed mitigation for runoff and light pollution is presented below. With adherence to mitigation measures included below, Project activities are not likely to adversely affect Hawksbill sea turtles.

Blackburn's Sphinx Moth (Manduca blackburni)

Blackburn's Sphinx Moth (BSM), also known as the Hawai'ian tomato hornworm or Hawai'ian tobacco hornworm, is an endemic species federally and state listed as endangered. Eggs and larvae of the BSM have been observed on host plants between August and May with substantial variation in the larval length throughout this "season".

The primary constituent elements required by BSM larvae for foraging, shelter, and maturation are the two documented host plan species in the genus *Nothocestrum* (*N. latifolium and N. brevifolium*). Neither of these primary constituent elements required by BSM larvae were found in the Project Area. BSM larvae are also known to feed on tree tobacco plants and documented on the indigenous popolo (*Solanum sandwicense*). A few tree tobacco plants and one indigenous popolo were found in the Project Area, but no BSM eggs or larvae and no signs of feeding damage indicative of the presence of the BSM were found. Therefore, it is unlikely that the Project activities will have an adverse impact on the BSM adults or larvae. On-going threats include habitat loss and degradation due to human development, introduced plants and animals, and wildfire. Natural variation in rainfall can also negatively affect BSM populations.

Flora

While numerous endangered plant species were listed as being potentially found in the Project Area, none were encountered during the biological survey. The field surveys were conducted in January, March, April, May, and July 2023. Botanical surveys should optimally be conducted during the wettest part of the year (typically November through March) when plants and identifying features are more likely to be visible, especially in drier areas.

Activities such as the use of construction equipment and vehicles, and increased human traffic (i.e. trails, visitation, monitoring), can cause ground disturbance, erosion, and/or soil compaction which decrease absorption of water and nutrients and damage plant root systems and may result in reduced growth and/or mortality of listed plants. Descriptions of the endangered flowering plants are listed in the attached Biological Resources Report.

The endangered flowering plants listed are:`Ena`ena (*Pseudognaphalium sandwicensium var. molokaiense)*, Awiwi (*Schenkia sebaeoides)*, Carter’s Panicgrass (*Panicum fauriei var. carteri)*, Dwarf Naupaka (*Scaevola coriacea*), Ihi (*Portulaca villosa*), Ko`oloa`ula (*Abutilon menziesii*), Ohai (*Sesbania tomentosa*), Round-leaved Chaff-flower (*Achyranthes splendens var. rotundata*), and the no common name (*Vigna o-wahuensis)*.

It is unlikely that the proposed Project would result in a substantial adverse effect on any plant species that is state or federally listed as threatened or endangered, a candidate species for listing, a rare native plant species, or a native plant species of concern. Overall, the Project Area is composed of highly disturbed habitats typically seen in the coastal plain and lowland areas previously used for agriculture. None of the listed plants were observed during the botanical survey.

Nearshore and Offshore Marine Environments

All four of the build alternatives require stream crossings, including two perennial streams, the Olowalu and Ukumehame, with connections to the ocean. These connections mean potential impacts to nearshore and offshore marine environments, such as Hawai’ian monk seal habitat, from land-based discharges and runoff. Hawai’ian monk seals have been known to haul out on beaches in West Maui, however the Project Area does not include any coastline work. The entire Maui coastline is NOAA National Marine and Fisheries Service (NMFS) designated critical habitat for the Hawai’ian monk seal. However, there is no USFWS designated or proposed critical habitat in the coastal area south of the 6-mile stretch of the Project Area. Hawai’ian monk seals were not listed in the USFWS IPaC species list nor observed during biological field surveys for the Project. Proposed mitigation for these potential impacts is presented below.

Invasive Species
A potential impact of implementing the Project is the introduction and spread of invasive species during the construction phase. There are several invasive species that occur on Maui but are restricted in distribution and are targeted for containment or eradication (e.g. fountain grass [*Cenchrus setaceus*], little fire ants [*Wasmannia auropunctata*], and coqui frogs [*Eleutherodactylus coqui*]) as well as invasive species that are not yet present on Maui (e.g. Coconut rhinoceros beetle [*Oryctes rhinoceros*] on Oahu) but that could be introduced or inadvertently spread to or from the Project Area.

Avoidance and Minimization Measures for Protected Species

The Project will include the following mitigation measures:

Hawai'ian Hoary Bat
Implementation of the following conservation measures, coupled with the availability of suitable roosting habitat elsewhere, outside of the Project Area, may avoid adversely impacting the population of Hawai'ian hoary bats locally and on Maui.

- Project activities that involve removal of large (> 15 feet) trees should, if possible, be conducted outside of the bat breeding season, from June 1 to September 15. It is also recommended that to the greatest extent possible, large trees such as those in the Olowalu area are preserved in place.
- Barbed wire fencing, including single barb wire top strand segments, should not be used.

Hawai'ian goose (nēnē)
To avoid and minimize potential Project impacts to nēnē, the following measures will be incorporated into the Project:

- Do not approach, feed, or disturb nēnē.
- If nēnē are loafing or foraging within the Project Area during the breeding season (September through April), a biologist familiar with the nesting behavior of nēnē shall survey for nests in and around the Project Area prior to the commencement or resumption of any work. Surveys shall be repeated after any subsequent delay of work of three (3) or more days (during which the birds may attempt to nest).
- Cease all work immediately and contact the Service for further guidance whenever nests are found within a 150 foot-radius of construction. This applies to nests found after construction has already commenced.
- In areas where nēnē are known to be present, inform Project personnel and contractors about the presence of endangered species on-site.
- For alignment activities near observed nēnē, fencing will be used where practicable to maintain a distance buffer and reduce vehicle strikes. If observations occur within an established buffer, the contractor will assign a monitor to reduce accidental vehicle strikes.

Other Hawai’ian Waterbirds

To avoid and minimize potential Project impacts to Hawai’ian Waterbirds, the following measures will also be incorporated into the Project:

- To the greatest extent possible, preserve suitable habitat such as wetlands, streams, and open water features in their natural condition.
- Inform Project personnel and contractors about the potential presence of endangered species on-site. Post and enforce speed limits in areas where waterbirds are known to be present.
- Incorporate the USFWS’s Best Management Practices for Work in Aquatic Environments into the project design.
- If a nest or active brood is found:
    - Contact the USFWS within 48 hours for further guidance.
    - Establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks/ducklings have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.

Hawai’ian Seabirds

No night work is anticipated for this Project. However, should night work be required, then lighting should be configured to be “dark sky friendly”, in compliance with Hawai‘i Revised Statute § 201-8.5 and these additional measures will be incorporated into the Project to avoid and minimize potential Project impacts to Hawai’ian seabirds:

- Fully shield all outdoor lights so the bulb can only be seen from below.
- Install automatic motion sensor switches and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird-fledging period (September 15 to December 15).

Sea Turtles

To avoid and minimize Project impacts to sea turtles and their nests the following measures will be incorporated into the Project description:

- Do not remove native dune vegetation. Prior to any dune vegetation removal, a botanist familiar with native species will be consulted to identify native dune vegetation.
- Do not stockpile Project-related materials in the intertidal zone, reef flats, sandy beach and adjacent vegetated areas, or stream channels.

No night work is anticipated during construction. However, should night work be required, these additional measures will be incorporated into the Project to avoid and minimize potential Project impacts to sea turtles:

- Avoid nighttime work during the nesting and hatching season (May to December).
- Minimize the use of lighting on or near beaches and shield all Project-related lights so the light is not visible from any beach.
    - If lights can’t be fully shielded or if headlights must be used, fully enclose the light source with light filtering tape or filters.
    - reducing the height of exterior lighting to below 3 ft and pointed downward or away from the beach; and

- minimize light intensity to the lowest level feasible and, when possible, include timers and motion sensors.

Blackburn's Sphinx Moth

Measures should be taken to avoid attraction of Blackburn's sphinx moth to the Project location and prohibit tree tobacco from entering the site. Tree tobacco can grow greater than 3 feet tall in approximately 6 weeks. If it grows over 3 feet, the plants may become a host plant for Blackburn's sphinx moth larvae.

- Remove any tree tobacco less than 3 feet tall.
- Monitor the site every 4-6 weeks for new tree tobacco growth before, during, and after the proposed ground-disturbing activity. This monitoring for can be completed by any staff, such as groundskeeper or regular maintenance crew if they are provided with training and picture placards of tree tobacco and BSM at different life stages.

Flora

No threatened, endangered, or rare plants were observed in the Project Area. The Project Area is highly disturbed with a history of vegetation disturbance and landscape level modification. The Project Area has an almost 100 percent cover of non-native and invasive plants and contains other direct threats to the nine endangered plants described above, such as feral ungulates, rodents, non-native snails and slugs, fire, and is regularly subject to drought. Based on these findings, it is highly unlikely that the Project Area contains the nine endangered plant taxa identified in the IPaC resource list and therefore no mitigation measures are proposed at this time.

Invasive Species

The Coordination Group on Alien Pest Species in Hawaii has outlined BMPs for projects in the state. These include:

- All construction equipment and vehicles should arrive at the work site for the first time in clean condition and free of: any soil; plants or plant parts, including seeds; insects, including eggs; and reptiles and amphibians, including their eggs. Similarly, all construction equipment and vehicles should be cleaned after use in the Project Area and before leaving the site. This would be particularly important for equipment movement between the Project Area and the other islands.
- All materials imported to the Project Area, including gravel, soil, rock, and sand, should be certified weed free. Invasive species found on stockpiled materials should be removed either chemically or mechanically.
- Only weed-free seed mixtures should be used for hydroseeding and hydromulching on the Project Area. A qualified botanist should inspect the seeded areas a minimum of 60 days after the hydroseed/hydromulch is applied. Any species of plant other than those intended to be in the hydroseed/hydromulch should be removed. In particular, plant species that are not known to occur on Maui and those that are actively being controlled on the island should be removed.
- To the extent feasible the Project should use native plants for revegetation or landscaping purposes. These species are included in the Biological Resources Report and Appendix D. If native plants do not meet landscaping objectives, plants with a low risk of becoming invasive may be substituted. Additional information on selecting appropriate plants for

landscaping can be obtained from the Plant Pono website (http://www.plantpono.org/) and following County of Maui Planting Guidelines (https://www.mauicounty.gov/242/Maui-Planting-Guidelines).

- Only plants grown on Maui should be used for landscaping purposes. If locally grown plants are unavailable, then imported plants may be used, but they should be thoroughly inspected or quarantined if necessary to ensure that they are free from invasive pests such as little fire ants and invasive plant seeds and seedlings that could arrive inadvertently.

Quarantines and/or management activities occurring on specific priority invasive species proximal to project areas will be addressed by the Contractor prior to physical construction in accordance with HDOT *Standard Specifications Section 621 – Invasive Species Management* (2021).

Nearshore and Offshore Marine Environments
It is highly unlikely that Project actions will impact nearshore and offshore marine environments, including Hawai'ian monk seal, due to the location of these environments and critical habitat outside of the Project Area. Potential impacts to nearshore and offshore marine environments, including Hawai'ian monk seal, will be further mitigated through water quality BMPs set forth below, as well as NOAA NMFS conservation recommendations, and select BMPs from USFWS *Recommended Standard Best Management Practices* for aquatic environments listed below.

Additional Best Management Practices
BMPs will be implemented during construction to minimize the potential for impacts to water quality. The Project will obtain a Notice of General Permit Coverage (NGPC) from the National Pollution Elimination Discharge System (NPDES) accompanied by a Storm Water Pollution Prevention Plan (SWPPP). BMPs will be implemented in accordance with the documented approach detailed in the *Construction Best Management Practices Field Manual by the State of Hawaii Department of Transportation* (2008).

Additionally, the following measures will be implemented, which include applicable measures from the USFWS list on "Recommended Standard Best Management Practices" for aquatic environments:

- Construction staff will be informed of the potential presence of threatened and endangered species, including being provided materials to assist in species identification and appropriate actions if a species enters the work area.
- Good housekeeping practices and erosion-control device(s) shall be employed at the job site to prevent debris and soil from leaving the site.
- Upon completion of the Project, all Project construction-related debris and sediment containment devices shall be removed and disposed of at an approved site.
- A litter-control plan shall be developed and implemented to prevent attraction and introduction of non-native species.
- Invasive species controls shall be maintained to ensure that all materials transported from off-site are free of such species.
- Project construction-related materials shall not be stockpiled in, or in close proximity to aquatic habitats and shall be protected from erosion (*e.g.*, with filter fabric, etc.) to prevent materials from being carried into waters by wind, rain, or high surf.

- Fueling of Project-related vehicles and equipment shall take place away from the aquatic environment. A contingency plan to control petroleum products accidentally spilled during the Project shall be developed. The plan shall be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms shall be stored on-site to facilitate the clean-up of accidental petroleum releases.
- All deliberately exposed soil or under-layer materials used in the Project near water shall be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

In addition, coordination has been completed with NOAA NMFS to avoid and minimize in-water effects to the green sea turtle and Hawksbill Sea turtle, and Essential Fish Habitat. NOAA NMFS conservation recommendations stipulated in a letter to FHWA serve to avoid and minimize potential adverse effects of the Project to these species, as well as offshore and nearshore marine environments, and Hawai'ian monk seal. The recommendations include:

- If at all possible, avoid placing bridge footings, foundations, or other structural elements in streambeds. Seek engineering solutions that place bridge structural elements outside a streambed.
- Although designs of alternatives will take into account potential future effects of inundation and sea level rise, also plan to accommodate increased water that could come from the land through riparian corridors and flooding pathways. Do not plan bridges or culverts that would restrict the flow of water and could raise water flow rates and increase scour. Consider incorporating low impact design elements into plans that slow water flow, impound sediment, and filter runoff from impermeable surfaces.
- Develop a plan for managing equipment, materials, and job site conditions in the event of approaching foul weather (i.e., tropical storms and hurricanes). Equipment and materials may need to be removed from the Project site or adequately secured. Stormwater runoff and erosion may require heightened management during storm events.

These conservation recommendations apply to whichever Build Alternative is chosen as the preferred alternative. FHWA accepted the conservation recommendations and received confirmation of coordination completion from NOAA NMFS on October 10, 2023.

Request for Concurrence

With the implementation of the avoidance and minimization measures described above, the FHWA has determined that the Honoapiʻilani Highway Improvements Project *may affect, but is not likely to adversely affect* the Hawai'ian Hoary Bat; the Hawai'ian goose; Hawai'ian Waterbirds the Hawai'ian coot and Hawai'ian stilt. These measures would extend to other listed waterbirds including the Hawai'ian common gallinule and the Hawai'ian duck; Hawai'ian seabirds including the Hawai'ian petrel, the band-rumped storm-petrel, and Newell's Townsend's shearwater; the Blackburn's Sphinx Moth; and the Sea turtles in the highly unlikely event of an occurrence in the Project Area. No federally listed plant species were found, and no terrestrial critical habitat is located in the highly disturbed habitats of the Project Area.

We request your concurrence with this determination. We respectfully request your response within 60 days of receipt of this letter. If you have any questions or require additional information, please feel free to contact me at (808) 541-2316 or by email at meesa.otani@dot.gov. Thank you for your assistance.

Sincerely yours,

Meesa Otani
Environmental Engineer

Enclosures

- Honoapiilani Highway Improvements Project Vicinity Map
- HT Harvey & Associates Biological Resources Report w/ appendices:
    - USFWS IPaC List Feb. 2023
    - USFWS General Project Design Guidelines
    - USFWS Refined Species List May 2023 Memo
    - BMPs for Invasive Species Prevention
- NOAA NMFS EFH Conservation Recommendations Letter
- USFWS IPaC List for the Honoapiilani Highway Improvements Project Sept. 2023
- USFWS Best Management Practices for Work in or Around Aquatic Environments

DAVID Y. IGE
GOVERNOR OF HAWAII

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Dec 1, 2022

MEMORANDUM

FROM: **DLNR Agencies:**
X Div. of Aquatic Resources (kendall.l.tucker@hawaii.gov)
__ Div. of Boating & Ocean Recreation
X Engineering Division (DLNR.ENGR@hawaii.gov)
X **Div. of Forestry & Wildlife** (rubyrosa.t.terrago@hawaii.gov)
__ Div. of State Parks
X Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)
X Office of Conservation & Coastal Lands (sharleen.k.kuba@hawaii.gov)
X Land Division – Maui District (daniel.l.ornellas@hawaii.gov)

TO: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: **Honoapi'ilani Highway Improvements Project**
Federal Aid Project No.: RAEM-30-1(59)
LOCATION: Lahaina, Island of Maui; TMK Plats: (2) 4-7-001, 4-8-001, 002, 003, 004, and Honoapi'ilani Highway Rights-of-Way
APPLICANT: U.S. Department of Transportation, Federal Highway Administration

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit any comments by **December 28, 2022.**

If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura at darlene.k.nakamura@hawaii.gov. Thank you.

BRIEF COMMENTS:

( ) We have no objections.
( ) We have no comments.
( ) We have no additional comments.
(✔) Comments are included/attached.

Signed: *Lainie Berry*
Print Name: LAINIE BERRY, Wildlife Program Mgr.
Division: Division of Forestry and Wildlife
Date: Dec 27, 2022

Attachments
cc: Central Files

STATE OF HAWAIʻI | KA MOKUʻĀINA ʻO HAWAIʻI
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, Hawaii 96813

December 27, 2022

MEMORANDUM *Log no. 3926*

TO: RUSELL Y. TSUJI, Land Administrator
Land Division

FROM: LAINIE BERRY, Wildlife Program Manager
Division of Forestry and Wildlife

SUBJECT: **Division of Forestry and Wildlife Acceptance to Become a Participating Agency for the Honoapiʻilani Highway Improvement Project on Maui**

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your invitation to become a Participating Agency to identify any issues of concern regarding the Honopiʻilani Highway Improvement Project's [Federal Aid Project No.: RAEM-030-1(59)] potential environmental or socioeconomic impacts that could substantially delay or prevent an agency from granting a permit or other approval that is needed for the project. The proposed project consists of addressing existing coastal erosion and flooding, as well as future coastal erosion and flooding caused by anticipated sea level rise along the stretch of highway from Ukumehame, approximately milepost 11, in the vicinity of Papalaua Wayside Park to Launiopoko, at milepost 17, the existing southern terminus of Lahaina Bypass, on the island of Maui.

DOFAW accepts the invitation to become a Participating Agency in the development of the above project and will offer our expertise as it relates to management of natural resources, including watersheds, wetlands, protected species and their habitats, prevention and suppression of wildfire, trails and access, and integrated management of erosion and sedimentation that impacts near shore and marine ecosystems. We provide the following preliminary comments regarding the potential for the proposed work to affect those environmental concerns in the vicinity of the project area.

One or more of the proposed alternative road alignments may pass through department lands being scoped for designation as forest reserves for their natural resource values, including lands that may have historically supported wetland habitats. Coordination with DOFAW will support planning for those lands.

The State endangered Assimulans Yellow-faced Bee (*Hylaeus assimulans*) has been documented at several locations in West Maui, including in areas of the proposed project site. DOFAW recommends coordinating with our agency to determine site-specific avoidance and minimization measures to prevent impacts to this species.

DOFAW recommends that a qualified botanist survey for rare and endangered plants in all proposed affected areas prior to commencing work. Our initial evaluation suggests that the proposed project site falls within or in close proximity to critical habitat for listed plants. These include the following:

- *Asplenium diellaciniatum*
- *Bidens campylotheca ssp. pentamera*
- *Cenchrus agrimonioides*
- *Ctenitis squamigera*
- *Cyanea obtusa*
- *Gouania hillebrandii*
- *Hesperomannia arbuscula*
- *Hibiscus brackenridgei*
- *Kadua coriacea*
- *Lysimachia lydgatei*
- *Neraudia sericea*
- *Remya mauiensis*
- *Santalum haleakalae var. lanaiense*
- *Schiedea salicaria*
- *Sesbania tomentosa*
- *Spermolepis hawaiiensis*
- *Tetramolopium capillare*
- *Tetramolopium remyi*

We recommend that the survey consists of a complete species list and that surveying of dry areas should be done during the wettest time when plants are more likely to be visible. If any listed species are found, please notify DOFAW at (808) 587-0166. For information on avoidance and minimization measures for plants, please refer to the following link: https://www.fws.gov/sites/default/files/documents/Plant%20Avoidance%20and%20Minimization%20MeasuresApril%202022.pdf

The State listed Hawaiian Hoary Bat or ʻŌpeʻapeʻa (*Lasiurus cinereus semotus*) could potentially occur at or in the vicinity of the project and may roost in nearby trees. Any required site clearing should be timed to avoid disturbance to bats during their birthing and pup rearing season (June 1 through September 15). During this period woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed. Barbed wire should also be avoided for any construction because bats can become ensnared and killed by such fencing material during flight.

Artificial lighting can adversely impact seabirds that may pass through the area at night by causing them to become disoriented. This disorientation can result in their collision with manmade structures or the grounding of birds. **Any permanent lighting installed would pose a very high**

risk of seabird attraction on the proposed stretch of road. New highway lights, therefore, should not be installed in this area to protect seabird flyways and preserve the night sky. For nighttime work that might be required, DOFAW recommends that all lights used be fully shielded to minimize the attraction of seabirds. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15, the period when young seabirds make their maiden voyage to sea. For illustrations and guidance related to seabird-friendly light styles that also protect seabirds and the dark starry skies of Hawaiʻi please visit https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf.

The State endangered Hawaiian Monk Seal (*Monachus schauinslandi*) and threatened Green Sea Turtle (*Chelonia mydas*) could potentially occur or haul out onshore within the vicinity of the proposed project site. If either species is detected within 100 meters of the project area all nearby construction operations should cease and not continue until the focal animal has departed the area on its own accord.

The State listed Hawaiian Goose or Nēnē (*Branta sandvicensis*) occurs in the vicinity of the proposed project site. It is unlawful s to harm or harass these species (Chapter 195D, Hawaii Revised Statutes). If any are present during construction, all activities within 100 feet (30 meters) should cease and the bird or birds should not be approached. Work may continue after the bird or birds leave the area of their own accord. If a nest is discovered at any point, please contact the Maui Branch DOFAW Office at (808) 984-8100.

The project area is within the range of the State listed Blackburn's Sphinx Moth (*Manduca blackburni*) or BSM. Larvae of BSM feed on many nonnative hostplants, which includes tree tobacco (*Nicotiana glauca*), that grow in disturbed soil. We recommend contacting the Maui Branch DOFAW office at (808) 984-8100 for further information about where BSM may be present and whether a vegetation survey should be conducted to determine the presence of plants preferred by BSM. DOFAW recommends removing plants less than one meter in height or during the dry season to avoid harm to BSM. If you intend to either remove tree tobacco over one meter in height or to disturb the ground around or within several meters of these plants, they must be thoroughly inspected by a qualified entomologist for the presence of BSM eggs and larvae.

DOFAW recommends using native plant species for landscaping that are appropriate for the area, such as plants for which climate conditions are suitable for them to thrive, plants that historically occurred there, etc. Please do not plant invasive species. DOFAW also recommends referring to www.plantpono.org for guidance on the selection and evaluation of landscaping plants and to determine the potential invasiveness of plants proposed for use in the project.

DOFAW recommends minimizing the movement of plant or soil material between worksites. Soil and plant material may contain detrimental fungal pathogens (e.g., Rapid ʻŌhiʻa Death), vertebrate and invertebrate pests (e.g., Coqui Frogs, Little Fire Ants, etc.), or invasive plant parts (e.g., Miconia, Mullein, etc.) that could harm our native species and ecosystems. We recommend consulting the Maui Invasive Species Committee (MISC) at (808) 573-6472 to help plan, design, and construct the project, learn of any high-risk invasive species in the area, and ways to mitigate their spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

Introduced predators, such as cats, rats, and mongooses, kill native birds. DOFAW recommends that all agencies and contractors be required to follow strict protocols to securely contain all food, waste, and organic matter that could serve as a food resource for predators.

Due to the arid climate and risks of wildfire to listed species, we recommend coordinating with the Hawaiʻi Wildfire Management Organization at (808) 885-0900 or admin@hawaiiwildfire.org, on how wildfire prevention can be addressed in the project area.

Finally, we note that DOFAW is collaborating with marine partners to address erosion issues in the project area, for which the sources of sedimentation are multiple public and private landowners, including DLNR and HDOT. Coordination to address those management concerns will benefit a broad and diverse network of constituents that rely on those natural resources for ecosystem and economic services. We encourage FHWA to include marine management stakeholder organizations in its scoping, including Maui Nui Marine Resource Council, The Nature Conservancy of Hawaii Marine Program, and the Maui Nui Makai Network.

We appreciate your efforts to work with our office for the conservation of natural resources. These comments are general guidelines and should not be considered comprehensive for this site or project. It is the responsibility of the applicant to do their own due diligence to avoid any negative environmental impacts. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Myrna N. Girald Pérez, Protected Species Habitat Conservation Planning Associate at (808) 265-3276 or myrna.girald-perez@hawaii.gov.

Sincerely,

Lainie Berry

LAINIE BERRY
Wildlife Program Manager

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
Phone: (808) 792-9400 Fax: (808) 792-9580

In Reply Refer To: September 19, 2023
Project Code: 2023-0041712
Project Name: Honoaliilani Highway Improvements

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened and endangered species, as well as designated critical habitat that may occur within the boundary of your proposed project and that may be affected by project related actions. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Please contact the Service's Pacific Islands Fish and Wildlife Office (PIFWO) at 808-792-9400 if you have any questions regarding your IPaC species list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may adversely affect threatened and endangered species and/or designated critical habitat.

Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a Biological

Evaluation, similar to a Biological Assessment, be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment or Biological Evaluation are described at 50 CFR 402.12.

Due to the significant number of listed species found on each island within PIFWO's regulatory jurisdiction, and the difficulty in accurately mapping ranges for species that we have limited information about, your species list may include more species than if you obtained the list directly from a Service biologist. We recommend you use the species links in IPaC to view the life history, habitat descriptions, and recommended avoidance and minimization measures to assist with your initial determination of whether the species or its habitat may occur within your project area. If appropriate habitat is present for a listed species, we recommend surveys be conducted to determine whether the species is also present. If no surveys are conducted, we err on the side of the species, by regulation, and assume the habitat is occupied. Updated avoidance and minimization measures for plants and animals, best management practices for work in or near aquatic environments, and invasive species biosecurity protocols can be found on the PIFWO website at: https://www.fws.gov/office/pacific-islands-fish-and-wildlife/library.

If a Federal agency determines, based on the Biological Assessment or Biological Evaluation, that a listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/index.

Non-federal entities can also use the IPaC generated species list to develop Habitat Conservation Plans (HCP) in accordance with section 10(a)(1)(B) of the Act. We recommend HCP applicants coordinate with the Service early during the HCP development process. For additional information on HCPs, the Habitat Conservation Planning handbook can be found at https://www.fws.gov/sites/default/files/documents/habitat-conservation-planning-handbook-entire.pdf.

Please be aware that wind energy projects should follow the Service's wind energy guidelines (http://www.fws.gov/windenergy) for minimizing impacts to migratory birds. Listed birds and the Hawaiian hoary bat may also be affected by wind energy development and we recommend development of a Habitat Conservation Plan for those species, as described above. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at:

- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers
- http://www.towerkill.com
- http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation actions that benefit threatened and endangered species into their project planning to further the purposes of the Act in accordance with section 7(a)(1). Please include the Consultation Tracking Number associated with your IPaC species list in any request for consultation or correspondence about your project that you submit to our office. Please feel free to contact us at PIFWO_admin@fws.gov or 808-792-9400 if you need more current information or assistance regarding the potential impacts to federally listed species and federally designated critical habitat.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

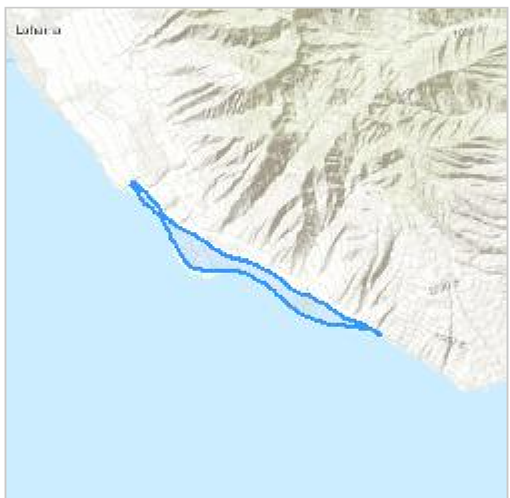
Pacific Islands Fish And Wildlife Office
300 Ala Moana Boulevard, Box 50088
Honolulu, HI 96850-5000
(808) 792-9400

PROJECT SUMMARY

Project Code:	2023-0041712
Project Name:	Honoaliilani Highway Improvements
Project Type:	New Constr - Above Ground
Project Description:	The primary purpose of this project is to provide a reliable transportation facility in West Maui by reducing the highway's vulnerability to coastal hazards. Specifically, the project will look at ways to address existing and future erosion and flooding from Ukumehame, at approximately milepost 11, in the vicinity of Pāpalaua Wayside Park to Launiopoko, at milepost 17, the existing southern terminus of Lāhainā Bypass. Currently, there are four alternatives being considered, which would realign the highway further mauka of the existing Honoapiilani Highway. The EIS process is on-going and also includes a no-build option.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@20.813553900000002,-156.6173807703801,14z



Counties: Maui County, Hawaii

ENDANGERED SPECIES ACT SPECIES

There is a total of 20 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Hawaiian Hoary Bat *Lasiurus cinereus semotus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/770 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6477.pdf	Endangered

BIRDS

NAME	STATUS
Band-rumped Storm-petrel *Oceanodroma castro* Population: USA (HI) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1226 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6939.pdf	Endangered
Hawaiian Coot *Fulica alai* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7233 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6934.pdf	Endangered
Hawaiian Duck *Anas wyvilliana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7712 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6934.pdf	Endangered
Hawaiian Goose *Branta (=Nesochen) sandvicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1627 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6925.pdf	Threatened
Hawaiian Petrel *Pterodroma sandwichensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6746 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6939.pdf	Endangered
Hawaiian Stilt *Himantopus mexicanus knudseni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2082 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6934.pdf	Endangered
Newell's Townsend's Shearwater *Puffinus auricularis newelli* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2048 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6939.pdf	Threatened

NAME	STATUS
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered

REPTILES

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: Central North Pacific DPS There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/6199 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6929.pdf	Threatened

INSECTS

NAME	STATUS
Blackburn's Sphinx Moth *Manduca blackburni* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4528 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/6926.pdf	Endangered

FLOWERING PLANTS

NAME STATUS

`ena`ena *Pseudognaphalium sandwicensium var. molokaiense* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/5993
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Awiwi *Schenkia sebaeoides* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7103
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Carter's Panicgrass *Panicum fauriei var. carteri* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5578
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7060.pdf

Dwarf Naupaka *Scaevola coriacea* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4669
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7060.pdf

Ihi *Portulaca villosa* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4886

Ko`oloa`ula *Abutilon menziesii* Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3268
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Ohai *Sesbania tomentosa* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/8453
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf

Round-leaved Chaff-flower *Achyranthes splendens var. rotundata* Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/4709
General project design guidelines:

NAME	STATUS
https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf	
Vigna o-wahuensis There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8445 General project design guidelines: https://ipac.ecosphere.fws.gov/project/MPPFAMXE2BC67EVQ2SMKIJJ74I/documents/generated/7051.pdf	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	James Sullivan
Address:	1444 S Entertainment Ave
Address Line 2:	#300
City:	Boise
State:	ID
Zip:	83709
Email	james.sullivan1@wsp.com
Phone:	3128036661

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

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

The U.S. Fish and Wildlife Service (USFWS) recommends the following measures to be incorporated into project planning to avoid or minimize impacts to fish and wildlife resources. Best Management Practices (BMPs) include the incorporation of procedures or materials that may be used to reduce either direct or indirect negative impacts to aquatic habitats that result from project construction-related activities. These BMPs are recommended in addition to, and do not over-ride any terms, conditions, or other recommendations prepared by the USFWS, other federal, state or local agencies. If you have questions concerning these BMPs, please contact the USFWS Aquatic Ecosystems Conservation Program at 808-792-9400.

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.

2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site specific guidance.

3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.

4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see https://www.fws.gov/policy/A1750fw1.html) can help to prevent attraction and introduction of non-native species.

5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (*e.g.*, with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.

6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.

7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

PIFWO Invasive Species Biosecurity Protocols

(Updated July 2024)

Project activities may introduce or spread invasive species, causing negative ecological consequences to new areas or islands, resulting in potential impacts to fish, wildlife, and their habitat. For example, seeds of invasive plant species (e.g., *Chromolaena odorata*, *Senecio madagascariensis*, *Cyathea cooperi*, or *Miconia calvescens*) can be inadvertently transported on equipment from a previous work site to a new site where the species are not present. Likewise, equipment used in an area infected with a pathogen or insect pest that can have ecological consequences (e.g., rapid ʻōhiʻa death (*Ceratocystis spp.*), black twig borer (*Xylosandrus compactus*), or naio thrips (*Klambothrips myopori*), if not properly decontaminated, can act as a vector to introduce the pathogen into a new area. Additionally, vehicles must be properly inspected and cleaned to ensure vertebrate or invertebrate pests do not stowaway and spread to other areas. These are just a few examples of how even well-intended project activities may inadvertently introduce or spread invasive species.

To avoid and minimize invasive species potential impacts to fish, wildlife, and their habitat we recommend incorporating general biosecurity protocols into your project planning (see below). Additional consultation is recommended if project activities involve transportation of materials, equipment, vehicles, etc. between islands or transpacific movement of materials or equipment.

Invasive Species Biosecurity Protocol

The following biosecurity protocol is recommended to be incorporated into planning for your project to avoid or minimize transportation of invasive species with potential to impact to fish, wildlife, and their habitat. Cleaning, treatment, and/or inspection activities are the responsibility of the equipment or vehicle owner and operator. However, it is ultimately the responsibility of the action agency to ensure that all project materials, vehicles, machinery, equipment, and personnel are free of invasive species before entry into a project site. Please refer to the resources listed below for current removal/treatment recommendations that may be relevant to your project.

1. Cleaning and treatment:
   Project applicants should assume that all project materials (i.e., construction materials, or aggregate such as dirt, sand, gravel, etc.), vehicles, machinery, and equipment contain dirt and mud, debris, plant seeds, and other invasive species, and therefore require thorough cleaning. Treatment for specific pests, for example, trapping and poison baiting for rodents, or baiting and fumigation for insects, should be considered when applicable. For effective cleaning we offer the following recommendations prior to entry into a project site:
   a. Project materials, vehicles, machinery, and equipment must be pressure washed thoroughly (preferably with hot water) in a designated cleaning area. Project materials, vehicles, machinery, and equipment should be visibly free of mud/dirt (excluding aggregate), seeds, plant debris, insects, spiders, frogs (including frog eggs), other vertebrate species (e.g.,

rodents, mongoose, feral cats, reptiles, etc.), and rubbish. Areas of particular concern include bumpers, grills, hood compartments, wheel wells, undercarriage, cabs, and truck beds. Truck beds with accumulated material are prime sites for hitchhiking invasive species.

b. The interior and exterior of vehicles, machinery, and equipment must be free of rubbish and food, which can attract pests (i.e., rodents and insects). The interiors of vehicles and the cabs of machinery should be vacuumed clean particularly for any plant material or seeds.

2. Inspection:
    a. Following cleaning and/or treatment, project materials, vehicles, machinery, and equipment, must be visually inspected by its user, and be free of mud/dirt (excluding aggregate), debris, and invasive species prior to entry into a project site. For example, careful visual inspection of a vehicle's tires and undercarriage is recommended for any remaining mud that could contain invasive plant seeds.
    b. Any project materials, vehicles, machinery, or equipment found to contain invasive species (e.g., plant seeds, invertebrates, rodents, mongoose, cats, reptiles, etc.) must not enter the project site until those invasive species are properly removed/treated.

3. For all project site personnel:
    a. Prior to entry into the project site, visually inspect and clean your clothes, boots or other footwear, backpack, radio harness, tools and other personal gear and equipment for insects, seeds, soil, plant parts, or other debris. We recommend the use of a cleaning brush with sturdy bristles. Seeds found on clothing, footwear, backpacks, etc., should be placed in a secure bag or similar container and discarded in the trash rather than being dropped to ground at the project site or elsewhere.

4. Additional considerations:
    a. Consider implementing a Hazard Analysis and Critical Control Point (HACCP) plan (https://www.fws.gov/policy/A1750fw1.html) to improve project planning around reducing the risk of introducing or spreading invasive species.
    b. When applicable, use pest-free or low-risk sources of plants, mulch, wood, animal feed or other materials to be transported to a project site.
    c. For projects involving plants from nurseries (e.g., outplanting activities, etc.), all plants should be inspected, and if necessary, appropriately cleaned or treated for invasive species prior to being transported to the project site.
    d. Avoid unnecessary exposure to invasive species at a particular site (to the extent practical) to reduce contamination and spread. For example, if your project involves people or equipment moving between multiple locations, plan and organize timelines so that work is completed in native habitat

prior to working in a disturbed location to reduce the likelihood of introducing a pest into the native habitat.

e. Maintain good communication about invasive species risks between project managers and personnel working on the project site (e.g., conduct briefings and training about invasive species). Ensure prevention measures are communicated to the entire project team. Also consider adding language on biosecurity into contracts or permitting mechanisms to provide clarity to all involved in the project. Report any species of concern or possible introduction of invasive species to appropriate land managers.

For current removal/treatment recommendations please refer to the following:
Hawaiian Islands:

- Hawai'i Island – https://www.biisc.org/
- **Maui – https://mauiinvasive.org/**
- Moloka'i - https://www.molokaiisc.org/
- Lāna'i - https://pulamalanai.com/
- O'ahu – https://www.oahuisc.org/
- Kaua'i – https://www.kauaiisc.org/

Species-Specific Biosecurity Protocols

The following section contains specific protocols for a few select invasive species of concern in the Pacific Islands highlighted because of their potential to easily spread and cause great harm to native species and habitats. Other invasive species may not have existing specific protocols or may already be minimized by implementing the general invasive species protocols above (e.g., invasive plants, invertebrates, larger vertebrates). Information on other invasive species can be found in the island specific links below. As new threats emerge that require development of species-specific protocols, those may be added to this list.

Table 1. Current island distribution of invasive species with specific biosecurity protocols in the Pacific Islands (PIFWO jurisdiction).

Island	Invasive Species with Specific Protocols			
	Rapid 'Ōhi'a Death	**Little Fire Ant**	**Coconut Rhinoceros Beetle (CRB)**	**Brown Treesnake**
Island of Hawai'i	widespread	widespread	not present	not present
Maui	present	incipient	detected in Nov 2023, not observed since. The state and Service recommend implementing CRB biosecurity BMPs	not present
O'ahu	incipient	incipient	widespread	not present
Kaua'i	widespread	not present	not present	not present

<u>Rapid 'Ōhi'a Death (ROD)</u>

If working directly with ʻōhiʻa trees (e.g., sampling suspected trees, clearing an area of ʻōhiʻa, etc.) or in an area(s) known to be highly infested with ROD, additional consultation is recommended.

Current Distribution of ROD: island of Hawaiʻi, Maui, Oʻahu, Kauaʻi (https://cms.ctahr.hawaii.edu/rod

While ROD is not currently reported on Molokaʻi at this time, if you are in ʻōhiʻa forest it would be prudent to take precautions. Also, consider where the equiptment to be used on Molokaʻi will be coming from, and if from an island with confirmed ROD, take the necessary precautions.

Rapid ʻŌhiʻa Death (ROD) is a caused by a fungal pathogen (*Ceratocystis* spp.) that attacks and kills ʻōhiʻa trees (*Metrosideros polymorpha*). ʻŌhiʻa is endemic to the Hawaiian Islands and is the most abundant native tree species, comprising approximately 80 percent of Hawaiʻi's remaining native forests.

For more information about ROD including its current distribution, ROD science updates, and the latest on ROD protocol, please visit www.rapidohiadeath.org.

To reduce the risk of spreading ROD, the following best management practices and decontamination protocol are recommended:

Best Management Practices for ROD

1. Never transport any part of an ʻōhiʻa tree between different areas of an island or to a different island.

2. Do not use equipment from ROD infected islands on another island unless it is very specialized equipment and follows the decontamination protocol described below.

3. Avoid wounding ʻōhiʻa trees and roots with mowers, chainsaws, weed eaters, and other tools. If an ʻōhiʻa receives a minor injury like a small broken branch, then give the injury a clean, pruning-type cut (close to the main part of the trunk or branch) to promote healing, and then spray the entire wounded area with a pruning seal.

4. Always report suspect ROD ʻōhiʻa trees observed within you project area. ROD is a wilt disease that cuts off the supply of water and nutrients to the tree. The primary symptom to look for is an entire canopy or a large branch with dying leaves or red discolored leaves. Please record the GPS coordinates and location and take a picture of the tree if possible. Please report suspected ROD ʻōhiʻa trees to the following agencies:
   a. Island of Hawaiʻi – BIISC: 808-969-8268 (ohialove@hawaii.edu)
   b. Maui – MISC: 808-573-6472 (miscpr@hawaii.edu)

c. Moloka‘i – TNC: 808-553-5236 ext. 6585 (lbuchanan@tnc.org)
d. O‘ahu – OISC: 808-266-7994 (oisc@hawaii.edu)
e. Kaua‘i – KISC: 808-821-1490 (kisc@hawaii.edu)

ROD Decontamination Protocol

1. Clothes, footwear, backpacks, and other personal equipment
   a. Before leaving the project site, remove as much mud and other contaminants as possible. Use of a brush with soap and water to clean gear is preferred. Footwear, backpacks, and other gear must be sanitized by spraying with a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution.

2. Vehicles, machinery, and other equipment
   a. Vehicles, machinery, and other equipment must be thoroughly hosed down with water (pressure washing preferred) and visibly free of mud and debris, then sprayed with a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution. Use of a "pump-pot" sprayer is recommended for the solution and a hot water wash is preferred. Be sure to thoroughly clean the undercarriage, truck bed, bumpers, and wheel wells.
   b. If non-decontaminated personnel or items enter a vehicle, then the inside of the vehicle (i.e., floor mats, etc.) must be subsequently decontaminated by removing mud and other contaminants and sprayed with the one of the same aforementioned sanitizing solutions.

3. Cutting tools
   a. All cutting tools, including machetes, chainsaws, and loppers must be sanitized to remove visible mud and other contaminants. Tools must be sanitized using a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution. One minute after sanitizing, one may apply an oil-based lubricant to chainsaw chains or other metallic parts to prevent corrosion as bleach is corrosive to metal.

   NOTE: When using a 10 percent bleach solution, surfaces should be cleaned with a minimum contact time of 30 seconds. Bleach must be mixed daily and used within 24 hours, as once mixed it degrades. Bleach will not work to disinfect surfaces that have high levels of organic matter such as sawdust or soil. Because bleach is also corrosive to metal, a water rinse after proper sanitization is recommended to avoid corrosion.

Little Fire Ant (LFA)
For the most current status on distribution and infestations, please visit http://stoptheant.org/lfa-in-hawaii/

The little fire ant (*Wasmannia auropunctata*), or LFA, is an invasive species with a painful sting that can inhabit many different environments. In Hawaiʻi, it often infests agricultural fields and farms, damaging crops and stinging unsuspecting workers. Little fire ants are also highly disruptive to native tropical ecosystems and harmful to wildlife. Slow moving, but tiny and capable of foraging 24 hours a day with multiple queens per colony, LFA is a formidable threat to biodiversity, agriculture, and quality of life on tropical islands in the Pacific.

For more information about LFA including helpful guides and workshops for treating or detecting LFA, please visit www.littlefireants.com.

To reduce the risk of spreading LFA, the following biosecurity protocol is recommended:

Biosecurity Protocol for LFA

1. For projects involving plants from nurseries (e.g., outplanting activities, etc.), all plants should be inspected for little fire ants and other pests prior to being transported to the project site. If plants are found to be infested by ants of any species, plants should be sourced from an alternative nursery and the infested nursery should follow treatment protocols recommended by the Hawaiʻi Ant Lab (https://littlefireants.com/wp-content/uploads/2020-Management-of-Pest-Ants-in-Nurseries-min.pdf).

2. All work vehicles, machinery, and equipment should follow steps 1 and 2 in the "Invasive Species Biosecurity Protocol" for (1) cleaning and treatment and (2) inspection for invasive ants prior to entering a project site.

3. Any machinery, vehicles, equipment, or other supplies found to be infested with ants (or other invasive species) must not enter the project site until it is properly treated (https://littlefireants.com/how-to-treat-for-little-fire-ants-for-homeowners/#recommended-bait-products) and re-tested. Infested vehicles must be treated following recommendations by the Hawaiʻi Ant Lab (https://littlefireants.com/resource-center/) or another ant control expert and in accordance with all State and Federal laws. Treatment is the responsibility of the equipment or vehicle owner. Ultimately however, it is the responsibility of the action agency to ensure that all project materials, vehicles, machinery, and equipment follow the appropriate protocol(s).

4. General Vehicle Ant Hygiene: Even the cleanest vehicle can pick up and spread little fire ant. Place MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) into refillable tamper resistant bait stations. An example of a commercially available refillable tamper resistant bait station is the Ant Café Pro (https://www.antcafe.com/). Place a bait station (or stations) in the vehicle and note that larger vehicles, such as trucks, may require multiple stations. Monitor bait stations frequently (every week at a minimum) and replace bait as needed. If

the bait station does not have a sticker to identify the contents, apply a sticker listing contents to the station.

5. Gravel, building materials, or other equipment such as portable buildings should be baited using MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) or AmdroPro (0.73 percent Hydramethylnon; https://connpest.com/labels/AMDROPRO.pdf) following label guidance.

6. Storage areas that hold field tools, especially tents, tarps, and clothing should be baited using MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) or AmdroPro (0.73 percent Hydramethylnon; https://connpest.com/labels/AMDROPRO.pdf) following label guidance.

7. Vehicles that have entered a project site known or thought to overlap with areas infested with LFA should subsequently be tested for LFA with baiting in accordance with protocol recommended by the Hawai‘i Ant Lab (https://littlefireants.com/survey-your-home-for-lfa/).

8. If LFA are detected, please report it to 808-643-PEST (Hawai‘i), 671-475-PEST (Guam), or 684-699-1575 (American Samoa). Please visit https://littlefireants.com/identification-of-little-fire-ants/ for assistance in identifying LFA.

Coconut Rhinoceros Beetle (CRB)

Current Distribution of CRB in Hawai‘i: O‘ahu, detected on Maui in November 2023 but not observed since (there are ongoing search efforts: https://governor.hawaii.gov/newsroom/hdoa-news-release-on-on-going-efforts-against-the-coconut-rhinoceros-beetle-on-maui/)

The coconut rhinoceros beetle (*Oryctes rhinoceros*), or CRB, is a large, horned scarab beetle native to Southeast Asia. An invasive pest where it occurs outside of its native range, the adult beetles primarily attack coconut palms by boring into the crowns to feed on developing leaves. It is also known to feed on bananas, sugarcane, pineapples, oil palms, and pandanus trees. The larval grub stage burrow into and feed upon decomposing mulch and vegetation. On most Pacific Islands it lacks natural predators, leading to severe declines and extirpations of palm species where it has become established. On Guam, researchers have recently documented a shift of CRB to the island’s native and threatened cycad tree (*Cycas micronesica*) (Marler et al. 2020). In the Hawaiian Islands, CRB is a documented threat to archipelago’s native *Pritchardia* palm species.

For more information about CRB including the current situation in Guam and high/low-risk areas on O‘ahu, please visit http://cnas-re.uog.edu/crb/ or https://www.crbhawaii.org/.
To reduce the risk of spreading CRB, the following biosecurity protocol is recommended:

Biosecurity Protocol for CRB used on O‘ahu (most can be applied to Maui)

1. Never transport green waste between islands and minimize the creation, storage, and transport of green waste within O‘ahu, this also includes:
    a. Mulch, bark, compost
    b. Soil of any kind
    c. Potted plants of any kind

   Additional consultation is recommended if the project involves transportation of materials, soil, equipment, vehicles, etc. between islands.

2. If felling or trimming palms, contact CRB Response for a free inspection ((808) 679-5244 or email at info@crbhawaii.org)

3. Keep green waste whole until it is ready to be treated and removed.
    a. Chip green waste on site and transport it on the same day to a secure and managed green waste disposal site/facility.
    b. For chipped green waste in high-risk areas, re-chip prior to movement outside the infested area, treat with pesticide (when applicable), heat treatment (>130 degrees F), spread and dry, or store in sealed durable containers.

4. Minimize accumulations of green waste by regularly treating mulch piles or depositing it in sealed green waste bins. In low-risk areas, we also recommend thinly spreading mulch (less than 2 inches deep) and allowing it to dry (no irrigation).

5. If injured or dying coconut palm trees are observed or if CRB are detected, contact CRB Response at (808) 679-5244 or email at info@crbhawaii.org or online at https://www.crbhawaii.org/report

PIFWO Invasive Species Biosecurity Protocols

(Updated July 2024)

Project activities may introduce or spread invasive species, causing negative ecological consequences to new areas or islands, resulting in potential impacts to fish, wildlife, and their habitat. For example, seeds of invasive plant species (e.g., *Chromolaena odorata*, *Senecio madagascariensis*, *Cyathea cooperi*, or *Miconia calvescens*) can be inadvertently transported on equipment from a previous work site to a new site where the species are not present. Likewise, equipment used in an area infected with a pathogen or insect pest that can have ecological consequences (e.g., rapid ʻōhiʻa death (*Ceratocystis spp.*), black twig borer (*Xylosandrus compactus*), or naio thrips (*Klambothrips myopori*), if not properly decontaminated, can act as a vector to introduce the pathogen into a new area. Additionally, vehicles must be properly inspected and cleaned to ensure vertebrate or invertebrate pests do not stowaway and spread to other areas. These are just a few examples of how even well-intended project activities may inadvertently introduce or spread invasive species.

To avoid and minimize invasive species potential impacts to fish, wildlife, and their habitat we recommend incorporating general biosecurity protocols into your project planning (see below). Additional consultation is recommended if project activities involve transportation of materials, equipment, vehicles, etc. between islands or transpacific movement of materials or equipment.

Invasive Species Biosecurity Protocol

The following biosecurity protocol is recommended to be incorporated into planning for your project to avoid or minimize transportation of invasive species with potential to impact to fish, wildlife, and their habitat. Cleaning, treatment, and/or inspection activities are the responsibility of the equipment or vehicle owner and operator. However, it is ultimately the responsibility of the action agency to ensure that all project materials, vehicles, machinery, equipment, and personnel are free of invasive species before entry into a project site. Please refer to the resources listed below for current removal/treatment recommendations that may be relevant to your project.

1. Cleaning and treatment:
   Project applicants should assume that all project materials (i.e., construction materials, or aggregate such as dirt, sand, gravel, etc.), vehicles, machinery, and equipment contain dirt and mud, debris, plant seeds, and other invasive species, and therefore require thorough cleaning. Treatment for specific pests, for example, trapping and poison baiting for rodents, or baiting and fumigation for insects, should be considered when applicable. For effective cleaning we offer the following recommendations prior to entry into a project site:
   a. Project materials, vehicles, machinery, and equipment must be pressure washed thoroughly (preferably with hot water) in a designated cleaning area. Project materials, vehicles, machinery, and equipment should be visibly free of mud/dirt (excluding aggregate), seeds, plant debris, insects, spiders, frogs (including frog eggs), other vertebrate species (e.g.,

rodents, mongoose, feral cats, reptiles, etc.), and rubbish. Areas of particular concern include bumpers, grills, hood compartments, wheel wells, undercarriage, cabs, and truck beds. Truck beds with accumulated material are prime sites for hitchhiking invasive species.

b. The interior and exterior of vehicles, machinery, and equipment must be free of rubbish and food, which can attract pests (i.e., rodents and insects). The interiors of vehicles and the cabs of machinery should be vacuumed clean particularly for any plant material or seeds.

2. Inspection:
   a. Following cleaning and/or treatment, project materials, vehicles, machinery, and equipment, must be visually inspected by its user, and be free of mud/dirt (excluding aggregate), debris, and invasive species prior to entry into a project site. For example, careful visual inspection of a vehicle's tires and undercarriage is recommended for any remaining mud that could contain invasive plant seeds.
   b. Any project materials, vehicles, machinery, or equipment found to contain invasive species (e.g., plant seeds, invertebrates, rodents, mongoose, cats, reptiles, etc.) must not enter the project site until those invasive species are properly removed/treated.

3. For all project site personnel:
   a. Prior to entry into the project site, visually inspect and clean your clothes, boots or other footwear, backpack, radio harness, tools and other personal gear and equipment for insects, seeds, soil, plant parts, or other debris. We recommend the use of a cleaning brush with sturdy bristles. Seeds found on clothing, footwear, backpacks, etc., should be placed in a secure bag or similar container and discarded in the trash rather than being dropped to ground at the project site or elsewhere.

4. Additional considerations:
   a. Consider implementing a Hazard Analysis and Critical Control Point (HACCP) plan (https://www.fws.gov/policy/A1750fw1.html) to improve project planning around reducing the risk of introducing or spreading invasive species.
   b. When applicable, use pest-free or low-risk sources of plants, mulch, wood, animal feed or other materials to be transported to a project site.
   c. For projects involving plants from nurseries (e.g., outplanting activities, etc.), all plants should be inspected, and if necessary, appropriately cleaned or treated for invasive species prior to being transported to the project site.
   d. Avoid unnecessary exposure to invasive species at a particular site (to the extent practical) to reduce contamination and spread. For example, if your project involves people or equipment moving between multiple locations, plan and organize timelines so that work is completed in native habitat

prior to working in a disturbed location to reduce the likelihood of introducing a pest into the native habitat.

e. Maintain good communication about invasive species risks between project managers and personnel working on the project site (e.g., conduct briefings and training about invasive species). Ensure prevention measures are communicated to the entire project team. Also consider adding language on biosecurity into contracts or permitting mechanisms to provide clarity to all involved in the project. Report any species of concern or possible introduction of invasive species to appropriate land managers.

For current removal/treatment recommendations please refer to the following:
Hawaiian Islands:

- Hawaiʻi Island – https://www.biisc.org/
- **Maui – https://mauiinvasive.org/**
- Molokaʻi - https://www.molokaiisc.org/
- Lānaʻi - https://pulamalanai.com/
- Oʻahu – https://www.oahuisc.org/
- Kauaʻi – https://www.kauaiisc.org/

Species-Specific Biosecurity Protocols

The following section contains specific protocols for a few select invasive species of concern in the Pacific Islands highlighted because of their potential to easily spread and cause great harm to native species and habitats. Other invasive species may not have existing specific protocols or may already be minimized by implementing the general invasive species protocols above (e.g., invasive plants, invertebrates, larger vertebrates). Information on other invasive species can be found in the island specific links below. As new threats emerge that require development of species-specific protocols, those may be added to this list.

Table 1. Current island distribution of invasive species with specific biosecurity protocols in the Pacific Islands (PIFWO jurisdiction).

Island	Invasive Species with Specific Protocols			
	Rapid ʻŌhiʻa Death	**Little Fire Ant**	**Coconut Rhinoceros Beetle (CRB)**	**Brown Treesnake**
Island of Hawaiʻi	widespread	widespread	not present	not present
Maui	present	incipient	detected in Nov 2023, not observed since. The state and Service recommend implementing CRB biosecurity BMPs	not present
Oʻahu	incipient	incipient	widespread	not present
Kauaʻi	widespread	not present	not present	not present

Rapid ʻŌhiʻa Death (ROD)

If working directly with ‘ōhi‘a trees (e.g., sampling suspected trees, clearing an area of ‘ōhi‘a, etc.) or in an area(s) known to be highly infested with ROD, additional consultation is recommended.

Current Distribution of ROD: island of Hawai‘i, Maui, O‘ahu, Kaua‘i (https://cms.ctahr.hawaii.edu/rod

While ROD is not currently reported on Moloka‘i at this time, if you are in ‘ōhi‘a forest it would be prudent to take precautions. Also, consider where the equiptment to be used on Moloka‘i will be coming from, and if from an island with confirmed ROD, take the necessary precautions.

Rapid ‘Ōhi‘a Death (ROD) is a caused by a fungal pathogen (*Ceratocystis* spp.) that attacks and kills ‘ōhi‘a trees (*Metrosideros polymorpha*). ‘Ōhi‘a is endemic to the Hawaiian Islands and is the most abundant native tree species, comprising approximately 80 percent of Hawai‘i’s remaining native forests.

For more information about ROD including its current distribution, ROD science updates, and the latest on ROD protocol, please visit www.rapidohiadeath.org.

To reduce the risk of spreading ROD, the following best management practices and decontamination protocol are recommended:

Best Management Practices for ROD

1. Never transport any part of an ‘ōhi‘a tree between different areas of an island or to a different island.

2. Do not use equipment from ROD infected islands on another island unless it is very specialized equipment and follows the decontamination protocol described below.

3. Avoid wounding ‘ōhi‘a trees and roots with mowers, chainsaws, weed eaters, and other tools. If an ‘ōhi‘a receives a minor injury like a small broken branch, then give the injury a clean, pruning-type cut (close to the main part of the trunk or branch) to promote healing, and then spray the entire wounded area with a pruning seal.

4. Always report suspect ROD ‘ōhi‘a trees observed within you project area. ROD is a wilt disease that cuts off the supply of water and nutrients to the tree. The primary symptom to look for is an entire canopy or a large branch with dying leaves or red discolored leaves. Please record the GPS coordinates and location and take a picture of the tree if possible. Please report suspected ROD ‘ōhi‘a trees to the following agencies:
    a. Island of Hawai‘i – BIISC: 808-969-8268 (ohialove@hawaii.edu)
    b. Maui – MISC: 808-573-6472 (miscpr@hawaii.edu)

c. Moloka‘i – TNC: 808-553-5236 ext. 6585 (lbuchanan@tnc.org)
d. O‘ahu – OISC: 808-266-7994 (oisc@hawaii.edu)
e. Kaua‘i – KISC: 808-821-1490 (kisc@hawaii.edu)

ROD Decontamination Protocol

1. Clothes, footwear, backpacks, and other personal equipment
   a. Before leaving the project site, remove as much mud and other contaminants as possible. Use of a brush with soap and water to clean gear is preferred. Footwear, backpacks, and other gear must be sanitized by spraying with a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution.

2. Vehicles, machinery, and other equipment
   a. Vehicles, machinery, and other equipment must be thoroughly hosed down with water (pressure washing preferred) and visibly free of mud and debris, then sprayed with a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution. Use of a “pump-pot” sprayer is recommended for the solution and a hot water wash is preferred. Be sure to thoroughly clean the undercarriage, truck bed, bumpers, and wheel wells.
   b. If non-decontaminated personnel or items enter a vehicle, then the inside of the vehicle (i.e., floor mats, etc.) must be subsequently decontaminated by removing mud and other contaminants and sprayed with the one of the same aforementioned sanitizing solutions.

3. Cutting tools
   a. All cutting tools, including machetes, chainsaws, and loppers must be sanitized to remove visible mud and other contaminants. Tools must be sanitized using a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution. One minute after sanitizing, one may apply an oil-based lubricant to chainsaw chains or other metallic parts to prevent corrosion as bleach is corrosive to metal.

   NOTE: When using a 10 percent bleach solution, surfaces should be cleaned with a minimum contact time of 30 seconds. Bleach must be mixed daily and used within 24 hours, as once mixed it degrades. Bleach will not work to disinfect surfaces that have high levels of organic matter such as sawdust or soil. Because bleach is also corrosive to metal, a water rinse after proper sanitization is recommended to avoid corrosion.

Little Fire Ant (LFA)
For the most current status on distribution and infestations, please visit http://stoptheant.org/lfa-in-hawaii/

The little fire ant (*Wasmannia auropunctata*), or LFA, is an invasive species with a painful sting that can inhabit many different environments. In Hawaiʻi, it often infests agricultural fields and farms, damaging crops and stinging unsuspecting workers. Little fire ants are also highly disruptive to native tropical ecosystems and harmful to wildlife. Slow moving, but tiny and capable of foraging 24 hours a day with multiple queens per colony, LFA is a formidable threat to biodiversity, agriculture, and quality of life on tropical islands in the Pacific.

For more information about LFA including helpful guides and workshops for treating or detecting LFA, please visit www.littlefireants.com.

To reduce the risk of spreading LFA, the following biosecurity protocol is recommended:

Biosecurity Protocol for LFA

1. For projects involving plants from nurseries (e.g., outplanting activities, etc.), all plants should be inspected for little fire ants and other pests prior to being transported to the project site. If plants are found to be infested by ants of any species, plants should be sourced from an alternative nursery and the infested nursery should follow treatment protocols recommended by the Hawaiʻi Ant Lab (https://littlefireants.com/wp-content/uploads/2020-Management-of-Pest-Ants-in-Nurseries-min.pdf).

2. All work vehicles, machinery, and equipment should follow steps 1 and 2 in the "Invasive Species Biosecurity Protocol" for (1) cleaning and treatment and (2) inspection for invasive ants prior to entering a project site.

3. Any machinery, vehicles, equipment, or other supplies found to be infested with ants (or other invasive species) must not enter the project site until it is properly treated (https://littlefireants.com/how-to-treat-for-little-fire-ants-for-homeowners/#recommended-bait-products) and re-tested. Infested vehicles must be treated following recommendations by the Hawaiʻi Ant Lab (https://littlefireants.com/resource-center/) or another ant control expert and in accordance with all State and Federal laws. Treatment is the responsibility of the equipment or vehicle owner. Ultimately however, it is the responsibility of the action agency to ensure that all project materials, vehicles, machinery, and equipment follow the appropriate protocol(s).

4. General Vehicle Ant Hygiene: Even the cleanest vehicle can pick up and spread little fire ant. Place MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) into refillable tamper resistant bait stations. An example of a commercially available refillable tamper resistant bait station is the Ant Café Pro (https://www.antcafe.com/). Place a bait station (or stations) in the vehicle and note that larger vehicles, such as trucks, may require multiple stations. Monitor bait stations frequently (every week at a minimum) and replace bait as needed. If

the bait station does not have a sticker to identify the contents, apply a sticker listing contents to the station.

5. Gravel, building materials, or other equipment such as portable buildings should be baited using MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) or AmdroPro (0.73 percent Hydramethylnon; https://connpest.com/labels/AMDROPRO.pdf) following label guidance.

6. Storage areas that hold field tools, especially tents, tarps, and clothing should be baited using MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) or AmdroPro (0.73 percent Hydramethylnon; https://connpest.com/labels/AMDROPRO.pdf) following label guidance.

7. Vehicles that have entered a project site known or thought to overlap with areas infested with LFA should subsequently be tested for LFA with baiting in accordance with protocol recommended by the Hawaiʻi Ant Lab (https://littlefireants.com/survey-your-home-for-lfa/).

8. If LFA are detected, please report it to 808-643-PEST (Hawaiʻi), 671-475-PEST (Guam), or 684-699-1575 (American Samoa). Please visit https://littlefireants.com/identification-of-little-fire-ants/ for assistance in identifying LFA.

Coconut Rhinoceros Beetle (CRB)

Current Distribution of CRB in Hawaiʻi: Oʻahu, detected on Maui in November 2023 but not observed since (there are ongoing search efforts: https://governor.hawaii.gov/newsroom/hdoa-news-release-on-on-going-efforts-against-the-coconut-rhinoceros-beetle-on-maui/)

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For more information about CRB including the current situation in Guam and high/low-risk areas on Oʻahu, please visit http://cnas-re.uog.edu/crb/ or https://www.crbhawaii.org/.
To reduce the risk of spreading CRB, the following biosecurity protocol is recommended:

Biosecurity Protocol for CRB used on O‘ahu (most can be applied to Maui)

1. Never transport green waste between islands and minimize the creation, storage, and transport of green waste within O‘ahu, this also includes:
    a. Mulch, bark, compost
    b. Soil of any kind
    c. Potted plants of any kind

    Additional consultation is recommended if the project involves transportation of materials, soil, equipment, vehicles, etc. between islands.

2. If felling or trimming palms, contact CRB Response for a free inspection ((808) 679-5244 or email at info@crbhawaii.org)

3. Keep green waste whole until it is ready to be treated and removed.
    a. Chip green waste on site and transport it on the same day to a secure and managed green waste disposal site/facility.
    b. For chipped green waste in high-risk areas, re-chip prior to movement outside the infested area, treat with pesticide (when applicable), heat treatment (>130 degrees F), spread and dry, or store in sealed durable containers.

4. Minimize accumulations of green waste by regularly treating mulch piles or depositing it in sealed green waste bins. In low-risk areas, we also recommend thinly spreading mulch (less than 2 inches deep) and allowing it to dry (no irrigation).

5. If injured or dying coconut palm trees are observed or if CRB are detected, contact CRB Response at (808) 679-5244 or email at info@crbhawaii.org or online at https://www.crbhawaii.org/report

USFWS Biological Opinion

Biological Opinion for the Honoapiʻilani Highway Realignment Project, Maui

Nēnē at Ukumehame Firing Range Photo Credit: Carrie Harrington, USFWS

July 16, 2025
(2023-0041712-S7-001)

United States Department of the Interior

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

In Reply Refer To:
2023-0041712-S7-001

July 16, 2025

Ms. Richelle M. Takara
Division Administrator
U.S. Department of Transportation
Federal Highway Administration
300 Ala Moana Blvd., Rm 3-229
Honolulu, Hawaiʻi 96850

Subject: Biological Opinion and Informal Consultation for the Honoapiʻilani Highway Realignment Project, Maui

Dear Ms. Takara:

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (Opinion) based on our review of the proposed Honoapiʻilani Highway Realignment Project (Project) located in Maui County, Hawaiʻi, and its effects on the federally threatened nēnē (Hawaiian goose, *Branta sandvicensis*) and federally endangered aeʻo (Hawaiian stilt, *Himantopus mexicanus knudseni*) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq*.).

A separate informal consultation can be found in Appendix A (file number: 2023-0041712-S7-002) for project impacts that may affect, but are not likely to adversely affect the federally protected ʻōpeʻapeʻa (Hawaiian hoary bat, *Lasiurus cinereus semotus*), Hawaiʻi Distinct Population Segment of the ʻakēʻakē (band-rumped storm-petrel, *Hydrobates castro*), ʻuaʼu (Hawaiian petrel, *Pterodroma sandwichensis*), ʻaʻo (Newell's shearwater, *Puffinus newelli*), Short-tailed albatross (*Phoebastria albatrus*), ʻalae keʻokeʻo (Hawaiian coot, *Fulica alai*), koloa maoli (Hawaiian duck, *Anas wyvilliana*), Blackburn's sphinx moth (*Manduca blackburni*), Assimulans yellow-faced bee (*Hylaeus assimulans*), honu (green sea turtle, *Chelonia mydas*), and honu ʻea (Hawksbill sea turtle, *Eretmochelys imbricata*).

This Opinion is based on information provided in the following: 1) information from your informal consultation request dated November 13, 2023; 2) information in your biological survey report supplement dated October 7, 2024; (3) information in your formal consultation request dated March 10, 2025; (4) communication (verbal and written) between the Federal Highway

Administration (FHWA) staff and our office; and 5) other information available to us. A complete decision record of this consultation is on file in our office.

CONSULTATION HISTORY

May 16, 2025: PIFWO formal consultation was initiated with FHWA.

June 2, 2025: PIFWO requested clarity from FHWA regarding delineated wetlands.

June 3, 2025: FHWA provided PIFWO requested information on delineated wetlands.

June 13, 2025: PIFWO requested clarification from FHWA regarding project acreage, avoidance and minimization measures, and project description.

June 18, 2025: FHWA provided PIFWO the requested information on project acreage, avoidance and minimization measures, and project description.

June 25, 2025: PIFWO requested clarification from FHWA regarding avoidance and minimization measures.

July 03, 2025: FHWA provided PIFWO clarification on requested avoidance and minimization measures.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed Project would realign an approximately 6-mile (mi) portion of the existing Honoapiʻilani Highway along the leeward coast of Mauna Kāhālawai on Maui (West Maui). The Project spans between Milepost 11 in Ukumehame near Pāpalaua Beach Park and Milepost 17 in Launiupoko, where the existing Honoapiʻilani Highway intersects the southern terminus of the Lahaina Bypass (Figure 1). The Action Area is within a corridor between the mountains and the sea (mauka to makai) and is approximately 6 mi long and approximately 0.75 mi wide. The Project site and Action Area are located approximately 0 to 3,100-feet (ft) (950-meters (m)) wide measured mauka to makai and generally parallel with the existing Honoapiʻilani Highway. In total, the Action Area covers 2,437.63-acres (ac), spanning the ahupuaʻa of Ukumehame, Olowalu, and Launiupoko; the Preferred Alternative could result in habitat loss of approximately 124 acres. The Project design includes culverts, bridges, and viaduct structure (a viaduct is a longer multi-span bridge) that allow for water crossings and helps to avoid or minimize potential adverse environmental effects. The proposed viaduct would be constructed in the Ukumehame segment of the Project. The construction footprint is the area that is commonly referred to as the highway right-of-way (ROW).

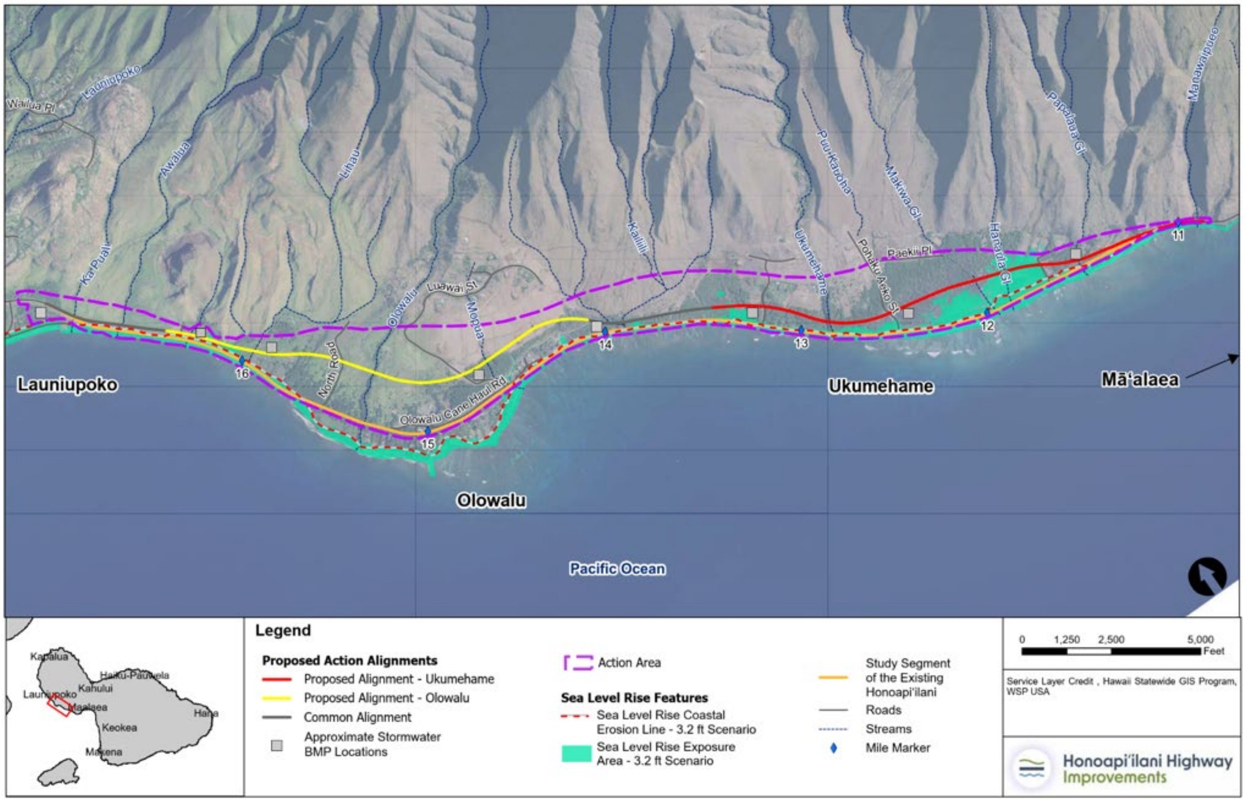


Figure 1. Map of the location, action area, and associated key features of the proposed Honoapiʻilani Highway Realignment Project located on the leeward coastline of Mauna Kāhālawai from the FHWA's BA (WSP 2005, p. 6).

The Action Area is comprised of three sections:

1. *Olowalu – Northern Connection to Existing Lahaina Bypass*—Starting at the northern end, the realigned highway would tie into the Lahaina Bypass where it partially overlaps the existing highway before moving mauka through Launiupoko and behind existing businesses and residences to the south and east in the Olowalu Peninsula for about three miles.
2. *Ukumehame – Northern Connection to Olowalu*—In the central portion, a 0.6-mile stretch of the realigned highway connects the northernmost section of Ukumehame to the Olowalu Peninsula.
3. *Ukumehame – Pali Connection through Ukumehame Firing Range*—In the southernmost stretch, the realigned highway is a two-lane alignment from the southern Pali connection through to the north side of the Ukumehame firing range. A single viaduct structure would be constructed to carry the realigned highway across the Hawaiʻi Department of Transportation (HDOT) detention basin and the firing range. Accessing the firing range and public beaches would be from the realigned highway's intersections with existing cross streets (Pōhaku ʻAeko Street and Ehehene Street) in Ukumehame. No driveways or intersections are proposed further north entering the Olowalu area.

Preparing and constructing the realigned highway along the ROW
In coordination with and as approved by the Hawai‘i Department of Transportation (HDOT), the design-build contractor would identify appropriate construction staging areas within HDOT ROW for storage, equipment, and materials. These areas would avoid adjacency to wetland habitat and streambanks. The contractor would prioritize previously disturbed and bare areas to use for these activities to limit ground disturbance and any potential vegetation clearing.

The contractor could identify disposal and borrow sites (that is, where excavated material would be excavated and stockpiled for application in later stages or removed for off-site disposal). The use of disposal and borrow sites would be subject to standard HDOT specifications and policies, as well as County of Maui and State of Hawai‘i environmental regulations and permit requirements. Another pre-development siting element would be the contractor determining whether there is a need to establish a concrete batch plant (where raw materials of aggregate, sand, cement, and water are stored and mixed as needed for highway construction).

The design-build contractor would ultimately determine the necessary equipment to perform construction activities. Equipment necessary to perform construction activities may include, but is not limited to the following:

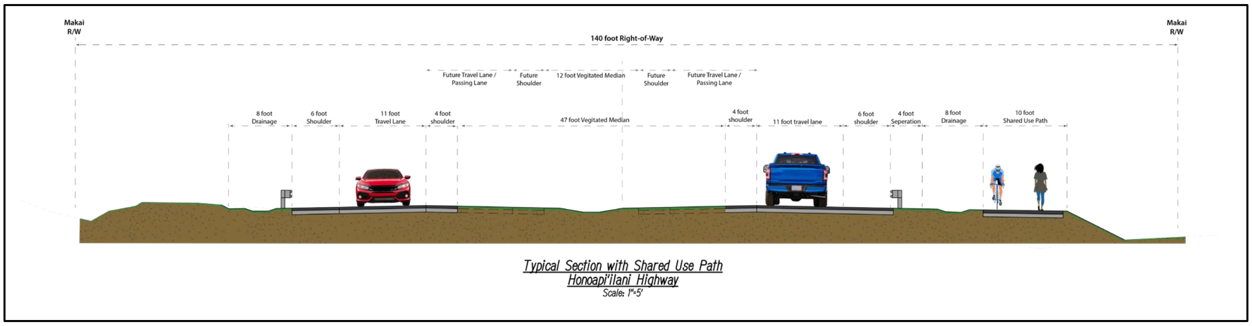
- Man Lift
- Pickup Truck
- Power Broom
- Roller
- Grader
- Concrete Saw
- Air Compressor
- Striping Machine
- Crane
- Backhoe
- Backhoe with Hammer
- Forklift
- Generator
- Concrete Pump Truck
- Water Truck
- Hauling Truck
- Front Loader
- Bulldozer
- Cold Planer
- Vacuum Truck
- Volumetric Mixer
- Drill Rig
- Jumping Jack
- Jack Hammer
- Pneumatic Hammer
- Hoe Rams
- Pacing Machine

To prepare for construction activities, the realigned highway alignment (construction footprint) would require preparation by clearing and grubbing of shrubs, brush, and herbaceous vegetation. Clearing is defined as removing and disposing of all unwanted vegetative surface material and grubbing refers to removing and disposing of all unwanted underground vegetative matter such as roots. Clearing and grubbing is completed with large earth moving equipment such as excavators, backhoes, bobcats, bulldozers, graders, front-end loaders or scrapers. The site would be graded once vegetation is cleared, grubbed, and removed from the construction footprint. Grading involves the use of earth moving equipment such as excavators, bulldozers, front-end loaders, graders, scrapers or backhoes to grade, build-up and shape the roadway profile.

After the roadway is cleared and grubbed, subsurface utilities, including drainage infrastructure, would be installed. The ROW would then undergo rough grading to establish the alignment and profile of the realigned highway. As the rough grading gets closer to the finish grade, signal light and streetlight and other future use conduits and pull boxes are installed. The final roadway layers would be based on the contractor’s Pavement Design Report, which would indicate the precise thickness of the pavement structure to use and where it would be needed.

The realigned highway would have a minimum ROW width of 140 ft (43 m) allowing for two (in-bound and out-bound direction) 11 ft wide (3.4 m) travel lanes, 6 ft wide (1.8 m) paved shoulders, a 4 ft wide paved inside shoulder, a 34 ft wide (10.4 m) median, and a 10 ft wide (3 m) shared use path on the makai side of the alignment. Portions of the realigned highway would have fencing along the ROW to control access for safety and security. These locations would be determined through final design.

Figure 2 shows the typical ROW sections with two lanes, as well as narrow sections that may be used at specific locations (pinch points) where available space is limited. Additional ROW at eight natural low points close to the proposed highway alignment would be set aside for permanent stormwater detention ponds. Intersections with existing cross streets that provide access to the existing Honoapiʻilani Highway would be intersecting the realigned highway, as well. No new additional intersections are planned.



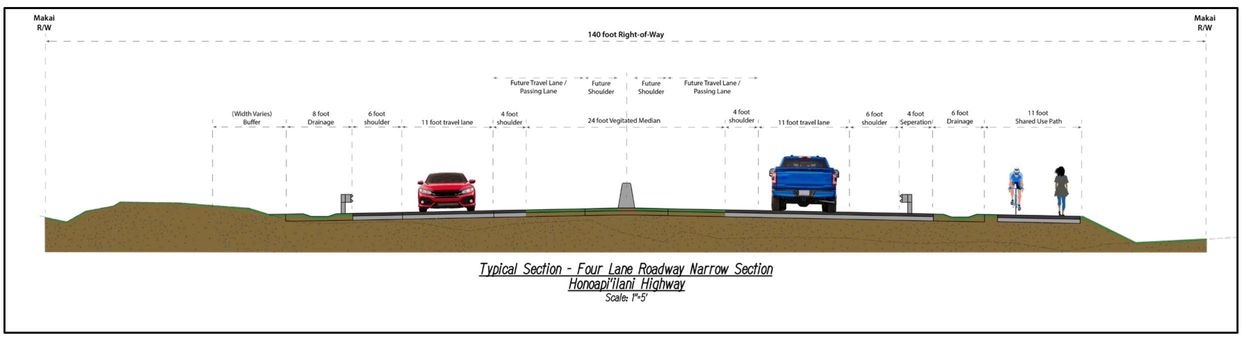


Figure 2. Typical ROW section with two lanes: typical section of realigned highway with shared use path (above); typical narrow section of highway with shared use path (below). (Image credits: FHWA)

Installation of permanent stormwater best management practices

The proposed action would set aside additional ROW along the roadway profile to collect and treat roadway stormwater for permanent stormwater BMPs (permanent BMPs) with an average size of approximately one acre. Proposed locations can be seen on Figure 1 as square structures abutting the alignment. The final design established as part of the design-build process would determine the design, size, and location of the permanent BMPs, including conceptual detention ponds to promote infiltration and treatment of discharge generated on-site, and incorporation of Low Impact Development strategies, such as vegetated swales in the median and on the outside edges of the pavement structure to the maximum extent practicable. Concrete box, open bottom, and pipe culverts would convey stormwater under the proposed action alignment at various locations, as needed.

These set asides are conservatively sized for a maximum potential area of disturbance and the final number, locations, and size of the infrastructure may vary depending on the treatment strategies as established through final design as part of the design-build process. At a minimum, the preliminary stormwater treatment design that has been developed for the proposed action, would provide treatment that meets the treatment standards established by the Federal, state, and/or local agencies with jurisdiction.

Construction of water crossings

The highway design includes culverts, bridges, and viaduct structure that allow for water crossings and avoid or minimize potential adverse environmental effects. The ultimate determination of culvert and bridge designs, or the use of viaducts to span larger areas, would be based on the length of the span required to pass anticipated design discharges without increasing floodwater elevations, and in consideration of avoiding and minimizing effects to mapped wetlands and recorded nēnē and ae‘o loafing areas, as well as avoiding the sea level rise exposure area. Constructability and cost would also play a role in culvert, bridge, and viaduct specifications.

HDOT's *Design Criteria for Highway Drainage* requires all bridges and culverts to be designed for 50-year storm events, except within areas that encroach the Federal Emergency Management Agency (FEMA) flood zones, where they would be designed for 100-year storm events.

While the final design of the new bridges, culverts, and viaduct portions of the Project would be developed by the design-build team, for the purposes of this BO, it is assumed that new structures would be supported on driven pile or drilled shaft foundations. Drilled shaft foundations would be used when subsurface conditions are anticipated to be problematic for driven pile installation or in areas sensitive to minimize vibration and noise and would be an efficient technique at selected pier bents. Abutment and wingwall footings would also be founded on driven piles or drilled shafts. Construction of the bridge and viaduct portions of the Project would involve completing piers, columns, deck, roadway finishes, and lighting. The designer of record would determine the type of superstructure and construction methods that would best meet the requirements of the Project. The designer of record is the professional who is legally responsible for the design of a construction project, including ensuring it meets all applicable building codes and standards, and is ultimately accountable for the design's integrity throughout the construction process.

Culverts

Concept design of the proposed action includes the option for seven or eight large culverts. Concrete box, naturalized/open bottom, or pipe culverts would allow for the flow of offsite water from upland areas under the highway and to convey stormwater at various locations. Smaller pipe culverts may be constructed to convey offsite water from smaller upland drainage areas. Box culverts may also be used to allow for grade separation of local cane haul roads or driveways as appropriate. Work on culverts in concentrated flow areas would be scheduled during dry periods to minimize the potential for sediment transport resulting from construction activities. Culverts and drainage features would be designed to minimize any increases in flow velocity.

Bridges

Approximately four bridge structures would be required to span over the two perennial streams, the Olowalu and Ukumehame, along with two over the intermittent Ka‘ili‘ili and Līhau streams. Each crossing would have a separate bridge crossing per two-lane segments and a typical elevation and section (which would vary by span length and height) as shown in Figure 3 for a short-span bridge and Figure 4 for a long-span bridge. Conceptual design includes all abutments (the supporting structures at the ends of the bridge) outside of the ordinary high-water mark (OHWM) to ensure that the critical structural components of the bridge are not intruding into the stream’s natural course.

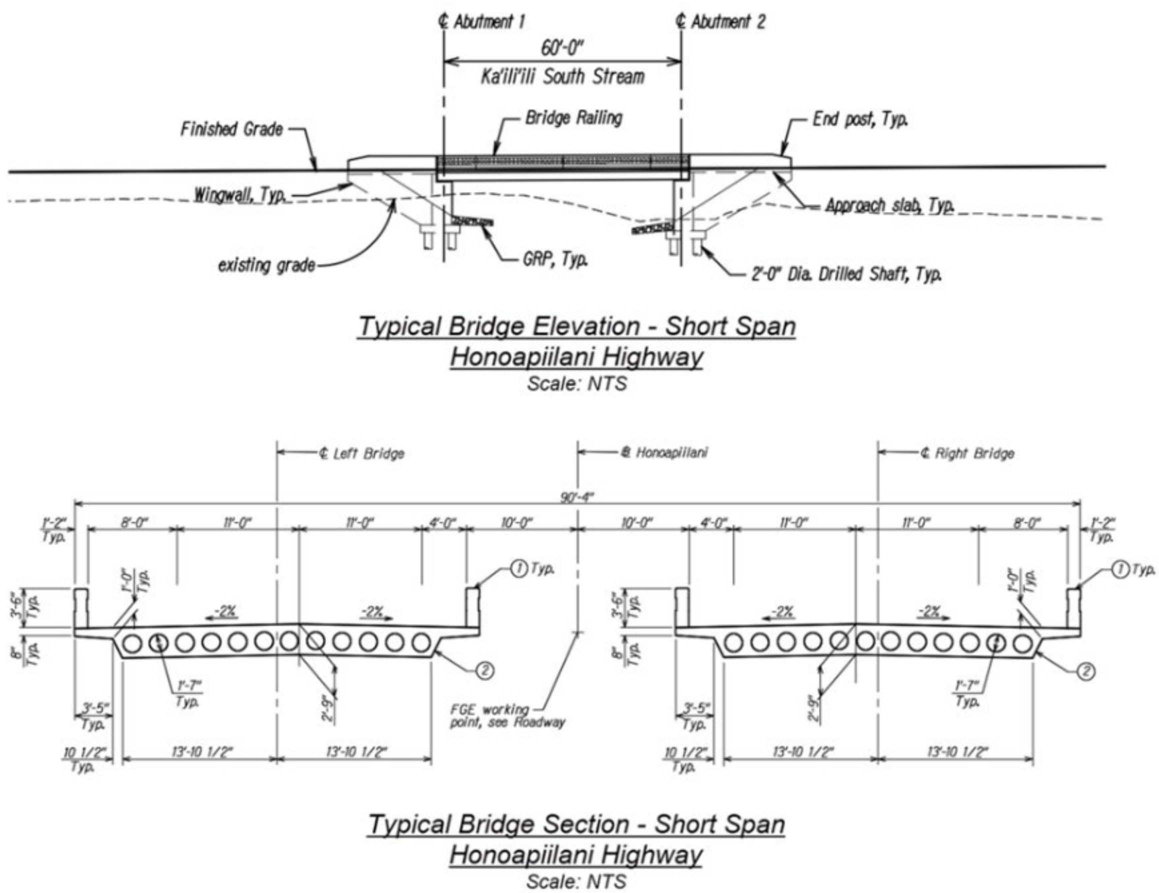
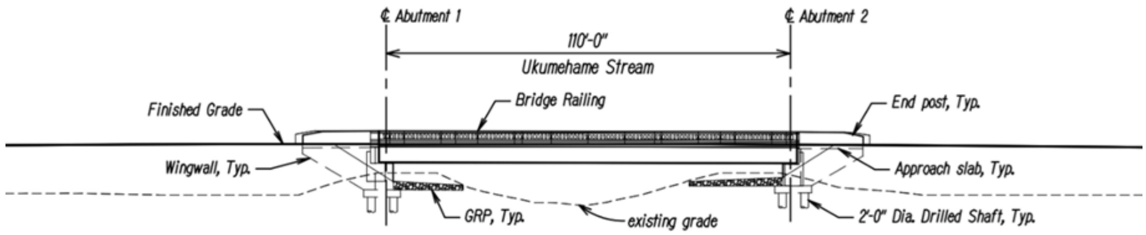
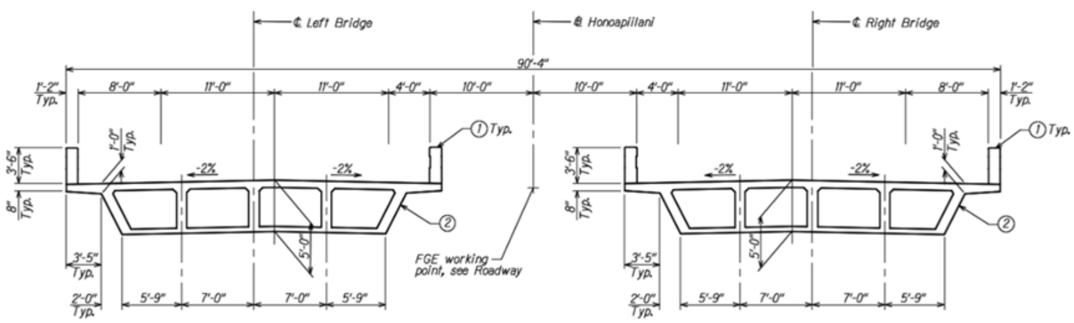


Figure 3. Typical short-span bridge design. (Image credit: FHWA)



Typical Bridge Elevation - Long Span
Honoapiilani Highway
Scale: NTS



Typical Bridge Section - Long Span
Honoapiilani Highway
Scale: NTS

Figure 4. Long-span bridge design. (Image credit: FHWA)

Viaduct

In the Ukumehame area near the Ukumehame Firing Range, the proposed action alignment would largely traverse the area on a two-lane viaduct to avoid and minimize potential adverse effects to wetland habitat (Figure 5) and decrease risks associated with sea level rise. For the purpose of the consultation, it is assumed that new structures would typically be supported on driven pile or drilled shaft foundations (Figure 6). The locations of the piles and/or piers for the viaduct were estimated based on a preliminary engineering analysis. Drilled shaft foundations would be used when subsurface conditions are anticipated to be problematic for driven pile installation and in areas sensitive to vibration and noise and would be an efficient technique at selected pier bents. Abutment and wingwall footings would also be on piles. The final design of the viaduct, including location of piles, would be developed by the designer of record and design-build team.

Figure 5. Viaduct section of the realigned highway through Ukumehame wetland habitat. (Photo credit: H.T. Harvey and Associates 2023)

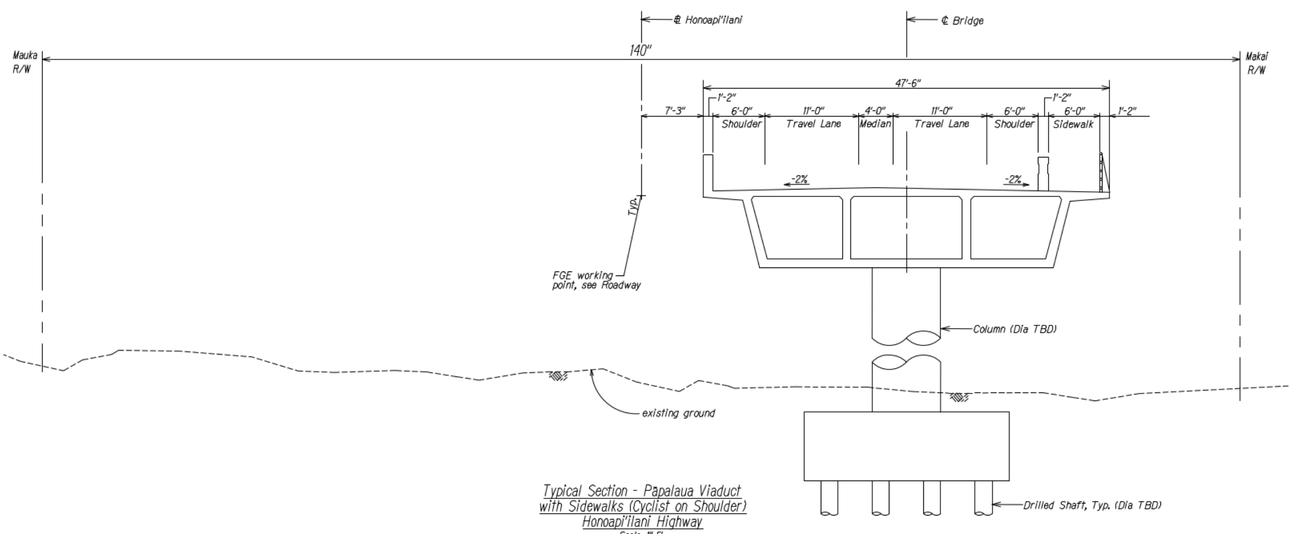


Figure 6. Typical viaduct section on pile foundation. (Image credit: FHWA)

The conceptual design viaduct in the Ukumehame area is approximately 3,678 ft long (1,121 m) with approximate varying elevations of 10 ft (3 m) near take-off and up to 20 ft (6 m) (Figure 7). The aboveground height of the viaduct over the wetlands and nearest the nēnē and ae‘o loafing areas would be 20 ft (6 m). This aboveground height would allow waterbirds to traverse the low-lying Ukumehame area safely (under the viaduct) without need to cross the realigned highway, as well as permit maintenance vehicles to work within the detention basin and allow for the continued use of the firing range driveway from the existing highway, which would pass underneath the viaduct structure. The viaduct would not have lighting. Rather, reflective pavement markers installed on the edge stripes and barrier wall is anticipated.

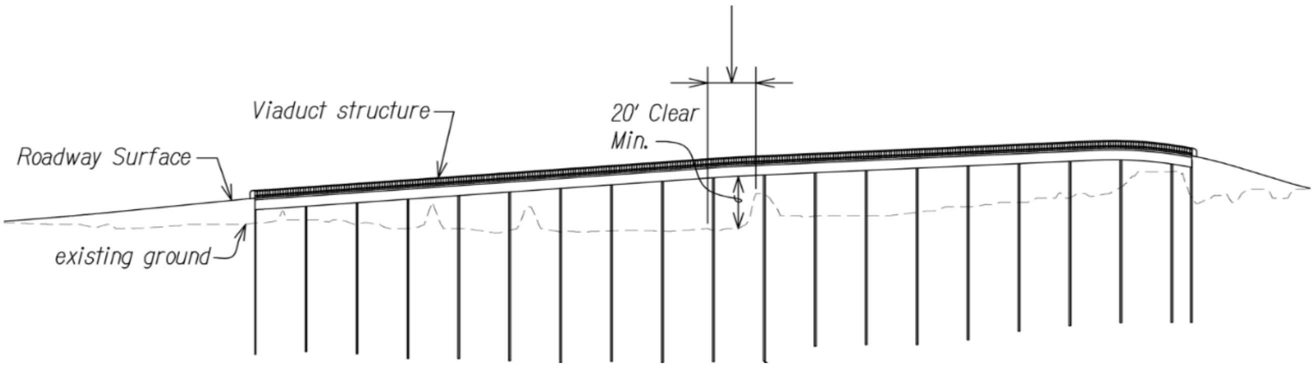


Figure 7. Viaduct height across total length, maximum is 20 ft.

The viaduct would be designed and striped to accommodate traffic in both directions, with 11-foot-wide travel lanes separated by centerline striping and 8 ft wide shoulders on each side with a 6 ft wide (1.8 ac) sidewalk on the makai side. Construction would maintain connectivity to the existing roadway network so that construction activities begin and end at existing roadways. Stub roads would be built to continue to the next phase without disturbing traffic on previously finished segments.

On the viaduct, stormwater would be collected and periodically piped down off the structure to permanent BMPs below. Stormwater would run along the parapet walls until the width of the water running along the wall reaches a threshold to enter a closed drainage system where it would flow through downspouts attached to the piers to a permanent BMP at ground level.

Construction of the bridge and viaduct portions of the Project would involve completing piers, columns, deck, and roadway finishes. The designer would determine the type of superstructure and construction methods that would best meet the requirements of the Project. These methods would be conducted consistent with the avoidance and minimization measures agreed upon between the Service and FHWA, outlined under <u>Nēnē Specific Conservation Measures Incorporated into the Action Area</u>, <u>Ae‘o Specific Conservation Measures Incorporated into the Action Area</u>, and <u>General Conservation Measure that Benefit Nēnē and Ae‘o</u>, below.

Completion and build-out

Once the roadway prism is installed and the final layer of concrete has achieved strength to support construction vehicles, striping would be installed. Guardrail would be used to prevent vehicles from departing the roadway onto unrecoverable slopes and to shield roadside obstructions. Guardrails may be installed before the final pavement layer is installed. Portions of the realigned alignment are likely to have fencing along the ROW to control access for safety and security. These locations would be determined through final design.

Operations and maintenance

Operations

Speed limits: The posted speed limit for the realigned highway would be 45 miles per hour (mph) to maintain consistency with the existing Lahaina Bypass that has a posted speed limit of 45 miles per hour.

Reduced speed limits of 15 mph through the Olowalu area and 10 mph in the Ukumehame area would be posted via sign along active construction roadways during construction.

Operational volume: The maximum directional operational volume is estimated at 1,900 vehicles per hour (vph) for the realigned highway, 325 vph more than the existing highway for Future Year 2045. This higher maximum directional operational volume for the realigned highway is projected because of better management of the number of accesses and improved roadway segment and intersection configurations.

Traffic control and intersections: Traffic control devices would be a mixture of two-way stops and traffic signals at various locations along the realigned highway. Evaluation of traffic signal warrants were based on procedures documented in the FHWA Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition (Chapter 4C, Traffic Control Signal Needs Studies, was applied).

There are five intersections planned for the realigned highway. One unsignalized t-intersection would provide access to the Olowalu Recycling and Refuse Convenience Center as well as a former cinder mining quarry used as a temporary storage site for ash and debris from the Lahaina wildfire just west of mile marker 16. In Olowalu, other intersections include an unsignalized four-legged intersection planned at North Road - halfway between mile markers 16 and 15, and a signalized four-legged intersection at Luawai Street – halfway between mile markers 15 and 14. This area is highly disturbed and is composed of buffel grass dominated grassland (H.T. Harvey & Associates, 2023). In Ukumehame, a signalized four-legged intersections is planned at Ehehene Street and an unsignalized four-legged intersection is planned at Pōhaku ʻAeko Street – east and west of mile marker 13. The viaduct structure would carry the realigned highway across the HDOT detention basin and the firing range, east of mile marker 12, allowing for the continued use of the firing range driveway from the existing highway, which would pass underneath the viaduct structure.

Guardrails: Guardrails would be used to prevent vehicles from departing the roadway onto unrecoverable slopes and to shield roadside obstructions. These guardrails would also deter wildlife from attempting to cross the road. The viaduct structure in Ukumehame would allow for wildlife to more easily pass underneath than to fly up and onto the realigned highway.

Jurisdictional change: The Project would not make any changes to the existing Honoapiʻilani Highway, although it is proposed to become the jurisdiction of County of Maui. Following this jurisdictional change, the operation and maintenance of the existing highway is outside the scope of this proposed action.

The proposed action would create a template and baseline for the eventual implementation of the Maui Metropolitan Planning Organization's *West Maui Greenway Plan* (County of Maui, 2022). This means that upon completion, ownership of the remaining portions of the existing highway in the Action Area that have not been realigned and are not part of the proposed action would be transferred to County of Maui and declassified from a State highway to a local road. This ownership transfer would enable future planning to incorporate more nature-based solutions for future roadway operations.

Maintenance

Maintenance activities include roadway resurfacing and repair, drainage system maintenance, traffic control device maintenance, vegetation control, bridge and structure inspection, and emergency response. Typical inspection and maintenance intervals by HDOT crews can be found in Table 1. As-needed maintenance addresses critical items that are found during these more frequent, less detailed inspections – pothole repairs, guardrail repairs, sign replacement, etc.

Large scale pavement preservation projects, such as full roadway resurfacing, would be done approximately every 10-15 years and are typically funded in part by the FHWA, these projects would require separate environmental analysis and consultation.

Table 1. Typical maintenance and inspection activities during operation.

Infrastructure Category	Inspection Interval	Typical Maintenance Interval
Vegetation Control	weekly	5 weeks
Traffic Control Devices (signs, striping etc.)	weekly	As needed
Bridges / Structures	2 years	As needed
Drainage Systems (Culverts)	As needed	As needed
Roadway Pavement	weekly	As needed
Permanent BMPs	Annually and after major storms	As needed

Permanent BMP structures: Permanent BMP structures would have formal inspections annually, and maintenance generally includes sediment removal, vegetation management, debris and litter removal, erosion repair, structure and filter media replacement or repair. Inspection and maintenance protocols would adhere to HDOT guidelines (HDOT, 2022).

Vegetation setback: Setback of vegetation maintenance would be approximately between 20 ft and 30 ft (6 - 9 m) off the edge of the shoulder such that the realigned highway would have a turf grass-free shoulder in accordance with the 2011 HDOT *Highway Manual for Sustainable Landscape Maintenance:* This setback area, defined as the Landscape Maintenance Zone (LMZ) by HDOT, is the area in which vegetation maintenance activities occur and extends from the end of the travel lane to the recommended lateral clearance distance. The lateral clearance distance, or width of the LMZ, stems from a safety perspective and is intended to create and maintain a recovery area for motorists that is as free as possible of hazardous vegetation. The width of the LMZ depends on the posted speed limits but may be changed by HDOT.

Within the LMZ of the proposed action alignment, vegetation maintenance activities include:

- Maintain vegetation to 3 ft (0.9 m) tall or less, and in intersections maintain vegetation to 2 feet (0.6 m) tall or less.
- Ensuring that vegetation does not create a road safety, visibility, or road drainage hazard.
- Maintain vertical clearance for any overhanging vegetation to 17 ft (5.2 m) above the ground level within 2 ft (0.6 m) of the travel way.

Mowing protocol includes:

- During dry seasons (June-September), mowing to a height of not less than 6 inches (15 centimeters (cm)) along a 30 ft wide (9 m) swath from the edge of the asphalt to mitigate wildfire risk.
- The rest of the year the LMZ is no mow.
- Steep slopes are no mow to prevent erosion, except when the HDOT inspector identifies a safety concern.

Revegetation: For disturbed areas or for landscaping purposes, the Project would include native plants found within the Action Area, which are:

- ‘Ilima (*Sida fallax*)
- ‘Iliahialo‘e (*Santalum ellipticum*)
- ‘A‘ali‘i (*Dodonaea viscosa*)
- Hoary Abutilon (*Abutilon incanum*)
- Akulikuli (*Sesuvium portulacastrum*)
- Milo (*Thespesia populnea*)
- Naupaka (*Scaevola taccada*).

An additional three species are native to Maui and are included for consideration in revegetation that are identified by Plant Pono and the Pacific Fire Exchange (PFX) as being in the top 10 fire-resistant plants for Hawai‘i: Pōhinahina (*Vitex rotundifolia*), ‘Ūlei (*Osteomeles anthyllidifolia*), and ‘Āweoweo (*Chenopodium oahuense*) (Plant Pono, PFX 2023). These three plants are included here because of their ability to mitigate wildfire risk, low-maintenance needs, no danger of becoming invasive, cultural significance, and all are native or endemic. Additionally, public comments identified the need to use fire-resistant vegetation as part of this Project. To honor this input, these additional species have been added to the list of species allowed for revegetation and landscape purposes. Additional tolerances, such as wind, may also provide benefits for wildfire risk mitigation.

The design-build contractor may use the Leeward Planting Guide from the Plant Pono website to select additional appropriate drought-tolerant plants for revegetation (Plant Pono n.d.). The design-build contractor will follow all applicable vegetation and landscaping guidelines set forth in the HDOT’s *Highway Manual for Sustainable Landscape Maintenance*, including an annual comprehensive inspection (HDOT 2011). They will also follow the County of Maui Planting Guidelines, which include selection criteria and a list of plants to avoid (Maui County 2003). HDOT would adhere to the same guidelines for revegetation and landscaping during highway operations and maintenance. Table 2 provides a table of acceptable plant species to be used for revegetation and landscaping.

Table 2. Acceptable plant species summary – Revegetation and landscaping

Name	Growth Form	Height	Tolerances
‘ilima*‡	Groundcover	Up to 3 feet	• Drought, Wind, Salt
‘iliahialo‘e	Shrub/Tree	15-30 feet	• Drought, Wind, Salt, Heat
‘a‘ali‘i‡	Herbaceous	Up to 3 feet	• Drought, Wind, Salt
hoary abutilon	Shrub	6-8 feet	• Drought, Wind, Heat
akulikuli	Herbaceous	>1 foot	• Waterlogged Soil, Drought, Brackish Water, Wind, Salt, Foot Traffic, Heat
milo	Tree	30-60 feet	• Drought, Wind, Salt
Naupaka*‡	Shrub	Up to 6 feet	• Drought, Wind, Salt
pōhinahina	Groundcover		• Drought, Fire, Salt, Foot Traffic, Wind, Pollution, Sand
‘ulei	Shrub	Up to 10 feet	• Drought, Fire, Salt
‘aweoweo	Shrub	3-10 feet	• Drought, Fire, Salt

Sources: Plant Pono, n.d.; University of Hawai‘i 2009
***Plants nēnē are known to forage on (Service 2004).**
‡Plants nēnē are known to nest under (Service 2004).

Conservation Measures

Nēnē Specific Conservation Measures Incorporated into the Action Area

- On-site workers will not approach, feed, or disturb nēnē if observed in the project area.
- On-site Project personnel and contractors will be informed through a formal, mandatory Environmental Awareness Program that educates Project personnel about the presence of endangered species on-site and associated avoidance and minimization measures.
- A biological monitor that is familiar with the species’ biology will conduct nēnē nest surveys where appropriate habitat occurs within the vicinity of the proposed Project site prior to Project initiation. Surveys will be repeated again within 72 hours of project initiation and after any subsequent delay of work of 72 or more hours (during which the birds may attempt to nest).
- Whether during initial surveys prior to initiating work, after a delay of 72 hours or more, or in the middle of construction, if nēnē are observed loafing or foraging within the project area during the breeding season (September through April), a 150-ft (45.7 m) buffer will be established and maintained around the bird(s) and no work will occur within the buffer zone until the birds leave on their own.
  - If not already on site, the on-call biologist familiar with nēnē nesting behavior will be contacted to survey for nests in and around the buffer zone prior to the resumption of any work in the area.
- If at any time a nest or active brood is discovered, a 150-foot buffer will be immediately established and maintained around all active nests and/or broods until the birds leave on their own. No work will occur within this buffer.

    - If not already on site, the on-call biologist familiar with nēnē nesting behavior will be contacted immediately for further guidance.
    - The on-call biologist will contact the Service within 48 hours upon discovery.
- Vegetation will be managed to eliminate lush grass or other forage species on road shoulders and edges to reduce attraction of herbivorous birds.
- To prevent nesting, the dedicated on-call biologist (not construction crew) may perform hazing or other deterrent measures if such actions conform to the nēnē 4(d) rule (84 FR 69918; December 19, 2019, 50 CFR 17.41). All hazing that occurs to nēnē will follow the 4(d) rule. The contractor will maintain and require a copy of the 4(d) regulations on-site.

Ae'o Specific Conservation Measures Incorporated into the Action Area

- Crew will not approach, feed, or disturb ae'o if observed in the project area.
- On-site Project personnel and contractors will be informed through a formal, mandatory Environmental Awareness Program that educates Project personnel about the presence of endangered species on-site and associated avoidance and minimization measures.
- A biological monitor familiar with the species' biology will conduct Hawaiian waterbird nest surveys where appropriate habitat occurs within the vicinity of the proposed project site prior to project initiation. Surveys will be repeated within 72 hours of project initiation and after any subsequent delay of work of 72 or more hours (during which the birds may attempt to nest).
    - If a nest or active brood is found at any time during the duration of the Project, the on-call biologist will be contacted, who will then contact the Service within 48 hours upon discovery for further guidance.
    - A 100-foot buffer will be immediately established and maintained around all active nests and/or broods until the chicks have fledged. No potentially disruptive activities or habitat alteration will be conducted within this buffer.
    - A biological monitor that is familiar with the species' biology will be present on the project site during all construction or earth moving activities until the chicks fledge to ensure that ae'o and nests are not adversely impacted.
- If an ae'o is observed exhibiting nesting behavior within the Action Area during the nesting season (mid-February-August), the on-call biologist familiar with ae'o nesting behavior will be contacted to advise on next steps.
- Due to the presence of wetland habitat in the Action Area, the Service's Best Management Practices (BMPs) for Work In and Around Aquatic Environments will be implemented (Appendix B).
- Border slopes of the stormwater detention ponds will be designed to have a slope greater than 6:1 to deter ae'o from nesting adjacent to the ponds.

General Conservation Measures that Benefit Nēnē and Ae'o

The Project will implement general avoidance and minimization measures, including:

- HDOT, U.S. Environmental Protection Agency (EPA), and National Oceanic and Atmospheric Administration (NOAA)-National Marine Fisheries BMPs to protect water quality and aquatic habitats;
- Service (Appendix C) and Coordination Group on Alien Pest Species biosecurity protocols to avoid and minimize the spread of invasive species;
- General HDOT and FHWA construction BMPs;

- Prohibiting the feeding of any wildlife or feral cats in the action area. Dedicated personnel will enforce this during daily monitoring;
- In areas of known nēnē and ae‘o habitat (Ukumehame wetlands near Firing Range), the design-build contractor will be responsible for predator trapping and would develop a predator control plan for approval by HDOT;
- The contractor will secure all temporary structures to avoid them blowing over during heavy winds and disturbing or injuring listed bird species;
- Drilling shaft foundations will be used in areas sensitive to vibration and noise to protect ae‘o and nēnē eggs;
- Fill placement within wetland habitat will be avoided and minimized to the extent practicable;
- Staging area locations will not occur in or directly adjacent to delineated wetland habitat and streambanks to avoid impacts to ae‘o and nēnē;
- Contractor will prioritize previously disturbed and bare areas for use as staging and lay-down areas, disposal and borrow sites, and concrete batch plants;
- New outdoor lights will adhere to the 2022 Maui Dark Skies Ordinance 5434;
- No portable jobsite radios or other music equipment will be used within the construction footprint at any time to decrease noise disturbance to listed species;
- Biological surveys will be performed by qualified biologists in areas of permanent BMPs that were not included in the previous surveys as they are outside of the initially defined Biological Survey Area prior to the Final Environmental Impact Statement;
- Reforestation and landscaping will include native plants found in the area during the initial biological surveys, native plants historically known from the area, as well as native and possibly nonnative plants not considered invasive species that are fire resistance and recommended by the Pacific Fire Exchange and Pono Pacific;
- If possible, endemic ‘iliahi trees currently growing within the Action Area will be preserved;
- Additional avoidance and minimization measures will be implemented as outlined in the Biological Survey Supplement, BA, and Final Environmental Impact Statement (FEIS);
- Speed limit signs will be placed along active construction roadways within the Action Area reducing vehicle speeds to 15 mph in the Olowalu area and 10 mph in the Ukumehame area due to presence of nēnē;
- To minimize the risk of bird-vehicle collisions along the viaduct, permanent bird diversion poles will be installed along both sides of the bridge (USFWS 2024). These diversion poles direct incoming birds up and over/away from the bridge, as they are perceived as a solid structure (Bard et al. 2001) (Jacobson 2005). Poles will extend approximately 6 feet (1.8 meters) above the 54-inch (137 centimeters) rail and spaced approximately 12 feet (3.7 meters) apart, a maximum pole height of 9 feet above the 54-inch-tall rails will be applied, which corresponds to the typical height of a tractor trailer truck of 13.5 feet;
- The project site will be adequately signposted with high-visibility signs alerting crew to the presence of nēnē in Ukumehame.
    - Signs will be orange during construction and then permanent operating signs in yellow following protocols for warning signs in the *Manual on Uniform Traffic Control Devices*; and
- If nēnē or ae‘o (or other listed species) become injured in the Action Area on-site staff will contact the on-call biologist immediately, who will arrange for the bird(s) (or other listed animal species) to be picked up by DOFAW and provide guidance on temporary handling

prior to DOFAW pickup. Injuries to listed animals (e.g., nēnē or ae‘o) resulting from project actions may require care from the Hawai‘i Wildlife Center (HWC) on the island of Hawai‘i. Should transport to and care at the HWC be necessary, HDOT would provide funds to facilitate necessary and appropriate actions.

- The on-call biologist will use the Service's SOP for handling and transporting injured birds or other listed animal species.
- The on-call biologist will complete the Service's Avian Injury/Mortality Form (Appendix D) and submit it to the Service with 72 hours of the incident.

ACTION AREA

The action area is defined at (50 CFR 402.02) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The Action Area is within a corridor between the mountains and the sea (mauka to makai) and is approximately 6-mi long and approximately 0.75 mi wide spanning the ahupua‘a of Ukumehame, Olowalu, and Launiupoko covering approximately 2,437.63 acres (ac) (986.48 hectares (ha)), (Figure 1).

ANALYTICAL FRAMEWORK FOR THE JEOPARDY/ADVERSE MODIFICATION ANALYSIS

Jeopardy Analysis Framework

In accordance with regulation (see 84 FR 44976), the jeopardy determination in this Biological Opinion relies on the following four components:

1. The *Status of the Species,* which evaluates the species' current range-wide condition relative to its reproduction, numbers, and distribution; the factors responsible for that condition; its survival and recovery needs; and explains if the species' current range-wide population is likely to persist while retaining the potential for recovery or is not viable;
2. The *Environmental Baseline* which evaluates the current condition of the species in the action area relative to its reproduction, numbers, and distribution absent the consequences of the proposed action; the factors responsible for that condition; and the relationship of the action area to the survival and recovery of the species;
3. The *Effects of the Action* section of this biological opinion evaluates all consequences to the species that are reasonably certain to be caused by the proposed action (i.e., the consequences would not occur but for the proposed action and are reasonably certain to occur) and how those consequences are likely to influence the survival and recovery of the species; and
4. The *Cumulative Effects* section of this biological opinion evaluates the effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation, on the species and its habitat, and how those effects are likely to influence the survival and recovery of the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the consequences of the proposed Federal action in the context of the species' current range-wide status, considering any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild. The key to making this finding is clearly establishing the role of the action area in the conservation of the species, and how the effects of the proposed action, taken together with cumulative effects, are likely to alter that role and the continued existence (i.e., survival) of the species.

STATUS OF THE SPECIES

Status of Nēnē

Listing Status
The Service listed the nēnē as endangered in 1967 (32 FR 4001). The Service has not designated critical habitat for the nēnē. The Service published a Draft Revised Recovery Plan for the species in 2004 and completed a 5-year Review in 2011. The nēnē was reclassified from endangered to threatened in 2019 (84 FR 69918).

Species Description
The nēnē is a medium-sized goose with an overall length of approximately 25 to 27 inches (in) [63 to 65 centimeters (cm)] (Banko et al. 1999, p. 2). The plumage of both sexes is similar (Banko et al. 1999, p. 2). This species is adapted to a terrestrial and largely non-migratory lifestyle in the Hawaiian Islands with limited freshwater habitat (Banko et al. 1999, p. 1). Adaptations to a terrestrial lifestyle include increased hind limb size, decreased forelimb size, more upright posture, and reduced webbing between the toes compared to other species of *Branta* (Banko et al. 1999, p. 1; Olson and James 1991, p. 42). Compared to the related Canada goose (*Branta canadensis*), nēnē wings are reduced by about 16 percent in size and their flight is not as strong (Banko et al. 1999, p. 9). Nēnē are capable of inter-island and high-altitude flight, but they do not migrate from the archipelago (Banko et al. 1999, p. 9).

Historic and Current Distribution
Nēnē were once widely distributed among the main Hawaiian Islands (island of Hawaiʻi, Maui, Lānaʻi, Molokaʻi, Kauaʻi, and Kahoʻolawe) (USFWS 2004, p. 6). However, by 1951, only about 30 nēnē remained on the island of Hawaiʻi (Smith 1952, p. 8). It is thought that nēnē populations on the higher islands, Maui and the island of Hawaiʻi persisted into the historical periods due to the availability of larger tracts of habitat in remote rugged upland areas, where hunting and predation by introduced mammals were less intense (Banko et al. 1999, p. 3). The release of captive-bred nēnē, which began in 1960, helped save the species from imminent extinction (USFWS 2004, pp. 2–3).

Nēnē have made substantive advances in recovery due to collaborative conservation efforts from private, state, and Federal partners. These efforts included a successful captive propagation and release program, which has resulted in an increased number of nēnē and re-established populations throughout the species' range on the islands of Hawaiʻi, Kauaʻi, Maui, and Molokaʻi. Other efforts included studies of foraging behavior, which identified nēnē food preferences and nutritional value of food resources contributing to a greater understanding of habitat requirements during the breeding and non-breeding seasons.

Substantial self-sustaining populations of nēnē are well distributed in multiple localities on the islands of Hawaiʻi, Kauaʻi, and Maui, totaling 3,797 individuals comprised of 1,048 individuals on Hawaiʻi, 2,314 individuals on Kauaʻi, 429 individuals on Maui, and 6 individuals on Molokaʻi (Nēnē Recovery Action Group (NRAG) 2024, in litt.). Populations on Maui and Hawaiʻi have been observed to be stable without external supplementation since about 2011, when active translocations from Kauaʻi were discontinued; Kauaʻi populations have been stable to increasing for several decades while also providing stock for translocation.

Nēnē continues to be conservation-reliant (i.e., dependent on long-term management commitments to active predator control and habitat management), but with ongoing management we expect populations on these three islands to continue to be self-sustaining without additional releases of captive-bred birds.

Life History
Nēnē currently occupy various habitats and vegetation community types ranging from coastal dune vegetation and non-native grasslands (e.g., golf courses, pastures, and rural areas) to sparsely vegetated low and high-elevation lava flows, mid-elevation native and non-native shrubland, cinder deserts, native alpine grasslands and shrublands, and open and non-native alpine shrubland-woodland community interfaces (Banko et al. 1999, pp. 4–6). The current distribution of wild nēnē has been highly influenced by the location of release sites for captive-bred birds. On Kauaʻi, nēnē are primarily found using lowland habitat, such as coastal wetlands at Hanalei and Hulēʻia National Wildlife Refuges (NWR), with the exception of the Nā Pali Coast (USFWS 2004, pp. 15–19).

Nēnē have an extended breeding season with eggs reported from all months except May, June, and July (Banko et al. 1999, p. 12); however, the majority of birds in the wild nest between October and March (USFWS 2004, p. 19). Nesting peaks in December and most goslings hatch from December to January (Banko et al. 1999, p. 12). Nēnē nest on the ground in a shallow scrape in the dense shade of a shrub or other vegetation. A clutch typically contains three to five eggs and incubation lasts for 29 to 31 days. Once hatched, young remain in the nest for one to two days (Banko et al. 1999, pp. 16–17). Fledging of captive birds occurs at 10 to 12 weeks, but may take longer in the wild. During molt (March to June), adults are flightless for a period of four to six weeks and generally attain their flight feathers around the same time as their offspring. When flightless, goslings and adults are extremely vulnerable to predators, such as cats and dogs. From June to September, family groups join others in post-breeding flocks often far from nesting areas.

Nēnē reach sexual maturity at one year of age, but usually do not form pair bonds until their second year. Historical reports from the island of Hawaiʻi indicate that nēnē bred and molted primarily in the lowlands during winter months and moved upslope in the hotter and drier summer months (Henshaw 1902, p.105; Perkins 1903; Munro 1944, pp.41–42; Banko 1988, p. 35). Reproductive success is relatively low in upland habitats on Maui and the island of Hawaiʻi and higher in lowland habitat on Kauaʻi (Telfer 1995, 1996; Banko et al. 1999, p. 19).

Nēnē are browser-grazers; and the composition of their diet depends largely on the vegetative composition of their surrounding habitats. They appear to be opportunistic in their choice of food plants, as long as they meet nutritional demands (Banko et al. 1999, pp. 6–8; Woog and Black

2001, p. 324). It is thought that this adaptability in their use of food items allowed nēnē to survive in marginal habitats to which they were relegated, as habitats that are more traditional were lost to humans (Black et al. 1994, p. 103; Banko et al. 1999, p. 6). However, it is believed that nēnē require a diverse suite of food availability that may include non-native and native vegetation (Banko et al. 1999, p. 6), due to the loss of traditional foraging habitats (Black et al. 1994, p. 103).

Threats

Current threats to nēnē include (1) depredation of eggs and goslings by introduced mammals (i.e., mongoose (*Herpestes javanicus*), black rats (*Rattus rattus*), cats (*Felis catus*), dogs (*Canis lupus familiaris*), black-crowned night herons or ʻaukuʻu (*Nycticorax nycticorax*), cattle egrets (*Bubulcus ibis*), Hawaiian short-eared owl or pueo (*Asio flammeus sandwichensis*), barn owls (*Tyto alba*), common mynas (*Acridotheres tristis*), bullfrogs (*Rana catesbeiana*), and pigs (*Sus scrofa*)); (2) limited availability of suitable habitat due to habitat loss, fragmentation, and degradation, especially lowland breeding habitat; (3) insufficient nutritional resources due to habitat degradation; and (4) human-caused disturbance (including habituation to humans) and mortality (especially deaths due to collisions with vehicles).

Most nesting failures of wild nēnē on Hawaiʻi and Maui are due to mongoose depredation (Hoshide et al. 1990, p. 154; Banko 1992, pp. 101–102; Black and Banko 1994, p. 400; Baker and Baker 1999, p. 8). Mongooses kill incubating females (Banko 1992, p. 102) and rats are also a predator of nēnē eggs (Baker and Baker 1999, p. 12). Where nēnē nest in areas without protection from predators and other threats, nests are likely to fail; zero to 23 percent of eggs survive to fledge (Rave et al. 2005, p. 11).

Lowlands habitats are often unsuitable for nēnē because of the intense human activity or dense predator populations placing nēnē at greater risk of predation, and hazardous situations such as habituation to human feeding, vehicle collisions, and golf ball strikes (Natural Resources Conservation Service [NRCS] 2007, p. 7). In many instances of gosling mortality, the actual cause of death may be exposure because goslings are weakened by malnutrition (at hatching) and were unable to keep up with parents, and therefore got chilled or overheated and died (Baker and Baker 1999, p. 13). Emaciation was the most common cause of death diagnosed in 71 out of 300 adult and gosling mortalities submitted to the National Wildlife Health Research Center between 1992 and 2013 for which a cause of death was identified (Work et al. 2015, p. 692).

Climate Change

Analysis of the historical records indicate the surface temperature in Hawaiʻi has been increasing since the early 1900s, with relatively rapid warming over the past 30 years. The average increase since 1975 has been 0.48 degrees Fahrenheit (0.27 degrees Celsius) per decade for annual mean temperature at elevations above 2,600 ft (800 m) and 0.16 degrees Fahrenheit (0.09 degrees Celsius) per decade for elevations below 2,600 ft (800 m) (Giambelluca et al. 2008, pp. 3–4). Based on models using climate data downscaled for Hawaiʻi, the ambient temperature is projected to increase by 3.8 to 7.7 degrees Fahrenheit (2.1 to 4.3 degrees Celsius) over the 21st century, depending on elevation and the Intergovernmental Panel on Climate Change's (IPCC) Shared Socio-economic Pathway (SSP) emission scenario (SSP1-1.9, SSP1-2.6, SSP2, SSP2-4.5, SSP3-7, and SSP5-8.5) (Liao et al. 2015, p. 4344; van Vuuren et al. 2011, p.5; Intergovernmental

Panel on Climate Change 2014, p. 8; IPCC Sixth Assessment Report's (AR6 Report) 2023, entire)

On the main Hawaiian islands, predicted changes associated with increases in temperature include a shift in vegetation zones upslope, a similar shift in animal species' ranges, changes in mean precipitation with unpredictable effects on local environments, increased occurrence of drought cycles, and increases in intensity and numbers of hurricanes (tropical cyclones with winds of 74 miles per hour or higher) (Loope and Giambelluca 1998, pp. 514–515; U.S. Global Change Research Program (US-GCRP) 2009, pp. 10, 12, 17–18, 32–33; Giambelluca 2013, p. 6).

Periods of drought are expected to continue and are likely to be exacerbated by the effects of climate change. To minimize the effects of drought on the food availability and adequate nutrition for nēnē, habitat enhancement activities to provide foraging opportunities, especially during the breeding season, will need to be maintained. The rise in sea level projected by climate change models (Spada et al. 2013, p. 484; Polhemus 2015, p. 7; Sweet et al. 2017, p. 9; Sweet et al. 2022, entire) may threaten any low-lying habitats used by nēnē.

Sea level rise and associated erosion caused by the effects of climate change are not anticipated to bring extensive alterations to nēnē habitat, as nēnē are not dependent on coastal areas. Increases in frequency and intensity of both drought and hurricanes are anticipated to bring direct and indirect impacts to nēnē; however, to what extent and when such impacts may occur is unknown.

Forecast of changes in precipitation are highly uncertain because they depend, in part, on how the El Nino-La Nina weather cycle (an episodic feature of the ocean-atmosphere system in the tropical Pacific having important global consequences for weather and climate) might change (State of Hawai‘i 1998, pp. 2–10). Overall, more frequent El Nino events are predicted to produce less precipitation for the Hawaiian Islands. These projected decreases in precipitation are important stressors for nēnē because they experience substantially higher mortality from starvation in drought years (Hess 2011, p. 59). In addition, the drying trend, especially on leeward sides of islands, creates suitable conditions for increased invasion by non-native grasses and enhances the risk of wildfire.

On Kaua‘i, where nēnē are most abundant, flooding has decreased nest success for the past two years (Webber et al. 2017, in litt.; Uyehara 2018, in litt.). Flooding also pushes nēnē out of their habitat and closer to roads, placing them at risk of vehicular strikes (Webber et al. 2017, in litt.). Another impact from flooding is an increased subsequent risk of an avian botulism outbreak (Uyehara 2018, in litt.). Finally, sea-level rise resulting from thermal expansion of warming ocean water; the melting of ice sheets, glaciers, and ice caps; and the addition of water from terrestrial systems (Climate Institute 2011, in litt.) has the potential for direct effects on nēnē habitat. Flooding related to sea-level rise would result in the additional loss of lowland habitat occupied by nēnē in low-lying coastal areas such as at Hulē‘ia NWR on Kaua‘i.

Although the effects of climate change do not constitute a threat to nēnē at the present, we do expect them to exacerbate the effects of drought and tropical storms, and to constitute a threat in the foreseeable future. Over this time frame, we anticipate that threats to nēnē associated with climate change (e.g., increased duration and intensity of drought, increased frequency and intensity of hurricanes, and flooding associated with hurricanes and sea-level rise) to continue to increase, although we expect the primary issues driving nēnē population viability will continue to be depredation events and habitat degradation. Impacts associated with climate change may become a threat in the future.

Ongoing Conservation Actions

Many of the areas where nēnē occur in the wild are afforded some level of habitat enhancement that focuses on increasing the survival and reproduction of nēnē. Current populations are sustained by one or more of the following management actions (1) predator control and monitoring of invasive mammalian predators; (2) construction and maintenance of predator exclusion fences; (3) minimizing human disturbance; (3) enhancing grasslands with native shrubland plant communities to provide habitat structure and function for nēnē (e.g., naupaka, ʻakoko, and nehe for nēnē food and cover); (4) mowing for conservation management purposes; (5) mechanical and physical or chemical control of invasive pest and undesirable plant species; and (6) supplemental feeding. For example, Hawaiʻi Volcanoes National Park has areas where many of these types of enhancement occur. Park staff maintain two predator-resistant, open-topped pens, which are 10 and 13 acres (ac) (4 and 5 hectares (ha)) in size, as safe-breeding sites with supplemental feed and occasional mowing. Traditional movements are being restored on the island of Hawaiʻi, which could be expected to improve survival and breeding, as well as genetic exchange between subpopulations. On Kauaʻi, the State of Hawaiʻi Division of Forestry and Wildlife also has predator control programs for nēnē and may provide supplemental feed during drought years. On Maui, Haleakalā National Park has controlled ungulate populations and horses intermittently grazing in Palikū pasture to benefit nēnē. Certain key populations are expected to maintain current levels or increase into the future if the current level of management is continued.

Status of Aeʻo

Listing Status

The aeʻo (kukuluaeʻo, Hawaiian stilt, *Himantopus mexicanus knudseni*) was listed as an endangered species on October 13, 1970 (35 FR 16047). A recovery plan for Hawaiian waterbirds, including the aeʻo, was issued in 1978 (Service 1978, entire), and the first revision of this plan was issued in 1985, with a revised draft version in 2005. The final Recovery Plan for four Hawaiian Waterbirds, Second Revision (Service 2011, entire), was made publicly available January 19, 2012 (77 FR 2753). The most recent 5-year review of the aeʻo was made available in March 2020, in which the Service recommended downlisting the aeʻo (Service 2020, entire). On March 25, 2021, the Service proposed to reclassify the aeʻo from “endangered” to “threatened” (86 FR 15855); no final reclassification of aeʻo has been published. Critical habitat has not been designated for the aeʻo.

Species Description

The aeʻo is a long-lived waterbird endemic to the Hawaiian Islands (Stejneger 1887, entire), widely recognized as a subspecies of the black-necked stilt *Himantopus mexicanus* (American Ornithology Union (AOU) 1998). The aeʻo is black and white with long, pink legs (Bryan 1901,

p. 26; Shallenberger 1977, p. 24), is slender in appearance, and grows to about 16 inches (in) (40 centimeters (cm)) in height. Plumage is black on the back, and white on the front and underside of the bird. Juveniles have a brownish back, and more extensive white on the cheeks and forehead than adults. Chicks are well camouflaged in a downy plumage that is tan with black speckling (Coleman 1981, pp. 33, 35, 86−87). The oldest recorded aeʻo was 30 years (Reed et al. 2014, p. 4).

Historic and Current Distribution
Aeʻo have been historically documented on all major islands except Lānaʻi and Kahoʻolawe. Currently aeʻo are considered to comprise a single population occupying the islands of Niʻihau, Kauaʻi, Oʻahu, Molokaʻi, Maui, Lānaʻi, and Hawaiʻi (March 25, 2021; 86 FR 15857–15858). Aeʻo move between islands, based on observations of sudden large increases in numbers at certain sites (from several hundred to a thousand or more), and concomitant decreases at other sites. The most recent population estimate of aeʻo in the Hawaiian Islands is 1,511 (1,317–1,718; 95% CI) individuals based on a 5-year average (2019–2023) (Paxton et al. 2021, entire; Gorresen et al. 2024, p. 4). On Maui, the average from the same survey is 499 (350-669; 95% CI) individuals (Paxton et al. 2024, p. 4). The annual population of aeʻo fluctuates with variation in climatic and hydrologic conditions as well as success in reproduction and the toll of predation. Aeʻo disperse readily, exploiting seasonally flooded wetlands, and readily colonize newly restored or created habitats (van Rees et al. 2020, p. 3). Recent data indicated aeʻo may have reached a population equilibrium within existing managed wetlands (van Rees et al. 2022, p. 7).

Life History
Aeʻo primarily occur in natural and human-made lowland coastal wetlands from sea level up to 656 ft (200 m) in elevation, though aeʻo have been observed at slightly higher elevations and outside of the coastal wetlands, such as foothill impoundments, reservoirs, and other wetlands (USFWS 2005, p. 31; USFWS 2011, pp. 50–60; Kawasaki et al. 2020, p. 431). The Recovery Plan for Hawaiian waterbirds classify wetlands as core and supporting. Core wetlands provide habitat for all life history stages and support many individuals, supporting wetlands are additional areas that provide habitat important for smaller populations or provide habitat needed seasonally by segments of the population during part of their life cycle.

Aeʻo use a wide range of water salinity ranging from zero to 200 parts per thousand (ppt) (e.g., Waiawa Unit at Pearl Harbor NWR) (Coleman 1981, p. 48; Reed et al. 2011, p. 4; Nadig 2017, pers. comm.). While adults have a tolerance to salinity, we know that young Hawaiian stilt chicks unable to fly require a freshwater source nearby (Nadig 2022, in litt.). Hawaiʻi has many freshwater springs scattered along the coastlines of larger islands, which are within or adjacent to wetlands (Nadig 2022, in litt.).

Aeʻo use areas of sparse, low-growing (up to 18 in (46 cm) tall) perennial vegetation or exposed tidal flats for nesting and breeding, and sometimes foraging (March 25, 2021; 86 FR 15855, Service 2020 pp. 1–2). Nests are often a simple scrape on the ground, sometimes using grass stems, small rocks, or mullusk shells for nesting material (Coleman 1981, p. 63; Smith and Polhemus 2003, p. 61; Gee 2007, p. 98; M. Morin, pers. comm. 1994 cited in USFWS 2011, p. 57). Aeʻo are often observed foraging in shallow water. The most common foraging depth for adults appears to be 5 in (13 cm) or less below the surface of the water (Ohashi and Burr 1977, p.

3; Smith and Polhemus 2003, pp. 60−61; Gee 2007, p. 62; Reed et al. 2011, pp. 3−4). Shallow water (approximately 2-3 in [7.6 cm]) and wet mudflats are particularly important for foraging chicks (March 25, 2021; 86 FR 15859).

Ae‘o are opportunistic feeders. They eat a wide variety of invertebrates and other aquatic organisms found in shallow water and mudflats (Perkins 1903, p. 452; Shallenberger 1977, pp. 23−25; Robinson et al. 1999, pp. 8–9; USFWS 2011, p. 58). They also sometimes forage in grasslands adjacent to wetlands. Managed wetlands with desirable water depth are common foraging sites (Underwood et al. 2013, p. 6). Hawaiian stilts move within island and between island as they exploit food resources (Engilis and Pratt 1993, pp. 155−156).

Ae‘o typically begin breeding at age two (Reed et al. 1998, p. 36). During the nesting season, incubating pairs move between their nest site and a foraging area (USFWS 2011, p. 60). Pairs usually lay three to four eggs that are incubated for approximately 24 days (Coleman 1981, p. 56; Chang 1990, p. 43). Within a few hours of the last chick hatching, parents lead their brood to shallow feeding areas that may be the same feeding areas used by the adults during incubation (Coleman 1981, p. 77). Foraging areas may be directly adjacent to the nest site or quite a distance away, depending on food availability (Coleman 1981, p. 77; Engilis and Pratt 1993, pp. 155−156; Reed and Oring 1993, p. 57). Chicks fledge approximately 28 days post-hatching (Reed et al. 1999, p. 478), and young may remain with both parents for several months after hatching (Coleman 1981, pp. 83–84).

Threats

The primary threats to ae‘o are (1) nonnative predators (including mongooses (*Herpestes javanicus*), black rats (*Rattus rattus*), feral cats (*Felis catus*), feral dogs (*Canis lupus familiaris*), black-crowned night herons or ‘auku‘u (*Nycticorax nycticorax*), cattle egrets (*Bubulcus ibis*), Hawaiian short-eared owl or pueo (*Asio flammeus sandwichensis*), barn owls (*Tyto alba*), common mynas (*Acridotheres tristis*), bullfrogs (*Rana catesbeiana*), and sometimes pigs (Sus scrofa)); (2) habitat loss and degradation (due to urban development, ground and surface water alterations that affect core and supporting wetlands, nonnative plants, and foreseeable changes in habitat quality and quantity due to sea level rise (such as groundwater flooding and inundation and coastal flooding and inundation)); (3) avian disease (primarily botulism from the anaerobic bacteria *Clostridium botulinum* type C, but avian influenza H5N1 and West Nile virus are emerging diseases that may impact ae‘o in the foreseeable future); (4) environmental contaminants; and (5) foreseeable tropical cyclone intensity and frequency resulting from climate change (March 25, 2021; 86 FR, 15865–15869). Depredation is a leading cause of nest failure and chick mortality, particularly in unmanaged wetland habitat (Underwood et al. 2013, entire; Underwood 2014, entire; Idle 2023, entire).

Climate Change

Analysis of the historical records indicate the surface temperature in Hawai‘i has been increasing since the early 1900s, with relatively rapid warming over the past 30 years. The average increase since 1975 has been 0.48 degrees Fahrenheit (0.27 degrees Celsius) per decade for annual mean temperature at elevations above 2,600 ft (800 m) and 0.16 degrees Fahrenheit (0.09 degrees Celsius) per decade for elevations below 2,600 ft (800 m) (Giambelluca et al. 2008, pp. 3–4). Based on models using climate data downscaled for Hawai‘i, the ambient temperature is projected to increase by 3.8 to 7.7 degrees Fahrenheit (2.1 to 4.3 degrees Celsius) over the 21st century, depending on elevation and the Intergovernmental Panel on Climate Change's (IPCC) Shared Socio-economic Pathway (SSP) emission scenario (SSP1-1.9, SSP1-2.6, SSP2, SSP2-4.5, SSP3-7, and SSP5-8.5) (Liao et al. 2015, p. 4344; van Vuuren et al. 2011, p.5; Intergovernmental Panel on Climate Change 2014, p. 8; IPCC Sixth Assessment Report's (AR6 Report) 2023, entire).

On the main Hawaiian islands, predicted changes associated with increases in temperature include a shift in vegetation zones upslope; a similar shift in animal species' ranges; changes in mean precipitation with unpredictable effects on local environments, including coastal wetlands; increased occurrence and intensity of drought cycles; and increases in intensity and numbers of hurricanes (tropical cyclones with winds of 74 miles per hour or higher) (Loope and Giambelluca 1998, pp. 514–515; U.S. Global Change Research Program (US-GCRP) 2009, pp. 10, 12, 17–18, 32–33; Giambelluca 2013, p. 6). All of these predicted changes can lower the reproductive success of ae‘o (March 25, 2021; 86 FR 15855).

Global mean sea level (GMSL) is rising and is expected to continue to rise for centuries due to thermal expansion resulting global warming, even if all Nations ceased production of greenhouse gasses today (Meehl et al. 2012, p. 576; Golledge et al. 2015, pp. 421, 424; DeConto and Pollard 2016, p. 591; Intergovernmental Panel on Climate Change (IPCC) 2021, p. SPM-28). This is because of the warming that has already occurred. Additionally, GMSL may rise even more due to warming that is yet to occur from the still uncertain level of future greenhouse gas emissions (Sweet et al. 2017 and 2022, entire; IPCC 2021, p. SPM-28–SPM-29).

Both marine inundation and groundwater inundation resulting from GMSL will contribute to wetland habitat loss and modification in Hawai‘i, but as sea level rise increases beyond 2.4 ft (0.74 m), marine inundation will be the dominant source of inundation (Polhemus 2015, p. 25). Research is needed in Hawai‘i to understand where new wetland habitats may form due to groundwater inundation and what geomorphological changes (e.g., wetland migration, increase in salinity and/or sedimentation) might occur for existing wetlands resulting from both seawater and groundwater inundation. Global mean sea level rise is not expected to be a slow, gradual, and linear phenomenon, in the Hawaiian Islands or elsewhere; it is anticipated to accelerate and at times be quite rapid (Polhemus 2015, pp. 6−7). Sea level rise is of particular concern for conservation of ae‘o because most wetlands of Hawai‘i are located just inland of a narrow coastal strand and are dependent upon natural or pumped groundwater sources to maintain pond water levels (Kane 2014, p. 7 and references therein). Nest failure due to flooding is a current threat to ae‘o, which will be exacerbated by flooding resulting from marine and/or groundwater inundation. Further, altered sedimentation and chemical changes resulting from sea level rise may create habitat conditions favorable to Clostridium botulinum type C.

Torrential rains associated with increases in hurricane frequency and intensity resulting from climate change will increase incidence of nest flooding and could directly injure adults and goslings. Torrential rains will also increase the amount of urban runoff of oil, heavy metals, and other undesirable chemicals into the lowland coastal wetlands subsequently resulting in nest failure and chick mortality. Further, torrential rain can increase sedimentation which, as noted above, is linked to increased botulism outbreak events (Rocke and Samual 1999, pp. 1250, 1255−1256). Forecast of changes in precipitation are highly uncertain because they depend, in part, on how the El Nino-La Nina weather cycle (an episodic feature of the ocean-atmosphere system in the tropical Pacific having important global consequences for weather and climate) might change (State of Hawai‘i 1998, pp. 2–10). Overall, more frequent El Nino events result in a decrease in precipitation for the Hawaiian Islands.

An increase in the intensity and duration of drought resulting from climate change could decrease the amount of available ephemeral wetlands used as steppingstones between protected, managed wetland habitat. Multiple instances of prolonged severe drought, or near back-to-back episodes, could lead to water conflicts if water becomes very scarce, including at managed wetlands. Many protected managed wetlands have some water management capacity to add or withdraw water as needed; while some wetlands can withdraw but not add (Goodale 2021, pers. comm.; Nadig 2021, pers. comm.). Water inlet most typically comes from pumping wells or natural springs and streams. On Maui, stream water that feeds wetland habitat at Keālia National Wildlife Refuge can be unpredictable due to changes in upstream use and diversion.

In addition to the impacts on ae‘o life history described above, loss or degradation of wetland habitat due to climate change (e.g., sea level rise, drought) could force ae‘o to compete for brood territories and nesting ground in mudflats and shallow water, resulting in reduced reproductive success for the subspecies. Additionally, ae‘o forced to use nest sites and brood rearing habitat outside predator control areas are likely to suffer higher mortality (Price and Harmon 2019, p. 10). The magnitude of threats associated with climate change, particularly sea level rise, may not be revealed for decades or more to come.

Ongoing Conservation Actions
The ae‘o is considered a conservation-reliance species, meaning it requires management for survival (Underwood et al. 2013, entire). The main management actions that benefit ae‘o are predator control, water level and vegetation control, and predator proof fencing. These actions are implemented primarily on Federal and state land, but also on some private lands.

The State of Hawai‘i and the Department of Defense have been important partners with the NWRs’ efforts to protect, manage, conserve, and restore the significant wetland habitats and to support the Hawaiian stilt population over the last 30 years. The State is currently expanding their wetland restoration efforts, including at Kanahā Pond on Maui and Mānā Plain (March 25, 2021; 86 FR 15859). The Service manages wetlands on Kaua‘i, O‘ahu, and Maui through the National Wildlife Refuge System. The Service also facilitates recovery implementation through section 7 consultation, Habitat Conservation Plans (HCPs), and cooperative agreements. Local and county governments also contribute to conservation actions.

Numerous conservation organizations and academic researchers are voluntarily contributing to the recovery of endangered waterbirds, including the ae‘o. The Nature Conservancy (TNC) manages several ecological preserves in the State and is actively planning and coordinating restoration of habitats within the Action area once the highway is completed, including at Ukumehame wetlands that are known to support nēnē and ae‘o (TNC 2025, entire). ‘Ahahui Mālama I Ka Lōkahi and Kawainui Heritage Foundation are watchdog organizations that oversee the future of Kawainui Marsh on O‘ahu, providing additional confidence that management of this important wetland will continue into the foreseeable future. They sponsor and lead educational tours and coordinate plant restoration projects at Nā Pōhaku o Hauwahine.

The Pacific Bird Habitat Joint Venture (PBHJV) has wetland restoration projects in motion at varying stages across the main Hawaiian Islands (PBHJV 2024, entire). Ducks Unlimited, a nonprofit wetlands conservation organization, works cooperatively with state and Federal agencies as well as with private landowners and local corporations on wetlands conservation and habitat restoration and protection efforts (Ducks Unlimited 2022, entire). Ducks Unlimited also provides funding to PBHJV. The Nature Center, Wildlife Society, and researchers at the University of Hawaiʻi all work on waterbird recovery issues, ranging from aiding injured or sick birds to conducting research on waterbird life history, threats, and habitat.

Private landowners that also contribute to waterbird recovery include Kamehameha Schools, Midler Family Trust, Arleone Dibben-Young (Nēnē O Molokaʻi), and Kaʻelepulu Wetland Preserve. There are also several academic researchers who continue to produce data that help guide aeʻo management actions and inform related policy (Price and Harmon 2019, entire; Kawasaki 2020, entire; Dibben-Young et al. 2021, entire; Harmon et al. 2021a, entire; Harmon 2021b, entire; Opie 2022, entire; Idle 2023, entire; van Rees and Reed 2022, entire;). These researchers are now fostering a growing number of up and coming academic researchers who also focus on the ecology and conservation of the aeʻo and wetland conservation in Hawaiʻi. This growing interest in aeʻo and wetland conservation raises awareness and will help inform adaptive management for the subspecies.

On Maui, Save the Wetlands is working to identify critical wetlands in Kīhei in need of restoration, map and monitor the hydrological flow and habitat conditions of these critical remaining wetlands, and conduct ecological and wetland restoration work. The Maui Land Trust is actively working to restore the wetlands at Waiheʻe Coastal Dunes and Wetlands Refuge in Kaupō. The State is installing a predator proof fence around Kanahā Pond State Wildlife Sanctuary to protect aeʻo and other listed waterbirds. Lastly, as mentioned above, The Nature Conservancy is currently in the planning phase for restoring wetland habitat in Ukumehame after the realigned highway is constructed (TNC 2025, entire).

In collaboration with multiple other Federal agencies, the Service has adopted the resist-accept-direct (RAD) framework, to identify the best conservation decisions to help native habitats and species adapt to climate change (Morton 2019, entire; Schuurman et al. 2020, entire; Lynch et al. 2021, entire). Resist refers to making management decisions based on historical or acceptable current conditions, accept means to allow ecosystems to function or change autonomously without intervening, and direct refers to attempts to actively shape change in ecosystems toward preferred new conditions. The Service is applying the RAD framework to wetland conservation efforts, which includes aeʻo.

ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated and/or ongoing impacts of all proposed federal projects in the action area that have undergone Section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress.

Status of Nēnē within the Action Area

On the leeward side of Mauna Kāhālawai, where the proposed Project is located, there are several confirmed nēnē use areas spanning from Honokahua ahupuaʻa (north of the Action Area) down through the southern end of the Ukumehame ahupuaʻa (Figure 8) (NRAG 2024, entire). In 2024, the biological survey for the Project reported 7 nēnē in the Ukumehame section of the Action Area. In both 2023 and 2024, the DOFAW reported up to 30 nēnē occurring in the Action Area, primarily in the Ukumehame section, and 3 nēnē nests each year, all in Ukumehame except for 1 nest in Olowalu in 2024 (DOFAW 2025, in litt.). Not all nests may have been detected, we estimate there are fewer than 6 nest per year in the Action Area. In March of 2023, Service biologists observed a nēnē with several goslings at the Ukumehame firing range in the vicinity of the proposed viaduct (Harrington and Yrigoyen 2023, in litt.). In February of 2024, an anonymous worker at the Ukumehame firing range reported seeing multiple nēnē within a temporary work site and shared photos with the Service (Figure 8). While the nēnē habitat in the Action Area is largely degraded, there are habitat features that provide for life history needs of nēnē. Nēnē graze and browse on the leaves, seeds, flowers, and fruits of at least 50 native and nonnative grasses, sedges, composites, and shrubs (Banko et al. 2020 and references within). Native plants used by nēnē that are found in the Action Area include naupaka kahakai (*Scaevola taccada*) for foraging and nesting under, ʻilima (*Sida fallax*) for foraging and nesting under, and ʻaʻaliʻi (*Dodonaea viscosa*) for nesting under (Service 2004, Appendices B and C). Nēnē will nest under a variety of native and nonnative shrubs and trees, including the nonnative haole koa (*Leucaena leucocephala*), which is abundant in the Action Area (Banko et al. 2020). Further, proximity to water is an important factor during molting (Leopold and Hess 2013, p. 17) and there is approximately 21.4 acres of wetland habitat in and around Ukumehame within the Action Area (H.T. Harvey and Associates 2024, p. 11). Because there may be 30 nēnē (15 pairs) in the Action Area, up to 30 nests (2 nest attempts per pair) per year may occur.

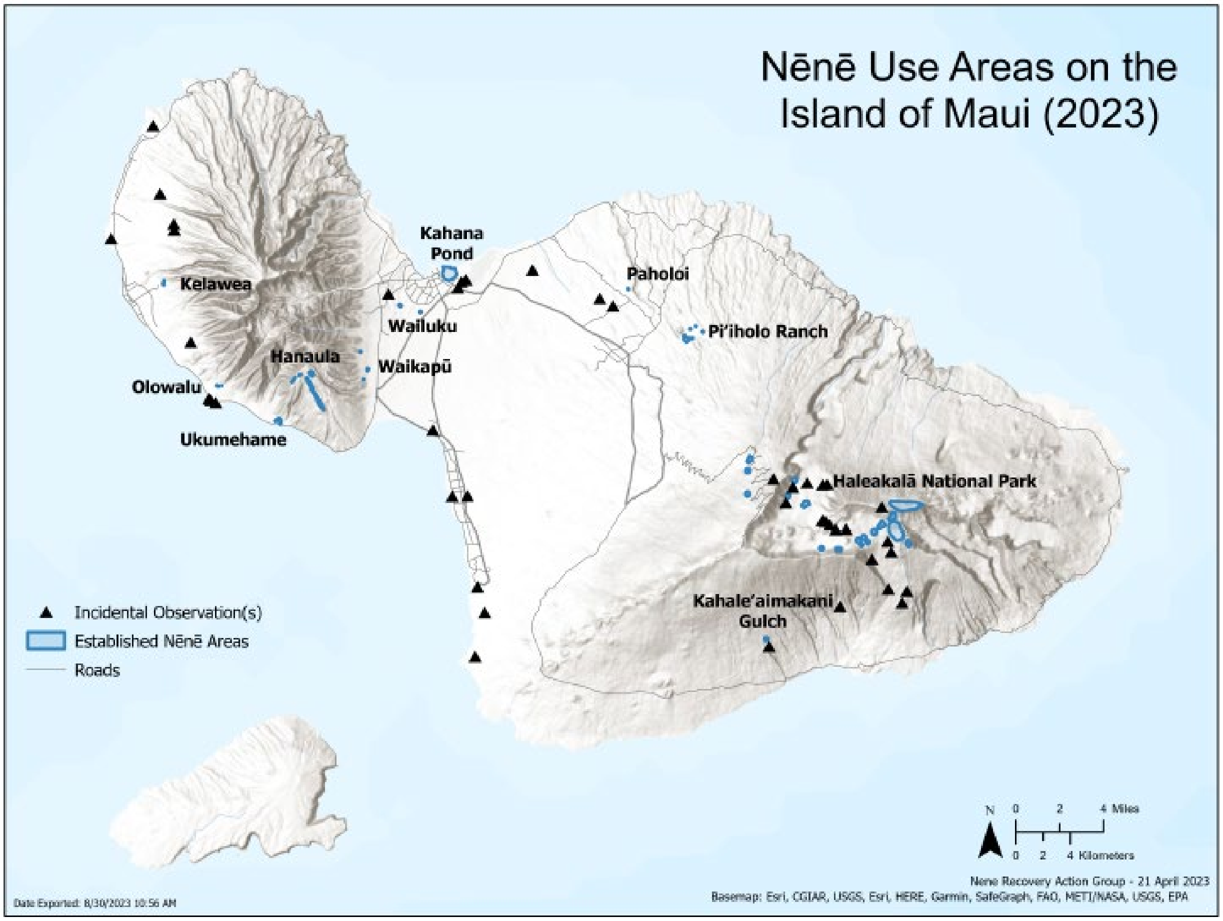


Figure 8. Nēnē Recovery Action Group's 2023 nēnē use areas on Maui.

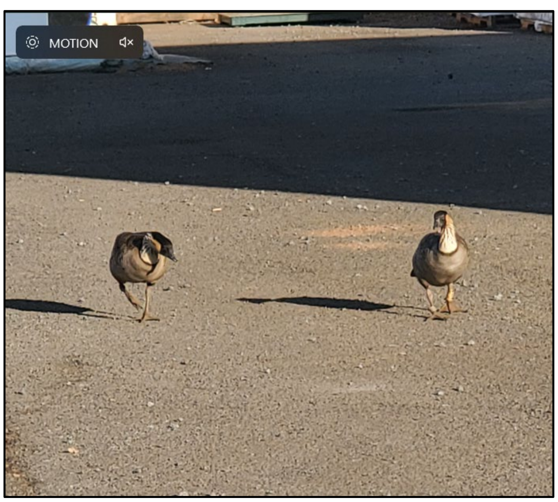


Figure 9. Nēnē at Ukumehame firing range: (a) Two nēnē in the middle of the parking lot and temporary work site in the daytime; (b) Three nēnē in the middle of the parking lot and temporary work site, at night.

Factors affecting the environment for nēnē within the action area: nēnē are at risk from several threats in the area. Eggs, goslings, and molting adults are at risk of depredation due to the presence of mammalian predators (e.g., mongooses, rats, pigs, and feral cats); all life stages are at risk of poisoning from toxins (e.g., lead) in the soil, water, and air at and around the firing range; eggs crushed by Axis deer or feral pigs; and all life stages are at risk from being run over or hit by a vehicle. Additionally, while nēnē have adapted to using nonnative plants, invasive nonnative plants are considered a threat to their habitat and life history needs (Service 2004, p. 23, 29-30). Despite these threats, there appears to be at least some successful breeding in or adjacent to the Ukumehame firing range; however, overall, nest failure is likely to be high in the Action Area due to ongoing predation and other uncontrolled threats (see Status of Nēnē section above).

Status of Aeʻo within the Action Area

The most recent data (Gorresen et al. 2024, entire) estimates the 5-year average number of aeʻo on Maui is 499 birds [350-699 95 percent CI]. This is approximately one third of the statewide 5-year average (1,511 aeʻo [1,317-1,718 95 percent CI]). The initial biological survey for the Project documented four aeʻo in wetland habitat at the Ukumehame firing range (Figure 5). Service biologists have also recently observed a half dozen or so aeʻo in the Ukumehame area. Two Service funded surveys from the late 1990s reported between 20 and 30 aeʻo at the firing range, including adults and subadults (Young 1996 and Harper 1997, cited in Pacific Environmental and Information Technologies, LLC 2001, p. 4-14). During site visits to the Ukumehame firing range in 2023 and 2024, Service biologists observed several aeʻo; however, during 2023, 2024, and winter 2025 biannual waterbird surveys, DOFAW reported zero aeʻo in Ukumehame and surrounding areas within the Action Area (DOFAW 2025, in litt.). There are multiple shallow perennial and ephemeral wetlands with adjacent mudflats and sparse or low growing vegetation in and around the Ukumehame firing range, providing desirable foraging and nesting habitat for aeʻo. There is approximately 21.4 acres of wetland habitat in the Action Area (H.T. Harvey and Associates 2024, p. 13). While no nests or chicks have been observed in the Ukumehame wetland areas, it is probable that some nesting does occurs. Because there may be up to 4 aeʻo in the Action Area, up to 4 nests per year (2 nest attempts per pair) may occur.

Figure 10. Ae‘o in wetland habitat the Ukumehame firing range (photo credit: H.T. Harvey and Associates, 2023).

Factors affecting the environment for ae‘o within the action area: Eggs and chicks are at risk of depredation due to the presence of mammalian predators (e.g., mongooses, rats, pigs, and feral cats); all life stages are at risk of poisoning from toxins (e.g., lead) in the soil, water, and air at and around the firing range; eggs crushed by Axis deer or feral pigs; nonnative plants degrading habitat quality; and all life stages are at risk from being run over or hit by a vehicle. Nest failure is likely to be high in the Action Area due to ongoing predation and other uncontrolled threats as in similar unmanaged habitat (See Status of Ae‘o section above).

EFFECTS OF THE ACTION

Nēnē and ae‘o are known to occur throughout the action area, primarily within the wetland habitat in and adjacent to the Ukumehame firing range (Figure 1). Nēnē are known to nest in the vicinity of the Ukumehame firing range and it is highly probably that ae‘o do as well, especially after heavy rain. The proposed action is expected to affect both species at all life stages. Direct adverse effects to nēnē and ae‘o are anticipated to occur due to the location and timing of the action occurring during each of their respective breeding seasons (nēnē September through April, ae‘o March through September). Federal Highway Administration activities are anticipated to start in late 2025, with the goal of being completed and operational by 2031. The likely impacts to both species occurring from the proposed action include: (1) accidental crushing by vehicles, equipment, or construction/staging materials; (2) nest or brood disturbance from humans, vehicles, equipment, vibrations, and noise associated with Project activities; (3) attractive nuisance created by the stormwater detention ponds near the temporary roads and realigned highway; and (4) temporary loss of habitat. Species specific affects are outlined below.

Effects of the Action on Nēnē

1) Accidental crushing of nēnē by vehicles, equipment, or construction/staging materials

Nēnē in the Action Area may be difficult to see and may be run over by vehicles or heavy equipment or crushed by construction/staging materials. However, we expect that because a qualified biologist will train project personnel through the Environmental Awareness training to identify and avoid interactions with nēnē, in all life stages, it will help to minimize unintentional crushing of adults, nests, and goslings when using vehicles or heavy machinery. Additional conservation measures that will minimize unintentional crushing of adults, nests, and goslings include implementing a biological survey prior to initiating work and after any delay of 72 hours or more, buffering around all discovered nests or broods, installing large temporary orange signs reminding workers of nēnē in the Action Area and to drive 15 mph (10 mph in Ukumehame area), and installing permanent yellow signs alerting drivers on the new road about the presence of nēnē.

Despite all of the conservation measures noted here and above, given the enormous size of the proposed Action Area, the broad scope of the proposed action (e.g., multiple staging areas, excavation, construction of large water crossings and stormwater detention ponds, and hundreds of workers), and project duration (6-years) unintentional crushing of nēnē, nests, and/or broods by vehicles, equipment, or construction/staging materials is likely to occur leading to injury or mortality. Because nēnē broods may suddenly appear unexpectedly and some nēnē nests may go undiscovered, a construction vehicle or equipment could run over a nest with egg(s), gosling(s), or adult(s). Additionally, construction or staging materials could crush a nest with egg(s), gosling(s), or adult(s). Vehicles, equipment, or construction/staging materials accidentally crushing nēnē is expected to be a rare occurrence, and by implementing the conservation measures, we expect it will continue to be rare. Up to 2 nēnē (1 pair) and 2 nēnē nests or 4 goslings may be injured or killed over the duration of the Project due to accidental crushing by vehicles, equipment, or construction/staging materials.

2) Disturbance of nests or broods

Construction that occurs during the nēnē breeding season is likely to disturb nēnē nest(s) and/or brood(s). If an adult is flushed from its nest, it may lead to nest abandonment or exposure of the eggs or goslings to predators (short term effects), thus resulting in loss of reproduction (long term effect). Although nēnē have an extended breeding season with eggs reported from all months except May, June, and July (Banko et al. 1999, p. 12), the majority of birds in the wild nest between October and March (USFWS 2004, p. 19). Nesting peaks in December and most goslings hatch from December to January (Banko et al. 1999, p. 12). As much as possible, a 150 ft buffer will be placed around nēnē nests/broods. Conservation measures will minimize adverse effects by having a qualified biologist implement a biological survey prior to initiating work and after any delay of 72 hours or more, installing large yellow signs reminding workers of nēnē in the Action Area and to drive 15 mph (10 mph in Ukumehame area), and establishing and implementing an Environmental Awareness training program for all on-site workers to identify nēnē in the Action Area and avoid and minimize adverse effects. However, given the enormous size of the proposed Action Area, the broad scope of the proposed action, and duration of the proposed Project, disturbance of nest and brood is likely to result in adverse effects including injury or mortality.

The proposed Project may cause disturbance of nests or broods resulting from exposure to elevated noise levels during construction activities. Noise could also impact molting adults since they cannot fly away from the noise. The effects of exposure to sound vary with the frequency, intensity, duration of the sound source, and the hearing characteristics of the affected animal. While data on the physiological impacts of noise on nēnē is limited, it indicates that noise can disturb nests and broods resulting in subsequent impacts such as reduced foraging and disrupted normal behaviors. Typical construction noise associated with the equipment used in the Project will be between 77 and 85 dBA at 50 ft (15 m) (FHWA 2017) and noise associated with existing average highway traffic at 50 ft (15 m) will be between 70 to 80 dBA (Corbisier 2003). Due to the size of the Action Area and scope of the activities, it is anticipated that noise will disturb nēnē nests and/or broods that occur within the Action Area, but avoidance and minimization measures (e.g., surveys, on-site training, and buffer areas) will minimize the disturbance on the birds.

Due to all the above risks associated with Project activities, up to 6 nests (12 eggs or goslings) may fail to survive per year due to disturbance of nests and broods leading to injury or mortality.

3) Attractive Nuisance
Approximately eight 1.0 ac stormwater detention ponds are proposed within the Action Area as part of the permanent features for the Project. While retaining water following heavy and/or long periods of rains, the ponds will attract nēnē because they are attracted to areas of standing water. Nēnē will forage and take refuge near standing water. The detention ponds will have chain linked fences around them for human safety, which may also keep out molting adult nēnē and goslings. The FHWA will also try to minimize the size and drain the ponds quickly to limit the time the ponds have standing water and are attractive to nēnē, along with balancing the function of the stormwater detention ponds, which are to limit runoff into the biologically and culturally important Olowalu reef. The eight 1.0 ac stormwater detention ponds will attract more nēnē to the proposed Project Action Area, and near temporary roads within the Action Area increasing the risk of vehicle strikes during construction (short term effect). Long term effects of the attraction and proximity to roadways to nēnē will be minimized by installing large permanent signs along the road alerting drivers about the presence of nēnē, fencing along some road sections, and installing diversion poles along both sides of the viaduct. Due to the increased risk of vehicle strikes associated with constructing 8 large stormwater detention ponds that will create an attractive nuisance for nēnē, up to 2 nēnē (1 pair) and 2 nests or 4 goslings may be injured or killed over the duration of Project activities.

4) Temporary and Permanent Habitat Loss
The Action Area is expansive and will temporarily greatly reduce foraging and nesting habitat for the nēnē that occupy the area, likely leading to reduced foraging and nesting, subsequently leading to reduced reproduction and weight loss. The most common cause of nēnē death is emaciation, and goslings are most susceptible (Work et al. 2015, p. 688). Molting adults and goslings are most at risk from temporary habitat loss since they cannot fly away to forage for food resources and nest in other areas.

According to the BA, temporary wetland habitat loss is estimated at 3.09 ac. This habitat would become available again after the project is completed, which is anticipated to occur at the end

2031. There will also be permanent loss of wetland habitat (estimated at 0.15 ac, not to exceed 0.3 ac) due to the placement of the new viaduct and associated permanent features. The viaduct also acts as a wildlife underpass, which could benefit nēnē by potentially reducing long term road disturbance, injury, or mortality to nēnē in the Ukumehame wetland area. Approximately 124 ac of both native and alien vegetation will be removed and lost including grasses, shrubs, immature trees, and mature trees, some of which nēnē rely on for foraging and/or nesting. Loss of habitat means less habitat for foraging and nesting.

Other temporary effects habitat includes discharge of construction materials, spills of hazardous liquids such as hydraulic oil, gasoline, and diesel fuel. These impacts would be mitigated with construction BMPs and cleanup procedures. Wetland habitat would also likely experience a temporary increase in sedimentation from disturbance during construction. Actual construction methods will be determined by the contractor, but it is anticipated that the installation of drill shafts would require dry work areas. To create dry work areas, the contractor would need to install a barrier such as a cofferdam and use pumps to remove existing water and pump out ground water infiltration. These activities would result in a temporary increase in sedimentation of wetland habitat. To reduce excess sedimentation, BMPs would be implemented to treat pumped water before discharging back into the wetland area.

While there are alternative foraging and nesting areas on Maui, nēnē have high site fidelity and we expect molting adults and goslings would occur in the Action Area and this loss of habitat may result in adverse effects in the form of injury or mortality of adults and nests, or goslings due to decrease in food resources. Similarly, the temporary loss of wetland habitat in Ukumehame may result in adverse effects on nēnē specifically in that area. Though the loss of foraging and nesting habitat is temporary, the disturbed habitat will be revegetated with native plants, which will increase wetland habitat prior to construction and the wetland habitat will again provide foraging and nesting habitat for nēnē.

Due to the above outlined adverse effects associated with habitat loss, up to 2 adult nēnē (1 pair) and 2 nests or 4 goslings may be injured or killed due to decrease in food resources associated with temporary habitat loss resulting from Project activities.

Nēnē Response to the Proposed Action

There are approximately 30 nēnē (15 adult pair) in the Action Area, predominantly in and around the Ukumehame wetlands. Each nēnē family has two adults, and each brood has an average of 2 goslings. Nēnē mate for life and have high site fidelity. It is anticipated that up to 2 adult nēnē pairs, or 4 adult individuals, and subsequently 2 nests or 4 goslings, will be injured or killed over the duration of the Project due to accidental crushing by vehicles, equipment, or construction/staging materials; up to 6 nests or 12 eggs or goslings will be harassed or harmed leading to injury or mortality over the duration of the Project resulting from nest or brood disturbance associated with Project activities; up to 2 nēnē (1 pair) and 2 nests or 4 goslings may be injured or killed resulting from attractive nuisance created by the stormwater detention ponds near the temporary roads and realigned highway; and up to 2 adult nēnē (1 pair) and 2 nests or 4 eggs or goslings will be injured or killed due to decrease in food resources and nesting habitat resulting from temporary loss of habitat. Based on the information above, in total up to 8 adult nēnē (4 pairs), and 12 nests or 24 goslings may be injured or killed over the Project timeline.

This loss of 8 adults over the Project duration (6-years, 2026 through 2031) represents 20 percent of the local population in the Action Area, and 1.9 percent of the 429 nēnē on Maui, and less than 0.2 of the statewide population. The loss of 12 nests (24 goslings) out of the estimated 36 nests or 72 potential goslings (36 x 2) over the duration of the Project is approximately 33 percent of the nests and potential goslings in the Action Area. However, these nests are unlikely to be successful due to ongoing threats, primarily predation, and emaciation due to lack of food resources. Nēnē distribution is not expected to be reduced because of the proposed action.

Effects of the Action on Ae‘o

1) Accidental crushing of ae‘o by vehicles, equipment, or construction/staging materials

Ae‘o, particularly nests with eggs and/or chicks, in the Action Area may be difficult to see and may be run over by vehicles or heavy equipment or crushed by construction/staging materials. However, we expect that because a qualified biologist will train project personnel through the Environmental Awareness training to identify and avoid interaction with ae‘o, during all life stages, adverse effects resulting from unintentional crushing of adults, chicks, and eggs when using vehicles or heavy machinery will be minimized. Additional conservation measures that will minimize accidental crushing of adults, nests with eggs, and/or chicks include implementing a biological survey prior to initiating work and after any delay of 72 hours or more, buffering around all discovered nests or broods, installing large temporary orange signs reminding workers of ae‘o in the Action Area and to drive 15 mph (10 mph in Ukumehame area), and installing permanent yellow signs alerting drivers on the new road about the presence of ae‘o. Despite all the conservation measures noted here, and above, given the enormous size of the proposed Action Area and the broad scope of the proposed action (e.g., multiple staging areas, excavation, construction of large water crossings and stormwater detention ponds, and hundreds of workers) increases the risk of nest or brood disturbance resulting from Project activities. Because ae‘o broods may suddenly appear unexpectedly and some ae‘o nests may go undiscovered, a construction vehicle or equipment could run over a nest with egg(s), chick(s), or adult(s). Additionally, construction or staging materials could crush a nest with egg(s), chick(s), or adult(s). Vehicles, equipment, or construction/staging materials accidentally crushing ae‘o is expected to be a rare occurrence, and by implementing the conservation measures, we expect it will continue to be rare. Ae‘o eggs and chicks are more susceptible to crushing because they cannot fly away to avoid a construction vehicle, equipment, or construction/staging materials. Up to 1 ae‘o adult and 2 nests or 8 eggs or 8 chicks may be injured or killed over the duration of the Project due to accidental crushing by vehicles, equipment, or construction/staging materials.

2) Disturbance of nests or broods

Construction that occurs during the ae‘o breeding season is likely to disturb ae‘o nest(s) or brood(s). If an adult is flushed from its nest, it may lead to nest abandonment or exposure of the eggs or chicks to predators, thus resulting in loss of reproduction. Although ae‘o can breed year-round, the majority of birds nest from mid-February through August, with some observations of nesting as early as January and chicks fledging as late as September (Schwartz and Schwartz 1951, p. 505; Ueoka et al. 1978, pp. 10, 15; Coleman 1981, pp. 19, 24, 61; Chang 1990, p. 42; Morin 1998, p. 10; Gee 2007, p. 99). Each ae‘o family has 2 adults and the typical brood size is approximately 2 chicks (Reed et al. 1998, p. 37). Predation is a primary factor resulting in a lower survivability of eggs and chicks. Because it cannot be known which eggs would survive to produce chicks, for the purposes of this analysis eggs and chicks are equivalent.

Conservation measures will minimize adverse effects to ae‘o nests or broods such as establishing a 100-ft buffer around discovered ae‘o nests and broods. Additionally, a qualified biologist will implement a biological survey prior to initiating work and after any delay of 72 hours or more, installation of large orange signs throughout the Action Area during construction reminding workers of ae‘o in the Action Area and to drive 15 mph or slower (10 mph in wetland area), installation of permanent yellow signs along the realigned highway alerting drivers of the presence of ae‘o through Ukumehame, and establishment and implementation of an Environmental Awareness training program for all on-site workers to identify ae‘o in the Action Area and to avoid and minimize adverse effects to nests or broods. However, given the size and scope of the Project, the proposed activities will likely cause ae‘o to abandon their nests and expose the eggs or chicks to predators, resulting in nest failure.

The proposed Project may cause disturbance of nests or broods resulting from exposure to elevated noise levels during construction activities. The effects of exposure to sound vary with the frequency, intensity, duration of the sound source, and the hearing characteristics of the affected animal. While data on known physiological impacts of noise on ae‘o are limited, noise can result in nest and brood disturbance resulting in subsequent impacts such as reduced foraging and disrupted normal behaviors. In contrast, ae‘o can be resilient to elevated noise levels. At Nu‘u Pond, Marine Corps Base Hawai‘i (MCBH), ae‘o reportedly have adapted to the noise at the base and appear unphased (MCBH 2017). Ae‘o have nested largely successfully at the managed Nu‘u Pond for decades. The effects of elevated noise levels on ae‘o vary. Typical construction noise associated with equipment used in the Project ranges between 77 and 85 dBA at 50 ft (15 m) (FHWA 2017) and noise associated with existing average highway traffic at the same distance is between 70 to 80 dBA (Corbisier 2003). Due to the size of the Action Area and scope of the activities, it is anticipated that noise will temporarily disturb ae‘o nests and/or broods that occur within the Action Area over the duration of the Project, but conservation measures (e.g., surveys, on-site training, and buffer areas) will minimize this disturbance on the birds.

At least 4 adult ae‘o or 2 pairs are currently known to inhabit the Action Area in the Ukumehame section. Ae‘o can have 2 nest attempts per year, so it is possible that up to 4 nests attempts could occur per year if nest success is adversely affected by Project activities. Therefore, the 4 adults or 2 ae‘o pairs may attempt up to 24 nests (4 nests/year x 6 years) over the Project’s duration (6-years, 2026 through 2031). A typical ae‘o clutch is 4 eggs, which means up to 96 eggs or chicks could be adversely affected due to Project activities resulting from nest or brood disturbance. Because it cannot be known which eggs would survive to produce chicks, for the purposes of this analysis eggs and chicks will not be considered separately. The conservation measures outlined above are expected to decrease the impacts associated with nest and brood disturbances. Therefore, factoring in the risks associated with Project activities and conservation measures, up to 4 adult ae‘o (2 pairs) will be harassed by Project activities that disturb nests or broods over the duration of the Project resulting from humans, equipment, vehicles, and noise. Also, up to 12 nests or 48 eggs or chicks will be harmed leading to injury or mortality due to nest or brood disturbance resulting from Project activities over the duration of the Project.

3) Attractive Nuisance

Approximately eight 1.0 ac stormwater detention ponds are proposed within the Action Area as part of the permanent features for the Project. Aeʻo are a resilient and resourceful bird and will forage at a wide variety of sites and nest at any newly created pond with adjacent mudflats, including areas of standing water at construction sites after a heavy rain. Because aeʻo appear to prefer nesting adjacent to open water where there is a slope of less than 6:1 (Reed et al. 2011, entire), FHWA's designs will ensure that the slope along the stormwater detention pond's boarder is 6:1 or greater to deter aeʻo from foraging and nesting along the border of the detention ponds. When retaining water following heavy and/or long periods of rains, the stormwater detention ponds will serve as an attractive nuisance to aeʻo. Aeʻo may forage, nest, rear young, or take refuge in the vegetation of areas containing temporary standing water. Shallow water (approximately 2-3 in) and wet mudflats are particularly important for foraging chicks.

The detention ponds will each have a chain linked fence around them for human safety, but these fences will not likely discourage foraging aeʻo. The FHWA will also make an effort to minimize the size and drain the ponds quickly to limit the time the ponds have standing water and are attractive to aeʻo, while at the same time balance the function of the stormwater detention ponds, which are to limit runoff. Because the detention ponds are being constructed in eight separate areas in the Action Area, in which there will be many temporary roads, aeʻo that are attracted to ponds have an increased risk of vehicle strikes during construction (short term effect). Long term effects attraction and the proximity of the roadways to aeʻo will be minimized by installing large signs along the road alerting drivers about the presence of aeʻo in the area, fencing along some road sections, and installing diversion poles on both sides of the viaduct. Due to the increased risk of vehicle strikes associated with constructing 8 large stormwater detention ponds that will create an attractive nuisance for aeʻo, up to 1 adult and 1 nest or 4 eggs or 4 chicks may be injured or killed from vehicle strikes over the Project timeline.

4) *Temporary and Permanent Habitat Loss*

The Action Area is expansive and will temporarily greatly reduce foraging and nesting habitat for aeʻo that occupy the area, likely leading to reduced foraging and nesting, subsequently leading to reduced reproduction and weight loss. According to the BA, temporary wetland habitat loss is estimated at 3.09 ac. There will also be permanent loss of wetland habitat (estimated at 0.15 ac, not to exceed 0.3 ac) due to the placement of the new viaduct and associated permanent features in Ukumehame wetlands. The viaduct also acts as a wildlife underpass, which could benefit aeʻo by potentially reducing long term vehicle disturbance, injury, or mortality to aeʻo in the Ukumehame wetlands area. Approximately 124 ac of both native and alien vegetation will be removed and lost including grasses, shrubs, immature trees, and mature trees. Loss of habitat means less habitat for foraging and nesting. Loss of foraging habitat is most important for newly hatched chicks since they are not physically able to fly to other wetlands on Maui.

Other temporary effects on habitat include discharge of construction materials, spills of hazardous liquids such as hydraulic oil, gasoline and diesel fuel. These impacts would be mitigated with construction BMPs and cleanup procedures. Wetland habitat would also likely experience a temporary increase in sedimentation from disturbance during construction. Actual construction methods will be determined by the contractor, but it is anticipated that the installation of drill shafts would require dry work areas. To create dry work areas, the contractor would need to install a barrier such as a cofferdam and use pumps to remove existing water and pump out ground water infiltration. These activities would result in a temporary increase in sedimentation of wetland habitat. To reduce excess sedimentation, BMPs would be implemented to treat pumped water before discharging back into the wetland area.

Most of the wetland habitat loss is anticipated to be temporary, except for the foundation of the viaduct and supporting permanent features. While there are alternative foraging and nesting areas on Maui that provide higher quality habitat for aeʻo, such as Keālia NWR and Kanahā Pond, aeʻo may have site fidelity. A network analysis revealed strong evidence for fidelity among individual stilts to specific wetlands, indicating different groups of wetlands supported different birds (Paxton et al. 2022, p. 688). This suggests that temporary loss of wetland habitat in Ukumehame may result in adverse effects in the form of injury or mortality of nests or chicks due to decrease in food resources. Though the loss of foraging and nesting habitat is temporary, the disturbed habitat will be revegetated with native plants, which will increase the available wetland habitat prior to construction will again provide foraging and nesting habitat for aeʻo.

Due to the above outlined adverse effects associated with habitat loss, up to 2 nests or 8 eggs or chicks may be harmed leading to injury or mortality due to decrease in food resources associated with temporary habitat loss resulting from Project activities.

Aeʻo Response to the Proposed Action

Data indicate that there are at least 4 aeʻo (2 pairs) in the Action Area. Because aeʻo often attempt to nest a second time if their first nest fails, between the 2 pairs of aeʻo present in the Action Area, they could produce up to 4 nests per year over the duration of the Project. Therefore, up to 24 nests or 96 eggs (4 eggs/nest x 24 nests) or 96 chicks may occur in the Action Area over the 6-years. Each aeʻo family has 2 adults, and the typical brood size is approximately 2 chicks (Reed et al. 1998, p. 37). Because it cannot be known which eggs would survive to produce chicks, for the purposes of this analysis, eggs and chicks will not be considered separately.

Factoring in the risks associated with Project activities and the incorporation of conservation measures discussed above, it is anticipated that up to 1 aeʻo adult and 2 nests or 8 eggs or 8 chicks may be injured or killed over the duration of the Project due to accidental crushing by vehicles, equipment, or construction/staging materials; up to 4 adult aeʻo will be harassed by Project activities that disturb nests or broods over the duration of the Project resulting from humans, equipment, vehicles, and noise; up to 12 nests and 48 aeʻo eggs or chicks will be harmed leading to injury or mortality over the duration of the Project resulting from nest or brood disturbance associated with Project activities; up to 1 adult aeʻo, 1 nest or 4 eggs or chicks may be injured or killed resulting from attractive nuisance created by the stormwater detention ponds near the temporary roads and realigned highway; and 2 nests or 8 eggs or 8 chicks will be injured or killed due to temporary loss of habitat.

Therefore, based on the information above, the total amount of aeʻo take resulting from Project activities is 2 adult aeʻo, 17 nests, and 68 eggs or 68 chicks in the form of injury or mortality; and 4 adult aeʻo in the form of harassment not leading to physical injury, over the duration of the Project (2026 through 2031). The loss of 2 adult aeʻo constitutes the loss of 50 percent of the aeʻo in the Action Area, 0.4 percent of the aeʻo on Maui, and 0.13 percent of the aeʻo population statewide. The loss of 68 eggs or chicks is 70 percent of the anticipated eggs or chicks in the Action Area resulting from the potential 24 nests. However, these nests are unlikely to be successful due to the ongoing presence of predators and other ongoing threats. Aeʻo distribution is not expected to be reduced because of the proposed action.

CUMMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of any future state, tribal, local, or private actions that are reasonably certain to occur within the action area at this time; therefore, no cumulative effects are anticipated.

CONCLUSION

Nēnē
The proposed Project is anticipated to have low impacts on nēnē reproduction and numbers. Up to 8 adults, 12 nests or 24 goslings may be injured or result in its mortality due to accidental crushing by a vehicle or heavy machinery due to Project activities, nest or brood disturbance, attractive nuisance, and/or habitat loss. The loss of 8 adults over the Project duration (6-years, 2026 through 2031) represents 27 percent of the local population in the Action Area, and 1.9 percent of the 429 nēnē on Maui, and less than 0.2 of the statewide population. The loss of 12 nests (24 goslings) out of the estimated 36 nests or 72 potential goslings (36 x 2) over the duration of the Project is approximately 33 percent of the nests and potential goslings in the Action Area. These nests are unlikely to be successful due to ongoing threats, primarily depredation and emaciation due to lack of food resources. This proposed Project is not expected to have population or species level impacts and is not expected to appreciably reduce the overall long term total population of nēnē, since the project impacts a small portion of the population. On the basis of these findings, the Service concludes that the effects of the subject action, taken together with cumulative effects, are not likely to appreciably reduce the likelihood of both the survival and recovery of the nēnē in the wild.

Aeʻo
The proposed Project is anticipated to have low impacts on aeʻo reproduction and numbers. Up to 2 adult aeʻo, 17 nests or 68 eggs or chicks in the form of injury or mortality; and 4 adult aeʻo in the form of harassment not leading to physical injury, over the duration of the Project (2026 through 2031). The loss of 2 adult aeʻo constitutes the loss of 50 percent of the aeʻo in the Action Area, 0.4 percent of the aeʻo on Maui, and 0.13 percent of the aeʻo population statewide. The loss of 68 eggs or chicks is 70 percent of the anticipated eggs or chicks in the Action Area resulting from the potential 24 nests. However, these nests are unlikely to be successful due to the ongoing presence of predators and other ongoing threats. Aeʻo distribution is not expected to be reduced because of the proposed action. This proposed Project is not expected to have population or species level impacts and is not expected to appreciably reduce the overall long-term total population of aeʻo since the project impacts a small portion of the population. Based on these findings, the Service concludes that the effects of the subject action, taken together with

cumulative effects, are not likely to appreciably reduce the likelihood of both the survival and recovery of the ae‘o in the wild.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and must be undertaken by the FHWA so that they become binding conditions in order for the exemption in section 7(o)(2) to apply. The FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If the FHWA (1) fails to assume and implement the terms and conditions or (2) fails to require any contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to any permit or contract, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FHWA must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement and reporting requirements below [50 CFR §402.14(i)(3)].

Amount or Extent of Take Anticipated
The Service anticipates that take of nēnē and ae‘o may occur in the form of harm due to injury, mortality, or capture because of activities described in this biological opinion. The Service believes that no more than the following number of nēnē and ae‘o will be incidentally taken because of the proposed action.

The Service anticipates the following take of nēnē:

- Up to eight (8) adults and 12 nests or 24 eggs or goslings may be taken in the form of harm due to injury or mortality from accidental crushing by a vehicle or heavy equipment, disturbance of nests or broods, attractive nuisance, and/or emaciation or starvation, during all phases of the duration (2026 through 2031) of the Honoapi‘ilani Highway Realignment Project.

The Service anticipate the following take of ae‘o:

- Up to two (2) adults and 17 nests or 68 eggs or chicks may be taken in the form of harm due to injury or mortality from accidental crushing by a vehicle or heavy equipment, disturbance of nests or broods, attractive nuisance, and/or emaciation or starvation, during all phases of the duration (2026 through 2031) of the Honoapi‘ilani Highway Realignment Project.

Effect of Take
After reviewing the status of nēnē and ae‘o, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the Honoapi‘ilani Highway Realignment Project, as proposed, is not likely to jeopardize the continued existence of the nēnē or ae‘o.

Reasonable and Prudent Measures
The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of nēnē and ae‘o:

1. FHWA will minimize the potential for injury and mortality of nēnē during project activities.
2. FHWA will minimize the potential for injury and mortality of ae‘o during project activities.

Terms and Conditions
In order to be exempt from the prohibitions of section 9 of the Act, FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measure described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following terms and conditions implement the reasonable and prudent measure to minimize the potential for injury or mortality of nēnē and ae‘o.

1. The on-call biologist will be notified by telephone and email immediately upon the discovery of an injured or dead nēnē or ae‘o in the Action Area. The on-call biologist will arrange for the bird(s) (or other listed animal species) to be picked up by DOFAW and provide guidance on temporary handling prior to DOFAW pickup. The on-call biologist will use the Service's SOP for handling and transporting injured birds or other listed animal species. The on-call biologist will provide PIFWO with a written notification using the Avian Injury/Mortality Form in Appendix D of the Opinion, summarizing the event, within 3 days and will contact and arrange for care from the Hawai‘i Wildlife Center (HWC) or other permitted rehabilitation facility for any injured bird. Should transport to and care at the HWC or other permitted rehabilitation facility be necessary, HDOT would provide funds to facilitate necessary and appropriate actions. Care must be taken in handling any dead or injured specimens of proposed or listed species to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The

finding of dead or injured specimens does not imply enforcement proceedings pursuant to the Act. This reporting requirement enables the Service to determine if take has been reached or exceeded and to ensure that the terms and conditions are appropriate and effective.

a. FHWA shall submit an annual report to PIFWO within 45-days after each year-end in which Project actions occur. Annual reports will include all nēnē hazing activities, including the number of birds hazed during each hazing incident, the date and time, banding information (if available), and any other noteworthy behavioral observations and/or physical features and environmental conditions at the time. Annual reports will also include all observations of nēnē, ae‘o, and/or other listed birds (and any other listed species) in the Action Area, including number of individuals and/or nests, life stage, banding information (if relevant), brood structure (if relevant), date and time, any noteworthy behavioral observations or physical features on the species, environmental conditions at the time, and a detailed description of any incident(s) that resulted in take in the form of harm (injury), mortality, and capture using the Injury/Mortality Form in Appendix D. Lastly, the annual reports should include all of the conservation measures implemented each year. Upon the final year during which Project actions occur, a final report will be submitted to PIFWO within 45-days after the Project has been completed containing the annual report for the last year, followed by an analysis and summary of all the annual reports combined.
b. The depository designated to receive specimens that are found is the B.P. Bishop Museum, 1525 Bernice Street, Honolulu, Hawai‘i, 96817 (telephone: 808/847-3511). If the B.P. Bishop Museum does not wish to accession the specimens, contact the Service’s Division of Law Enforcement in Honolulu, Hawai‘i (telephone: 808/861-8525; fax: 808/861-8515) for instructions on disposition.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. FHWA must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Conservation Recommendations
Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The PIFWO recommends FHWA undertake the following conservation recommendations:

- Construction activities for this Project and similar future projects should be planned to take place outside of nēnē and ae‘o breeding seasons to the maximum extent practicable.
- FHWA collaborates with PIFWO to learn more about endangered and threatened species,

and the Section 7 Endangered Species Act consultation process.

In order for the PIFWO to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, PIFWO requests notification of the implementation of any conservation recommendations.

Reinitiation-Closing Statement

This concludes formal consultation on the action(s) outlined in this biological opinion. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and: (1) if the amount or extent of taking specified in the incidental take statement is exceeded; (2) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) if a new species is listed or critical habitat designated that may be affected by the identified action.

We appreciate your cooperation and assistance in helping us prepare this biological opinion. If you have any questions about this consultation, please contact Carrie Harrington, Fish and Wildlife Biologist, at carrie_harrington@fws.gov. When referring to this project, please include the following reference number: 2023_0041712-S7-001.

Sincerely,

Deputy Field Supervisor
Pacific Islands Fish and Wildlife Office

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APPENDIX A – Informal Consultation

United States Department of the Interior

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

In Reply Refer To:
2023-0041712-S7-002

July 16, 2025

Ms. Richelle M. Takara
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
300 Ala Moana Blvd., Rm 3-229
Honolulu, Hawaiʻi 96850

Subject: Informal Consultation for the Proposed Honoapiʻilani Highway Realignment Project on the island of Maui

Dear Ms. Takara,

The U.S. Fish and Wildlife Service (Service) Pacific Islands Fish and Wildlife Office received your letter dated March 10, 2025, requesting informal consultation for the proposed Honoapiʻilani Highway Realignment Project along leeward Mauna Kāhālawai on Maui. You have determined that the proposed project may affect, but is not likely to adversely affect the following federally listed species:

- ʻŌpeʻapeʻa or Hawaiian hoary bat (*Lasiurus cinereus semotus*)
- Hawaiian seabirds, including Hawaiʻi Distinct Population Segment of the ʻakēʻakē or band-rumped storm-petrel (*Hydrobates castro*), ʻaʻo or Newell's shearwater (*Puffinus newelli*), ʻuaʻu or Hawaiian petrel (*Pterodroma sandwichensis*)
- ʻAlae keʻokeʻo or Hawaiian coot (*Fulica alai*) and koloa maoli or Hawaiian duck (*Anas wyvilliana*)
- Blackburn's sphinx moth (*Manduca blackburni*)
- Honu or green sea turtle (*Chelonia mydas*) and honu ʻea or Hawksbill sea turtle (*Eretmochelys imbricata*)
- Hawaiian yellow-faced bees, *Hylaeus anthracinus*, *H. assimulans*, *H. longiceps*, and *H. facilis*.

The findings and recommendations in this consultation are based on: (1) your consultation request and accompanying documents; (2) email correspondence between Service and Federal Highway Administration between March 10, 2025, and July 10, 2025; and (3) other biological information available to us. A complete administrative record is on file in our Pacific Islands

Fish and Wildlife Office in Honolulu, Hawaiʻi. This response is in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. 1531 *et seq.*).

The Federal Highway Administration (FHWA) is providing Federal funding to the State of Hawaiʻi Department of Transportation (HDOT) to support the realignment of Honoapiʻilani Highway on Leeward Kāhālawai, Maui, between Milepost 11 in Ukumehame near Pāpalaua Beach Park and Milepost 17 in Launiupoko. This work is funded through a competitive BUILD grant, Federal aid (FHWA), congressionally earmark spending, and State funds.

Project Description
The project description and action area are the same as described for the formal consultation.

Conservation Measures
To avoid and minimize impacts to ʻōpeʻapeʻa the following measures will be implemented:
- No woody plants greater than 15 feet tall will be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).
- No barbed wire fencing will be used.

To avoid and minimize impacts to Hawaiian seabirds the following measures will be implemented:
- All outdoor lights will be fully shielded so the bulb(s) can only be seen from below.
- Automatic motion sensor switches and controls will be installed on all outdoor lights or lights will turn off when human activity is not occurring in the lighted area.
- Nighttime construction will not occur during the seabird fledging period, September 15 through December 15.

To avoid and minimize the likelihood of collision by Hawaiian seabirds the following measures will be implemented:
- For powerlines, guy-wires and other cables, exposure above vegetation height and vertical profile will be minimized.
- The tops of monopoles, cranes and crane wire/cables that extends above vegetation will be flagged.

To avoid and minimize project impacts to Hawaiian waterbirds the following measures will be implemented:
- In areas where waterbirds are known to be present, large visible signs will be posted to reduce speed limits, and all project personnel and contractors will be informed about the presence of endangered species on-site.
- A biological monitor (e.g., the on-call biologist) that is familiar with the species' biology will conduct Hawaiian waterbird nest surveys where appropriate habitat occurs within the vicinity of the proposed project site prior to project initiation. Surveys will be repeated again within 72 hours days of project initiation and after any subsequent delay of work of 72 hours or more (during which the birds may attempt to nest). If a nest or active brood is found:
    - The Service will be contacted within 48 hours for further guidance.

  - A 100-foot buffer will be established and maintain around all active nests and/or broods until the chicks/ducklings have fledged. No potentially disruptive activities or habitat alteration will occur within this buffer.
  - The biological monitor (that is familiar with the species' biology) will be present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely impacted.

To avoid and minimize project impacts to Blackburn's sphinx moth the following measures will be implemented:

- A biologist familiar with the species will survey areas of proposed activities for Blackburn's sphinx moth and its larval host plants prior to work initiation.
  - Surveys should be conducted during the wettest portion of the year (usually November-April or several weeks after a significant rain) and within 4-6 weeks prior to construction.
  - Surveys should include searches for adults, eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage).
  - If moths, eggs, larvae, or native ʻaiea or tree tobacco over 3 feet tall, are found during the survey, the Service will be contacted within 48 hours for additional guidance to avoid impacts to this species.
- If no Blackburn's sphinx moth, ʻaiea, or tree tobacco are found during surveys, measures will be taken to avoid attracting Blackburn's sphinx moth to the project location and prohibiting tree tobacco from entering the site.
  - Tree tobacco less than 3 feet tall will be removed.
  - The site will be monitored every 4 to 6 weeks for new tree tobacco growth before, during, and after the proposed ground-disturbing activity.

To avoid and minimize project impacts to sea turtles and their nests the following measures will be implemented:

- Vehicle use on or modification of the beach/dune environment will not occur during the sea turtle nesting or hatching season (May to December).
- No native dune vegetation will be removed.
- A biologist or employee who has successfully completed the Environmental Awareness Program who is familiar with sea turtles will conduct a visual survey of the project site to ensure no basking sea turtles are present. The Service's standard avoidance and minimization measures solely allows for a biologist familiar with the species; however, the Environmental Awareness Program is a unique project feature that requires rigorous training of project staff.
  - If a basking sea turtle is found within the project area, cease all mechanical or construction activities within 50 meters until the animal voluntarily leaves the area. The Service's standard avoidance and minimization measures include a 100-foot buffer.
  - Cease all activities between the basking turtle and the ocean.
- Any project-related debris, trash, or equipment will be removed from the beach or dune if not actively being used.
- No project-related materials will be stockpiled in the intertidal zone, reef flats, sandy beach and adjacent vegetated areas, or stream channels.

To avoid and minimize project impacts to sea turtles from lighting the following measures will be implemented:

- Nighttime work will be avoided during the nesting and hatching season (May to December).
- Use of lighting will be minimized on or near beaches and all project-related lights will be shielded so the light is not visible from any beach.
  - If lights can't be fully shielded or if headlights must be used, the light source(s) will be fully enclosed with light filtering tape or filters.
- Design measures will be incorporated into the construction or operation of buildings adjacent to the beach to reduce ambient outdoor lighting such as:
  - tinting or using automatic window shades for exterior windows that face the beach;
  - reducing the height of exterior lighting to below 3 feet and pointed downward or away from the beach; and
  - minimizing light intensity to the lowest level feasible and, when possible, including timers and motion sensors.

To avoid and minimize project impacts to yellow-faced bees and their nests, the following measures will be implemented:

- If an action will occur in or adjacent to known occupied habitat, a buffer area around the habitat will be required and determined on a site-specific basis through consultation with the Service.
- For coastal species, all coastal strand habitat will be protected from human disturbance, including:
  - No fires or wood collecting.
  - Leave woody debris in place.
  - Restrict vehicles to existing roads and trails.

Additional conservation measures will be implemented:

- An Environmental Awareness Program will be established and implemented to train all on site personnel about the presence of listed species in the Action Area and associated avoidance and minimization measures. Employees that have completed the training will receive a sticker to be prominently displayed on their hardhat.
- To protect all listed birds in the Ukumehame wetlands, the highway section through the wetland will be a viaduct reaching approximately 20 feet at its peak height. The viaduct allows for birds to move across the wetland without having to cross a road. Further, the viaduct will have diversion poles as tall as the anticipated tallest vehicles on both sides to deter birds from flying across the road.
- Large visible signs will be placed around the Action Area during all phases of the project to inform employees about the presence of listed species in the project area and to reduce vehicle speed; and permanent signs will be placed along the completed highway through Ukumehame informing drivers that listed birds are in the area.

Analysis of Effects

ʻŌpeʻapeʻa
By incorporating the conservation measures described above for ʻōpeʻapeʻa, including not clearing trees or vegetation greater than 15 feet tall between June 1 and September 15, it is unlikely that ʻōpeʻapeʻa be harmed or killed because of project activities. Also, because barbed wire will not be used, it is unlikely that foraging ʻōpeʻapeʻa become entangled. Therefore, effects to ʻōpeʻapeʻa are discountable.

Hawaiian seabirds
By implementing the conservation measures described above, including avoiding nighttime construction during the seabird fledging season from September 15 through December 15, fully shielding all outdoor lights, ensuring lights are only visible from below, and turning off lights when human activity is not occurring in the area, it is unlikely that Hawaiian seabirds become attracted to lights, become disoriented, and fallout, resulting in injury or mortality. Additionally, because the 2022 Maui Dark Skies Ordinance will be implemented, it is unlikely that Hawaiian seabirds become attracted to lights. Lastly, because flagging will be added to the tops of monopoles, cranes and crane wire/cables, and fencing that extends above vegetation, it is unlikely that Hawaiian seabirds will collide with these structures. Because impacts from the proposed project are unlikely, effects are considered discountable.

Hawaiian waterbirds: ʻalae keʻokeʻo and koloa maoli
By implementing the above-described conservation measures, including conducting surveys shortly before starting on the ground Project activities by a biologist knowledgeable about the species' biology and again after any delay of work 72 hours or more, stopping work in areas where ʻalae keʻokeʻo and/or koloa maoli are present and creating a buffer around the birds, implementing the Environmental Awareness Program to educate all on-site workers about the presence or potential presence of listed species in the Action Area and associated conservation measures, and posting large reduced speed limit signs throughout the Action Area (15 mph in the greater Action Area, 10 mph in Ukumehame wetlands area), it is unlikely that adult ʻalae keʻokeʻo and koloa maoli be crushed by human or vehicular activities. Therefore, effects to ʻalae keʻokeʻo and koloa maoli are discountable.

Blackburn's sphinx moth
By implementing the conservation measures above, including conducting surveys for both Blackburn's sphinx moth and its larval host plants prior to starting construction activities by a biologist knowledgeable about the species' biology and contacting the Service immediately if moths, eggs, larvae, or native ʻaiea or tree tobacco over 3 ft tall are found, it is unlikely that Blackburn's sphinx moth larvae or eggs be crushed. Therefore, effects to the Blackburn's sphinx moth are discountable.

Sea turtles
Vehicle use or stockpiling project related materials on the beach or dune environment will be avoided during the Hawaiian sea turtle nesting or hatching season, it is unlikely that Hawaiian sea turtle nests or hatchlings will be crushed by human or vehicular activities. Nighttime lighting during the nesting and hatching season (mid-April to December) will not occur, it is unlikely that

Hawaiian sea turtles would become disoriented or deterred from nesting. Therefore, effects are discountable.

Hawaiian yellow-faced bees
By implementing the conservation measures above, including not working or placing staging areas on the beach or makai side of the highway, restricting vehicles to existing and designated temporary roads, avoiding collection of wood, avoiding starting fires, and leaving woody debris in place, it is unlikely that yellow-faced bees will be disturbed, and their nests be crushed by human or vehicular activities. Therefore, effects to yellow-faced bees are discountable.

Summary
We have reviewed our data and conducted an effects analysis of your project. Based on the project actions as described above and the incorporation of conservation measures, effects to listed species are unlikely to occur and are therefore considered discountable. Because impacts from the proposed action are considered discountable, the Service concurs with your determination that the proposed action may affect but is not likely to adversely affect ‘ōpe‘ape‘a, Hawaiian seabirds, ‘alae ke‘oke‘o, koloa maoli, Blackburn’s sphinx moth, Hawaiian sea turtles (honu and honu ‘ea), and Hawaiian yellow-faced bees.

Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and:

1) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
2) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the written concurrence; or,
3) If a new species is listed or critical habitat designated that may be affected by the proposed actions.

We appreciate your efforts to conserve protected species. If you have questions regarding this letter, please contact Carrie Harrington, Fish and Wildlife Biologist at carrie_harrington@fws.gov. When referring to this project, please include this reference number: 2023-0041712-S7-002.

Sincerely,

Deputy Field Supervisor
Pacific Islands Fish and Wildlife Office

APPENDIX B – Service BMPs for Work in or Around Aquatic Environments

U.S. Fish and Wildlife Service
Recommended Standard Best Management Practices (BMPs) For Work In or Around Aquatic Environment

The U.S. Fish and Wildlife Service (Service) recommends the following measures are incorporated into project planning to avoid or minimize impacts to fish and wildlife resources. Incorporation of these BMPs may reduce negative impacts to aquatic habitats from project construction-related activities. These BMPs are recommended in addition to, and do not over-ride any terms, conditions, or other recommendations prepared by the Service, other Federal, state, or local agencies. Please contact the Service Aquatic Ecosystems Conservation Program at 808-792-9400 with any questions.

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats that extend beyond the planned project area.
2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods vary throughout the Pacific islands, we recommend contacting the relevant local, state, or Federal fish and wildlife resource agency for site specific guidance.
3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. The BMPs should occur for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.
4. All project construction-related materials and equipment (i.e., dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, nonnative species introductions, or attraction of nonnative pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see https://www.fws.gov/policy/A1750fw1.html) can prevent attraction and introduction of nonnative species.
5. Project construction-related materials (i.e., fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (e.g., with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.
6. Fueling of project-related vehicles and equipment should occur away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.
7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

APPENDIX C – Service General and Species-Specific Biosecurity Protocols

<u>PIFWO General and Species-Specific Invasive Species Biosecurity Protocols</u>
(Updated July 2024)

Project activities may introduce or spread invasive species, causing negative ecological consequences to new areas or islands, resulting in potential impacts to fish, wildlife, and their habitat. For example, seeds of invasive plant species (e.g., *Chromolaena odorata*, *Senecio madagascariensis*, *Cyathea cooperi*, or *Miconia calvescens*) can be inadvertently transported on equipment from a previous work site to a new site where the species are not present. Likewise, equipment used in an area infected with a pathogen or insect pest that can have ecological consequences (e.g., rapid ʻōhiʻa death (*Ceratocystis spp.*), black twig borer (*Xylosandrus compactus*), or naio thrips (*Klambothrips myopori*), if not properly decontaminated, can act as a vector to introduce the pathogen into a new area. Additionally, vehicles must be properly inspected and cleaned to ensure vertebrate or invertebrate pests do not stowaway and spread to other areas. These are just a few examples of how even well-intended project activities may inadvertently introduce or spread invasive species.

To avoid and minimize invasive species potential impacts to fish, wildlife, and their habitat we recommend incorporating general biosecurity protocols into your project planning (see below). Additional consultation is recommended if project activities involve transportation of materials, equipment, vehicles, etc. between islands or transpacific movement of materials or equipment.

Invasive Species Biosecurity Protocol

The following biosecurity protocol is recommended to be incorporated into planning for your project to avoid or minimize transportation of invasive species with potential to impact to fish, wildlife, and their habitat. Cleaning, treatment, and/or inspection activities are the responsibility of the equipment or vehicle owner and operator. However, it is ultimately the responsibility of the action agency to ensure that all project materials, vehicles, machinery, equipment, and personnel are free of invasive species before entry into a project site. Please refer to the resources listed below for current removal/treatment recommendations that may be relevant to your project.

1. Cleaning and treatment:
   Project applicants should assume that all project materials (i.e., construction materials, or aggregate such as dirt, sand, gravel, etc.), vehicles, machinery, and equipment contain dirt and mud, debris, plant seeds, and other invasive species, and therefore require thorough cleaning. Treatment for specific pests, for example, trapping and poison baiting for rodents, or baiting and fumigation for insects, should be considered when applicable. For effective cleaning we offer the following recommendations prior to entry into a project site:
   a. Project materials, vehicles, machinery, and equipment must be pressure washed thoroughly (preferably with hot water) in a designated cleaning area. Project materials, vehicles, machinery, and equipment should be visibly free of mud/dirt (excluding aggregate), seeds, plant debris, insects, spiders, frogs (including frog eggs), other vertebrate species (e.g., rodents, mongoose, feral cats, reptiles, etc.), and rubbish. Areas of particular concern include bumpers, grills, hood compartments, wheel wells, undercarriage, cabs, and truck beds. Truck beds with accumulated material are prime sites for hitchhiking invasive species.

   b. The interior and exterior of vehicles, machinery, and equipment must be free of rubbish and food, which can attract pests (i.e., rodents and insects). The interiors of vehicles and the cabs of machinery should be vacuumed clean particularly for any plant material or seeds.

2. Inspection:
   a. Following cleaning and/or treatment, project materials, vehicles, machinery, and equipment, must be visually inspected by its user, and be free of mud/dirt (excluding aggregate), debris, and invasive species prior to entry into a project site. For example, careful visual inspection of a vehicle's tires and undercarriage is recommended for any remaining mud that could contain invasive plant seeds.
   b. Any project materials, vehicles, machinery, or equipment found to contain invasive species (e.g., plant seeds, invertebrates, rodents, mongoose, cats, reptiles, etc.) must not enter the project site until those invasive species are properly removed/treated.

3. For all project site personnel:
   a. Prior to entry into the project site, visually inspect and clean your clothes, boots or other footwear, backpack, radio harness, tools and other personal gear and equipment for insects, seeds, soil, plant parts, or other debris. We recommend the use of a cleaning brush with sturdy bristles. Seeds found on clothing, footwear, backpacks, etc., should be placed in a secure bag or similar container and discarded in the trash rather than being dropped to ground at the project site or elsewhere.

4. Additional considerations:
   a. Consider implementing a Hazard Analysis and Critical Control Point (HACCP) plan (https://www.fws.gov/policy/A1750fw1.html) to improve project planning around reducing the risk of introducing or spreading invasive species.
   b. When applicable, use pest-free or low-risk sources of plants, mulch, wood, animal feed or other materials to be transported to a project site.
   c. For projects involving plants from nurseries (e.g., outplanting activities, etc.), all plants should be inspected, and if necessary, appropriately cleaned or treated for invasive species prior to being transported to the project site.
   d. Avoid unnecessary exposure to invasive species at a particular site (to the extent practical) to reduce contamination and spread. For example, if your project involves people or equipment moving between multiple locations, plan and organize timelines so that work is completed in native habitat prior to working in a disturbed location to reduce the likelihood of introducing a pest into the native habitat.
   e. Maintain good communication about invasive species risks between project managers and personnel working on the project site (e.g., conduct briefings and training about invasive species). Ensure prevention measures are communicated to the entire project team. Also consider adding language on biosecurity into contracts or permitting mechanisms to provide clarity to all involved in the project. Report any species of concern or possible introduction of invasive species to appropriate land managers.

For current removal/treatment recommendations please refer to the following:
Hawaiian Islands:

- Maui – https://mauiinvasive.org/

Species-Specific Biosecurity Protocols

The following section contains specific protocols for a few select invasive species of concern in the Pacific Islands highlighted because of their potential to easily spread and cause great harm to native species and habitats. Other invasive species may not have existing specific protocols or may already be minimized by implementing the general invasive species protocols above (e.g., invasive plants, invertebrates, larger vertebrates). Information on other invasive species can be found in the island specific links below. As new threats emerge that require development of species-specific protocols, those may be added to this list.

Table 1. Current island distribution of invasive species with specific biosecurity protocols in the Pacific Islands (PIFWO jurisdiction).

Island	Invasive Species with Specific Protocols			
	Rapid ʻŌhiʻa Death	**Little Fire Ant**	**Coconut Rhinoceros Beetle**	**Brown Treesnake**
Island of Hawaiʻi	widespread	widespread	detected in Waikoloa, Oct 2023 and Sept 2024	not present
Maui	present	incipient	detected in Kīhei, Sept and Nov 2023, not observed since but we recommend implementing related biosecurity BMPs	not present
Oʻahu	incipient	incipient	widespread	not present
Kauaʻi	widespread	not present	detected in May 2023	not present

<u>Rapid ʻŌhiʻa Death (ROD)</u>
If working directly with ʻōhiʻa trees (e.g., sampling suspected trees, clearing an area of ʻōhiʻa, etc.) or in an area(s) known to be highly infested with ROD, additional consultation is recommended.

Current Distribution of ROD: island of Hawaiʻi, Maui, Oʻahu, Kauaʻi
https://cms.ctahr.hawaii.edu/rod

While ROD is not currently reported on Molokaʻi at this time, if you are in ʻōhiʻa forest it would be prudent to take precautions. Also, consider where the equipment to be used on Molokaʻi will be coming from, and if from an island with confirmed ROD, take the necessary precautions.

Rapid ʻŌhiʻa Death (ROD) is a caused by a fungal pathogen (*Ceratocystis* spp.) that attacks and kills ʻōhiʻa trees (*Metrosideros polymorpha*). ʻŌhiʻa is endemic to the Hawaiian Islands and is the most abundant native tree species, comprising approximately 80 percent of remaining native forests in Hawaiʻi.

For more information about ROD including its current distribution, ROD science updates, and the latest on ROD protocol, please visit www.rapidohiadeath.org.

To reduce the risk of spreading ROD, the following best management practices and decontamination protocol are recommended:

Best Management Practices for ROD

1. Never transport any part of an ʻōhiʻa tree between different areas of an island or to a different island.
2. Do not use equipment from ROD infected islands on another island unless it is very specialized equipment and follows the decontamination protocol described below.
3. Avoid wounding ʻōhiʻa trees and roots with mowers, chainsaws, weed eaters, and other tools. If an ʻōhiʻa receives a minor injury like a small broken branch, then give the injury a clean, pruning type cut (close to the main part of the trunk or branch) to promote healing, and then spray the entire wounded area with a pruning seal.
4. Always report suspect ROD ʻōhiʻa trees observed within you project area. ROD is a wilt disease that cuts off the supply of water and nutrients to the tree. The primary symptom to look for is an entire canopy or a large branch with dying leaves or red discolored leaves. Please record the GPS coordinates and location and take a picture of the tree if possible. Please report suspected ROD ʻōhiʻa trees to the following agencies:
    a. Island of Hawaiʻi – BIISC: 808-969-8268 (ohialove@hawaii.edu)
    b. Maui – MISC: 808-573-6472 (miscpr@hawaii.edu)
    c. Molokaʻi – TNC: 808-553-5236 ext. 6585 (lbuchanan@tnc.org)
    d. Oʻahu – OISC: 808-266-7994 (oisc@hawaii.edu)
    e. Kauaʻi – KISC: 808-821-1490 (kisc@hawaii.edu)

ROD Decontamination Protocol

1. Clothes, footwear, backpacks, and other personal equipment
    a. Before leaving the project site, remove as much mud and other contaminants as possible. Use of a brush with soap and water to clean gear is preferred. Footwear, backpacks, and other gear must be sanitized by spraying with a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution.
2. Vehicles, machinery, and other equipment
    a. Vehicles, machinery, and other equipment must be thoroughly hosed down with water (pressure washing preferred) and visibly free of mud and debris, then sprayed with a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution. Use of a "pump-pot" sprayer is recommended for the solution and a hot water wash is preferred. Be sure to thoroughly clean the undercarriage, truck bed, bumpers, and wheel wells.
    b. If non-decontaminated personnel or items enter a vehicle, then the inside of the vehicle (i.e., floor mats, etc.) must be subsequently decontaminated by removing mud and other contaminants and sprayed with the one of the same aforementioned sanitizing solutions.

3. Cutting tools
    a. All cutting tools, including machetes, chainsaws, and loppers must be sanitized to remove visible mud and other contaminants. Tools must be sanitized using a solution of >70 percent isopropyl alcohol or a freshly mixed 10 percent bleach solution. One minute after sanitizing, one may apply an oil-based lubricant to chainsaw chains or other metallic parts to prevent corrosion as bleach is corrosive to metal.

NOTE: When using a 10 percent bleach solution, surfaces should be cleaned with a minimum contact time of 30 seconds. Bleach must be mixed daily and used within 24 hours, as once mixed it degrades. Bleach will not work to disinfect surfaces that have high levels of organic matter such as sawdust or soil. Because bleach is also corrosive to metal, a water rinse after proper sanitization is recommended to avoid corrosion.

Little Fire Ant (LFA)
For the most current status on distribution and infestations, please visit http://stoptheant.org/lfa-in-hawaii/

The little fire ant (*Wasmannia auropunctata*), or LFA, is an invasive species with a painful sting that can inhabit many different environments. In Hawaiʻi, it often infests agricultural fields and farms, damaging crops and stinging unsuspecting workers. Little fire ants are also highly disruptive to native tropical ecosystems and harmful to wildlife. Slow moving, but tiny and capable of foraging 24 hours a day with multiple queens per colony, LFA is a formidable threat to biodiversity, agriculture, and quality of life on tropical islands in the Pacific.

For more information about LFA including helpful guides and workshops for treating or detecting LFA, please visit www.littlefireants.com.

To reduce the risk of spreading LFA, the following biosecurity protocol is recommended:

Biosecurity Protocol for LFA

1. For projects involving plants from nurseries (e.g., outplanting activities, etc.), all plants should be inspected for little fire ants and other pests prior to being transported to the project site. If plants are found to be infested by ants of any species, plants should be sourced from an alternative nursery and the infested nursery should follow treatment protocols recommended by the Hawaiʻi Ant Lab (https://littlefireants.com/wp-content/uploads/2020-Management-of-Pest-Ants-in-Nurseries-min.pdf).
2. All work vehicles, machinery, and equipment should follow steps 1 and 2 in the "Invasive Species Biosecurity Protocol" for (1) cleaning and treatment and (2) inspection for invasive ants prior to entering a project site.
3. Any machinery, vehicles, equipment, or other supplies found to be infested with ants (or other invasive species) must not enter the project site until it is properly treated (https://littlefireants.com/how-to-treat-for-little-fire-ants-for-homeowners/#recommended-bait-products) and re-tested. Infested vehicles must be treated following recommendations by the Hawaiʻi Ant Lab (https://littlefireants.com/resource-center/) or another ant control expert and in

accordance with all State and Federal laws. Treatment is the responsibility of the equipment or vehicle owner. Ultimately however, it is the responsibility of the action agency to ensure that all project materials, vehicles, machinery, and equipment follow the appropriate protocol(s).

4. General Vehicle Ant Hygiene: Even the cleanest vehicle can pick up and spread little fire ant. Place MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) into refillable tamper resistant bait stations. An example of a commercially available refillable tamper resistant bait station is the Ant Café Pro (https://www.antcafe.com/). Place a bait station (or stations) in the vehicle and note that larger vehicles, such as trucks, may require multiple stations. Monitor bait stations frequently (every week at a minimum) and replace bait as needed. If the bait station does not have a sticker to identify the contents, apply a sticker listing contents to the station.
5. Gravel, building materials, or other equipment such as portable buildings should be baited using MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) or AmdroPro (0.73 percent Hydramethylnon; https://connpest.com/labels/AMDROPRO.pdf) following label guidance.
6. Storage areas that hold field tools, especially tents, tarps, and clothing should be baited using MaxForce Complete Brand Granular Insect Bait (1.0 percent Hydramethylnon; https://labelsds.com/images/user_uploads/Maxforce%20Complete%20Label%201-5-18.pdf) or AmdroPro (0.73 percent Hydramethylnon; https://connpest.com/labels/AMDROPRO.pdf) following label guidance.
7. Vehicles that have entered a project site known or thought to overlap with areas infested with LFA should subsequently be tested for LFA with baiting in accordance with protocol recommended by the Hawaiʻi Ant Lab (https://littlefireants.com/survey-your-home-for-lfa/).
8. If LFA are detected, please report it to 808-643-PEST (Hawaiʻi), 671-475-PEST (Guam), or 684-699-1575 (American Samoa). Please visit https://littlefireants.com/identification-of-little-fire-ants/ for assistance in identifying LFA.

Coconut Rhinoceros Beetle (CRB)

Current Distribution of CRB in Hawaiʻi: Oʻahu, detected on Maui in November 2023 but not observed since (there are ongoing search efforts: https://governor.hawaii.gov/newsroom/hdoa-news-release-on-on-going-efforts-against-the-coconut-rhinoceros-beetle-on-maui/)

The coconut rhinoceros beetle (*Oryctes rhinoceros*), or CRB, is a large, horned scarab beetle native to Southeast Asia. An invasive pest where it occurs outside of its native range, the adult beetles primarily attack coconut palms by boring into the crowns to feed on developing leaves. It is also known to feed on bananas, sugarcane, pineapples, oil palms, and pandanus trees. The larval grub stage burrow into and feed upon decomposing mulch and vegetation. On most Pacific Islands it lacks natural predators, leading to severe declines and extirpations of palm species where it has become established. On Guam, researchers have recently documented a shift of CRB to the island's native and threatened cycad tree (*Cycas micronesica*) (Marler et al. 2020). In the Hawaiian Islands, CRB is a documented threat to archipelago's native *Pritchardia* palm species.

For more information about CRB including the current situation in Guam and high/low-risk areas on Oʻahu, please visit http://cnas-re.uog.edu/crb/ or https://www.crbhawaii.org/.

To reduce the risk of spreading CRB, the following biosecurity protocol is recommended:

Biosecurity Protocol for CRB used on Oʻahu (most can be applied to Maui)

1. Never transport green waste between islands and minimize the creation, storage, and transport of green waste within Oʻahu, this also includes:
    a. Mulch, bark, compost
    b. Soil of any kind
    c. Potted plants of any kind

    Additional consultation is recommended if the project involves transportation of materials, soil, equipment, vehicles, etc. between islands.
2. If felling or trimming palms, contact CRB Response for a free inspection ((808) 679-5244 or email at info@crbhawaii.org).
3. Keep green waste whole until it is ready to be treated and removed.
    a. Chip green waste on site and transport it on the same day to a secure and managed green waste disposal site/facility.
    b. For chipped green waste in high-risk areas, re-chip prior to movement outside the infested area, treat with pesticide (when applicable), heat treatment (>130 degrees F), spread and dry, or store in sealed durable containers.
4. Minimize accumulations of green waste by regularly treating mulch piles or depositing it in sealed green waste bins. In low-risk areas, we also recommend thinly spreading mulch (less than 2 inches deep) and allowing it to dry (no irrigation).
5. If injured or dying coconut palm trees are observed or if CRB are detected, contact CRB Response at (808) 679-5244 or email at info@crbhawaii.org or online at https://www.crbhawaii.org/report.

APPENDIX D – Avian Injury/Mortality Form

Avian Injury/Mortality Form

Report Date:

Species (common name):

Date Found:

Time Found:

Age:

Bands:

Found by:

Documented by:

GPS Coordinates:

Location Found (including closest structure & distance to structure):

Condition of Specimen (include a description of general condition, as well as any visible injuries):

Probable Cause of Injury or Mortality and Supportive Evidence (attach photos and map, next page):

Action Taken (include notifications, reporting dates and times):

Additional Comments: