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5. Selected Alternative

This chapter describes the ~~Preferred~~ Selected Alternative and summarizes the comparative evaluation of the Build Alternatives for the Honoapi'ilani Highway Improvements Project (the Project). Sections 5.1 and 5.2 restate the initial determination of the Preferred Alternative from the Draft Environmental Impact Statement (EIS) along with limited corrections and updated information which are noted with double underlined text.

Based on the continued evaluation of the Preferred Alternative since completion of the Draft EIS (including public comments, agency consultation, additional design development, completion of the Section 106 process for historic resources through an Executed Programmatic Agreement with the State Historic Preservation Officer, and completion of the Biological Opinion by the U.S. Fish and Wildlife Service) the Federal Highway Administration (FHWA) and Hawai'i Department of Transportation (HDOT) have selected the Preferred Alternative as the "Selected Alternative" for the Project which will be carried forward into the design build process.

Sections 5.3 and 5.4 of this Final EIS identify refinements to the Selected Alternative and additional assessment of reasonably foreseeable effects based on those refinements. Section 5.5 provides the comprehensive environmental commitments and mitigation for the Project.

5.1 PRELIMINARY IDENTIFICATION OF DRAFT EIS PREFERRED ALTERNATIVE

~~Based on environmental assessment of The Draft EIS evaluated~~ the four Build Alternatives and the No Build Alternative (FIGURE 5-1), and ~~in consideration of public and agency input during the scoping process and other consultation opportunities, the Hawai'i Department of Transportation (HDOT) and Federal Highway Administration (FHWA) have identified the Preferred Alternative as a combination of Build Alternative 2 in Olowalu and Build Alternative 1 in Ukumehame (FIGURE 5-2). In consideration of the environmental, social, and economic effects of the Project, this combination was determined in the Draft EIS to provide the best opportunity to meet the Project's purpose and need while minimizing potential adverse environmental effects.~~

5.1.1 Draft EIS Refinements to the Preferred Alternative

While the Preferred Alternative provides the best overall alignment, certain adverse effects were identified in ~~this the Draft Environmental Impact Statement (EIS). In identifying the Preferred Alternative, refinements have been were~~ developed to avoid and minimize these adverse effects. ~~The Preferred Alternative may require additional evaluation between this Draft EIS and the Final EIS. This evaluation would consider public and agency comments on this Draft EIS. Additionally, it would reflect a limited number of potential permanent BMP set asides and small areas of alignment refinements that are outside the study area of this Draft EIS. The Final EIS/ROD will report effects of the complete refined Preferred Alternative, inclusive of any design modifications between the Draft EIS and Final EIS.~~



In Olowalu, one section of the Preferred Alternative has been refined to avoid and minimize adverse effects to cultural resources. In Ukumehame, refinements to two sections of the alignment can avoid and minimize adverse effects on cultural and environmental resources, optimize constructability, and lower costs. ~~The final design and the design-build process may provide additional opportunities to further refine the Preferred Alternative to optimize constructability, lower costs, and minimize environmental effects.~~

5.1.1.1 Olowalu – Northern Connection to Existing Lāhainā Bypass

At the north end of Olowalu leading into Launiupoko, the Preferred Alternative alignment is based on the common alignment for all build alternatives and the connection point to the existing Lāhainā Bypass that was originally established would result in a disturbance and loss of an extensive complex of cultural resources. As summarized in Section 3.6, Archaeological and Architectural Historic Properties, this includes areas of traditional agriculture and settlement and other important ritual elements.

FIGURE 5-3 shows the Draft EIS ~~new~~ alignment makai of the originally established right-of-way and the application of a narrow right-of-way configuration. Figure 2-3 in Chapter 2, Alternatives, shows the typical section for this two or four-lane narrow section to minimize or avoid adverse effects.

By remaining outside the Sea Level Rise Exposure Area (SLR-XA) in an area without other potentially environmentally sensitive features, this refined alignment would not ~~be anticipated to~~ result in new or different adverse effects compared to the Build Alternatives already analyzed in ~~this~~ the Draft EIS.



FIGURE 5-1. **Draft EIS Build Alternatives**

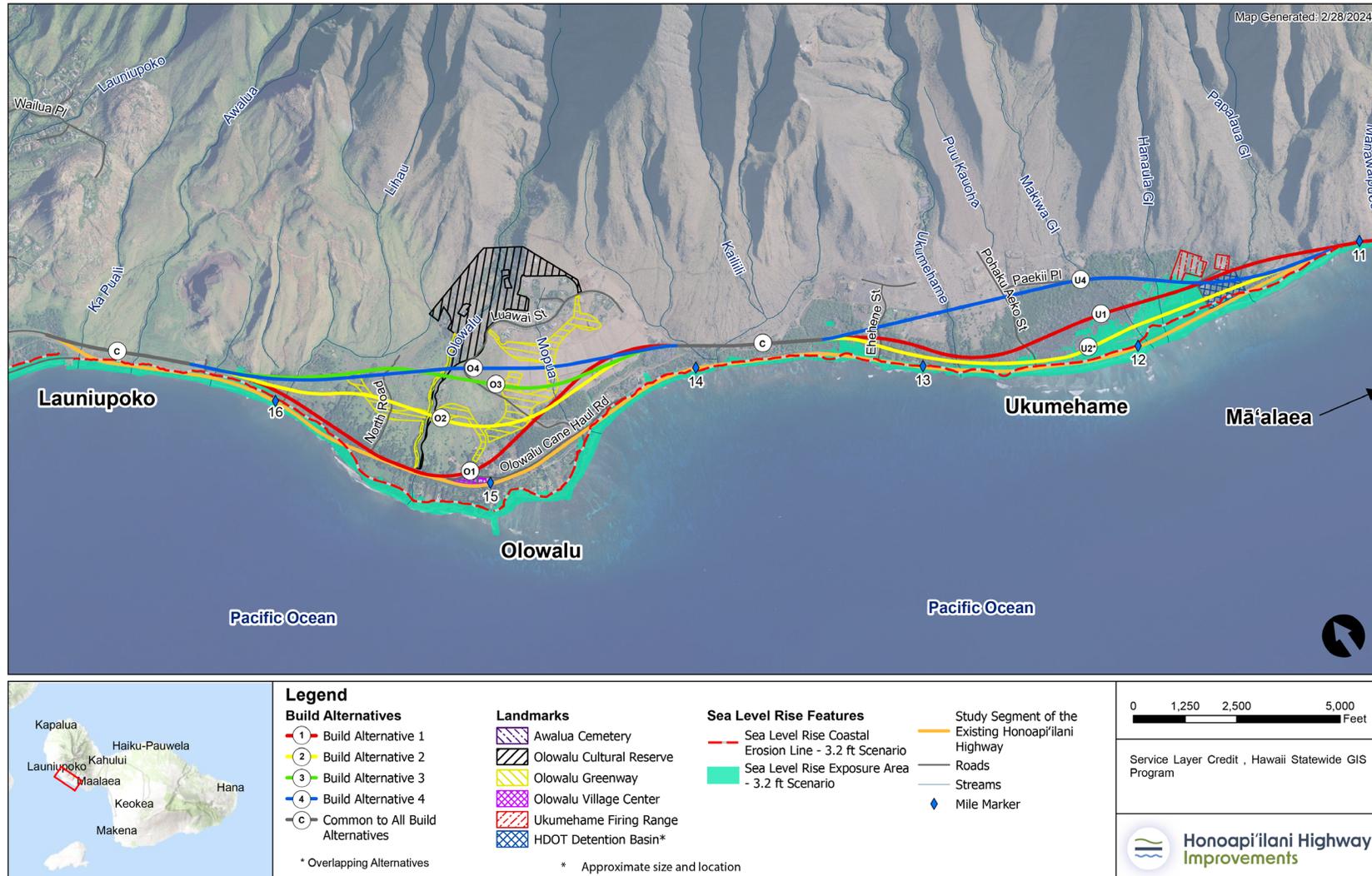




FIGURE 5-2. **Draft EIS Preferred Alternative**

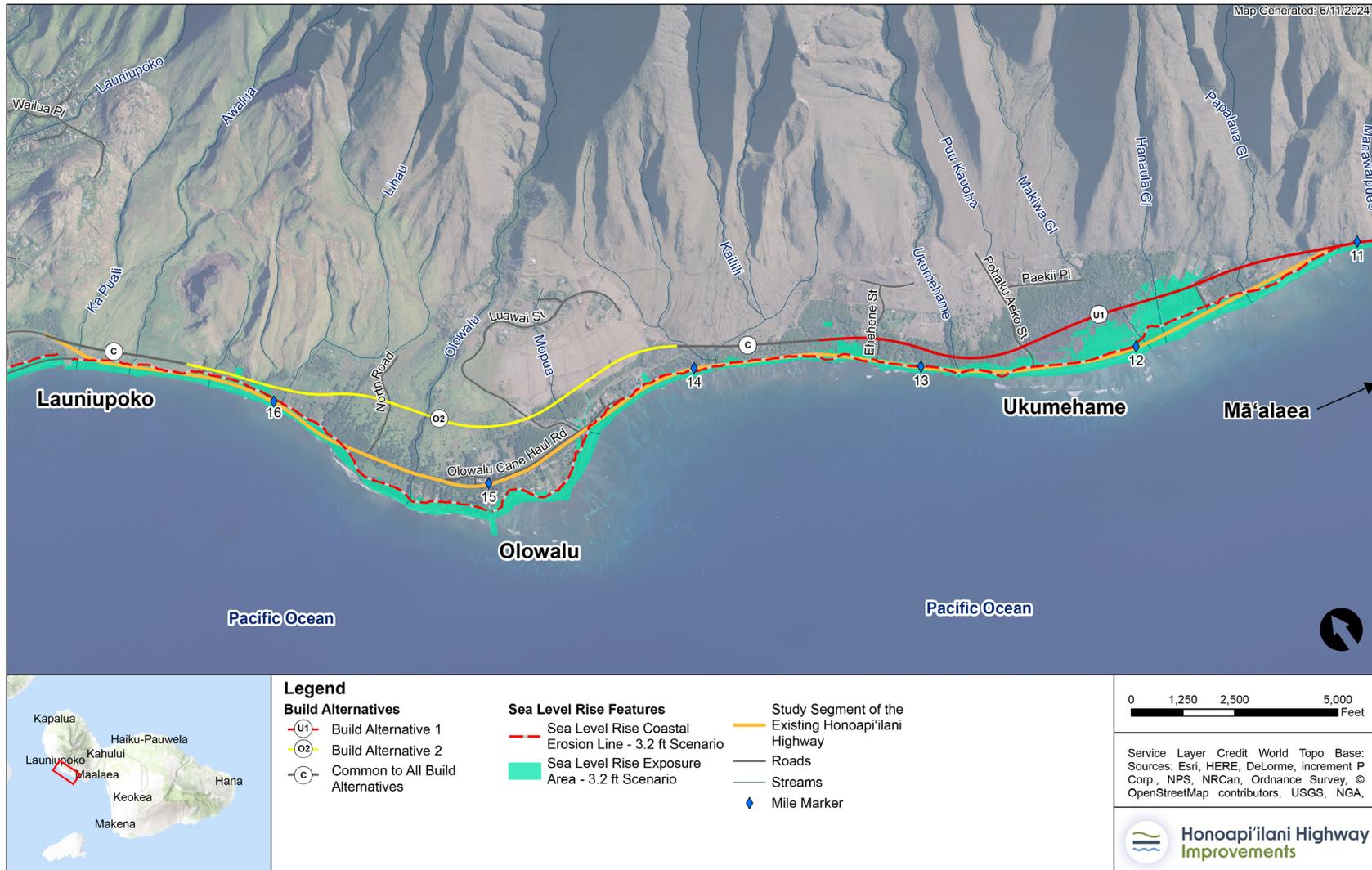




FIGURE 5-3. Olowalu – Draft EIS Refinement at Northern Connection to Existing Lāhainā Bypass

(a) Original Alignment



(b) Refined Alignment





5.1.1.2 Ukumehame–Northern Connection to Olowalu

In the northernmost section of Ukumehame where the Preferred Alternative (and common to all the Build Alternatives) crosses into Olowalu, Draft EIS analyses have determined that the originally established alignment would disturb and eliminate an extensive complex of cultural resources. This includes areas of traditional agriculture and settlement as well as one or more heiau and other important ritual elements.

FIGURE 5-4 shows the Draft EIS Preferred Alternative refinement, which would bring the roadway alignment more makai and would use a narrow configuration to minimize the required area of disturbance (~~FIGURE 2-3~~) while still allowing a potential future four-lane configuration. While closer to the shoreline, the new alignment would still be mauka of the SLR-XA (only touching one small corner of the modeled inundation area) and does not cross into or impact environmentally sensitive resources.

Therefore, the change in alignment would meet the purpose, need, and secondary objectives for the Project and ~~would are~~ not be anticipated to result in new or different adverse effects compared to the Build Alternatives already analyzed in this Draft EIS. ~~The refined Preferred Alternative will continue to be assessed through the development of the Final EIS as well as the Section 106 Programmatic Agreement. This agreement will govern Section 106 compliance for the Project after National Environmental Policy Act (NEPA) analysis and into final design, including identification of archaeological historic properties within the limits of disturbance for the complete Preferred Alternative.~~

5.1.1.3 Ukumehame–Pali Connection through Ukumehame Firing Range

As originally established in the Draft EIS, Build Alternative 1 would have the most mauka alignment at the southern end of the project area. This alternative was intended to minimize intrusion to the SLR-XA and remain mostly mauka of the existing HDOT detention basin. But it also resulted in the following adverse environmental effects and overall constructability concerns:

- The alignment would directly affect a large cultural resource area identified and defined through field investigations and research conducted by the Draft EIS archaeology team (Section 3.6, Archaeological and Architectural Historic Properties).
- In addition to the direct alignment of the highway right-of-way, roadway construction in this area would require extensive grading and rock stabilization that would adversely affect even more of the archaeological resource and create a larger area of overall disturbance while still requiring measures to prevent future shoreline erosion to the highway due to the presence of erodible soils in this area.
- The alignment also led to a preliminary conceptual design with 3,100 to 3,700 linear feet of elevated viaduct north of the Pali connection. This includes the necessary elevation to cross over the mauka area of the HDOT detention basin, then to cross over the parking lot and active use areas of Ukumehame Firing Range, and then remain elevated above low-lying areas of the firing range within the SLR-XA.



- Originally designed to meet the Project's objective of providing right-of-way that is suitable for four lanes of traffic, the conceptual alignment required two parallel viaduct structures that add substantially to the overall cost of the Project.

FIGURE 5-4. Ukumehame – Draft EIS Refinement at Northern Connection to Olowalu

(a) Original Alignment



(b) Refined Alignment





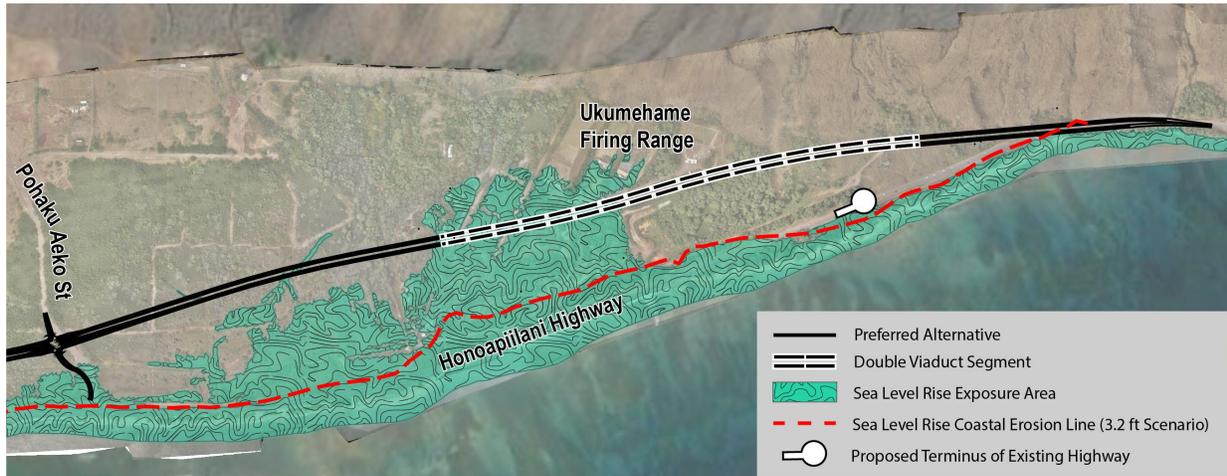
FIGURE 5-5 shows the Draft EIS refinements to the Preferred Alternative, which include the following features:

- By creating a new and more makai alignment, the refinement avoids most of the sensitive archaeological resources and would have a less of direct overlap with parking lot areas of the firing range. Common to all alternatives, shoreline erosion mitigation measures such as cutoff walls constructed under the existing highway makai shoulder are anticipated to address erodible soil conditions that exist along the highway and under the existing highway. This design commitment would avoid encroachment on existing beaches and would be intended to address potential future shoreline erosion.
- The refinement would use a two-lane viaduct alignment from the southern Pali connection through to the north side of the firing range using a single structure viaduct. With no driveways or intersections, the extension of two lanes farther north into the project area would not adversely affect future operating conditions.
- A single viaduct structure carrying the new highway across the HDOT detention basin and the firing range would minimize potential adverse effects on the detention basin's capacity or operation because the viaduct would permit maintenance vehicles to work within the detention basin. Additionally, the viaduct would allow for the continued use of the firing range driveway from the existing highway, which would pass underneath the viaduct structure (see Chapter 2, Alternatives, for a description and typical section of a viaduct structure).
- The viaduct structure would be designed for a height that would allow for observed, Endangered Species Act listed bird species to safely traverse wetland habitat underneath rather than potentially fly over and on to the proposed highway, reducing the potential for car strikes. Additionally, guardrails on either side of the viaduct structure would deter birds from crossing further reducing the potential for car strikes.
- Within the HDOT detention basin, the refinement would cross over the Papalaua Gulch and other water features on the viaduct structure, minimizing adverse effects to wetlands and waters (Section 3.9, Water Resources, Wetlands, and Floodplains, provides descriptions of wetlands and waters).
- A preliminary evaluation of the potential for using an at-grade embankment for the Preferred Alternative indicated that it would be less effective at meeting the Project's overall purpose and need and would result in substantially greater environmental effects (Chapter 2, Alternatives, and Appendix 5.1).
- Like the originally proposed Alternative 1, accessing the firing range and public beaches would be from the new highway's intersections with existing cross streets in Ukumehame (Pōhaku 'Aeko and Ehehene Streets).

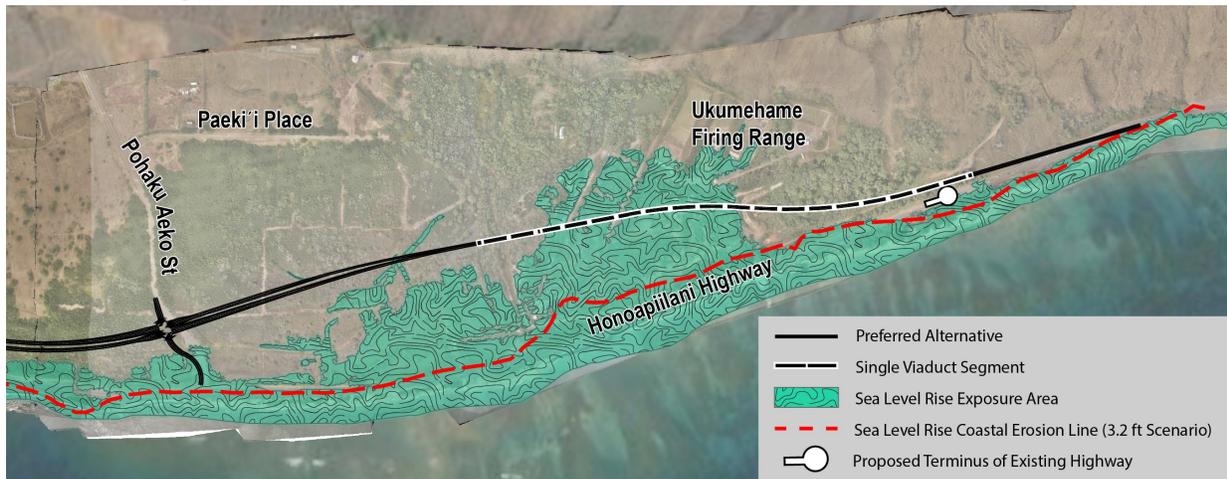


FIGURE 5-5. Ukumehame – Draft EIS Refinement at Pali Connection through Ukumehame Firing Range

(a) Original Alignment



(b) Refined Alignment





5.1.2 Preliminary Cost Estimate for the Preferred Alternative

TABLE 5-1 summarizes the preliminary construction cost estimate for the Preferred Alternative. This includes the alternative refinements described above, including the use of a two-lane extension of the highway from its connection at the southernmost end at the Pali to just north of the Ukumehame Firing Range. As a result of these refinements, the total preliminary construction costs are slightly more than those presented in Chapter 2, Alternatives, where the sum of the Olowalu and Ukumehame preferred segments is approximately \$158.8 million.

TABLE 5-1. Preliminary Cost Estimate for the Preferred Alternative

SEGMENT	PREFERRED ALTERNATIVE (MILLIONS)
Olowalu	\$71.1
Ukumehame	\$89.7
Total	\$160.8

5.2 DRAFT EIS EVALUATION SUPPORTING SELECTION OF PREFERRED ALTERNATIVE

The four Build Alternatives analyzed in this the Draft EIS were included because they met the threshold criteria of supporting the overall purpose, need, and secondary objectives of the Project (see Chapter 1, Introduction, Purpose and Need) and are therefore largely consistent with related government plans and policies. Other than the common alignment areas noted in the impact assessment, the Build Alternatives have a range of environmental effects that have been compared and evaluated in order to determine a Preferred Alternative for the Olowalu and Ukumehame segments of the project area.

5.2.1 Olowalu

Across the technical assessments presented in this the Draft EIS, TABLE 5-2 provides a visual comparison of the four Build Alternatives and indicates how refinements to the Preferred Alternative change the effects outcome. Further, TABLE 5-3 provides a summary of the findings of the impact assessment. Overall, Build Alternative 2 was found to be the Preferred Alternative in Olowalu based on this evaluation.

Notable considerations include the following:

- Build Alternative 2 meets the purpose and need because it provides for a new highway alignment that is almost entirely out of the 3.2-foot SLR-XA and is consistent with regional land use and transportation plans while minimizing environmental effects compared with the other Build Alternatives.
- Build Alternative 2 is the most compatible with overall existing land use and development patterns. For current residences that are located near the existing highway, there would be a reduction in traffic volumes. The alignment of Build Alternative 2 does not come as close to mauka residences,



as is the case with houses along the existing highway. Build Alternative 2 would result in less disruption to the existing Olowalu village center (compared to Build Alternative 1) and does not affect properties with an existing residence (compared to Build Alternatives 3 and 4).

- The land acquisition requirements, including the potential reallocation of easement area and realignment of the multiuse path, ~~would be~~ were refined for the Preferred Alternative as part of the Final EIS. (~~Section 3.4, Land Acquisition, Displacement, and Relocation~~).
- As analyzed in Section 3.8, Visual and Scenic Character, Build Alternative 2 would be the most visually compatible alternative for the Project considering the following: Build Alternative 1 is close to Olowalu village center, overlaps the existing right-of-way, and would result in the loss of a portion of the iconic monkeypod tree canopy; while Build Alternatives 3 and 4 are close to the Olowalu Petroglyphs and to mauka residences. Build Alternatives 2, 3, and 4 all require rerouting the private multiuse path.
- Like all the Build Alternatives, Build Alternative 2 would provide a reliable transportation link that can accommodate future traffic demands. ~~But~~ Build Alternative 2 would not create disruptions to traffic circulation in Olowalu village center (as Build Alternative 1 would) and would have no adverse effects on air quality or noise levels (compared with Build Alternative 4, which would result in an adverse noise effect at the site of the Olowalu Petroglyphs). Further, Build Alternative 2 provides the optimum level of potential fire-break compared to the other Build Alternatives.



TABLE 5-2. **Draft EIS Evaluation of No Build Alternative and Build Alternatives in Olowalu**

TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4	PREFERRED ALTERNATIVE
Preliminary Construction Cost Estimates	●	●	●	●	●	●
Land Use and Zoning	●	●	●	●	●	●
Agriculture and Farmlands	●	●	●	●	●	●
Community Services	●	●	●	●	●	●
Land Acquisition, Displacement, and Relocation	●	●	●	●	●	●
Parklands and Recreational Resources	●	●	●	●	●	●
Archaeological and Architectural Historic Properties	●	●	●	●	●	●
Cultural Resources	●	●	●	●	●	●
Visual and Scenic Character	●	●	●	●	●	●
Water Resources, Wetlands, and Floodplains	○	●	●	●	●	●
Flora and Fauna, Endangered Species	●	●	●	●	●	●
Geology, Soils, and Natural Hazards	●	●	●	●	●	●
Coastal Zone Management/Hawai'i Special Management Areas	○	●	●	●	●	●
Climate Change and Sea Level Rise	○	●	●	●	●	●
Transportation	○	●	●	●	●	●
Air Quality and Energy	●	●	●	●	●	●
Noise	●	●	●	●	●	●
Infrastructure and Utilities	●	●	●	●	●	●
Hazardous Materials	●	●	●	●	●	●
Environmental Justice/ <u>Socioeconomic Conditions</u>	●	●	●	●	●	●
OLOWALU OVERALL ASSESSMENT	●	●	●	●	●	●

○ = Worst; ● = Poor; ● = Neutral; ● = Good; ● = Best



TABLE 5-3. **Draft EIS Summary of Effects Assessment in Olowalu**

TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2 (PREFERRED)	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
Preliminary Construction Costs	Ongoing maintenance and repair would continue to require funding and would disrupt Honoapi'ilani Highway traffic conditions.	Approximately \$63.8 million.	Approximately \$68.2 million.	Approximately \$62.9 million.	Approximately \$64.0 million.
Land Use and Zoning	<ul style="list-style-type: none"> No changes to land use, development patterns, or zoning. No displacement of residences, commercial establishments, or agricultural uses. 	<ul style="list-style-type: none"> Converts land to highway use but no overall changes to land uses, development patterns, or zoning. No displacement of residences, but could affect access to or take a portion of Maui Paintball, Living Earth Systems farm, and the Mauna Kahālāwai Watershed Partnership Storage Yard. 	<ul style="list-style-type: none"> Converts land to highway use but no overall changes to land uses, development patterns, or zoning. No displacement of residences or business, but could affect access to Maui Paintball and could take a portion of the Living Earth Systems farm. Crosses greenway easements on five lots and could require relocation or elimination of portions of the private multiuse path. 	<ul style="list-style-type: none"> Similar to Build Alternative 2 regarding Maui Paintball and Living Earth Systems farm. One residential lot requires right-of-way acquisition that may displace a residence. Alignment closer to Olowalu Petroglyphs and mauka residences. Crosses greenway easement on one lot and could require relocation or elimination of portions of the private multiuse path. 	<ul style="list-style-type: none"> Similar to Build Alternative 3 overall Alignment is closest to Olowalu Petroglyphs and mauka residences. Crosses greenway easement on one lot, and could require relocation or elimination of portions of the private multiuse path
Agriculture and Farmlands	No changes to agricultural designations or uses.	<ul style="list-style-type: none"> No changes to agricultural designations. Does not trigger Agricultural Lands of Importance to the State of Hawai'i or Farmland Protection Policy Act analysis. A makai portion of the two land parcels encompassing the Living Earth Systems farm as well as smaller leased farm lots would be acquired. For the frontage lots that are not part of the Living Earth Systems farm, this could require mitigation to ensure continued access as well as relocation in conformance with the Uniform Relocation Act. 	<ul style="list-style-type: none"> No changes to agricultural designations. Similar to Build Alternative 1 in terms of crossing the land parcel with active farming, but with more mauka alignment towards the center of the parcel compared to Build Alternative 1. This would also potentially require mitigation to ensure continued access as well as relocation in conformance with the Uniform Relocation Act. 	Similar to Build Alternative 2 but farther towards the mauka portion of the parcel with active farmland, which would more directly affect the Living Earth Systems farm.	Similar to Build Alternative 2 but farther towards the mauka portion of the parcel with active farmland, which would more directly affect the Living Earth Systems farm.
Community Services	<ul style="list-style-type: none"> No community services in project area. As road deteriorates and becomes less reliable into the future, could adversely affect use of corridor to access services. 	<ul style="list-style-type: none"> No community services in project area. More resilient transportation corridor to help ensure continued access to services. 	Same as Build Alternative 1.	Same as Build Alternative 1.	Same as Build Alternative 1.



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2 (PREFERRED)	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
Land Acquisition, Displacement, and Relocation	No additional land acquisition required.	<ul style="list-style-type: none"> May affect up to 15 private parcels primarily comprised of undeveloped parcels within the Olowalu subdivision, but including two parcels with active agricultural uses as noted above and one parcel with a commercial business (Maui Paintball). Mitigation may be required to ensure access to these businesses and could require relocation in conformance with the Uniform Relocation Act. Requires land agreements with County of Maui and State of Hawai'i on 4 parcels. Affects 3 Land Commission Award/ Kuleana parcels. 	<ul style="list-style-type: none"> May affect up to 15 private parcels primarily comprised of undeveloped parcels within the Olowalu subdivision, but including two parcels with active agricultural uses as noted above and one parcel with a commercial business (Maui Paintball). Mitigation may be required to ensure access to these businesses and could require relocation in conformance with the Uniform Relocation Act. Requires land agreements with County of Maui and State of Hawai'i on 3 parcels. Affects 5 Land Commission Award/ Kuleana parcels. 	<ul style="list-style-type: none"> May affect up to 15 private parcels primarily comprised of undeveloped parcels within the Olowalu subdivision, but including the two parcels with active agricultural uses as noted above as well as the one parcel with an existing residence. Mitigation may be required to protect existing residence or could require relocation in conformance with the Uniform Relocation Act. For the farm and commercial businesses, mitigation may be required to ensure access to these businesses and could require relocation in conformance with the Uniform Relocation Act Requires land agreements with County of Maui and State of Hawai'i on 3 parcels. Affects 8 Land Commission Award/ Kuleana parcels. 	<ul style="list-style-type: none"> May affect up to 16 private parcels primarily comprised of undeveloped parcels within the Olowalu subdivision, but including the two parcels with active agricultural uses as noted above as well as the one parcel with an existing residence. Mitigation may be required to protect existing residence or could require relocation in conformance with the Uniform Relocation Act. For the farm and commercial businesses, mitigation may be required to ensure access to these businesses and could require relocation in conformance with the Uniform Relocation Act Requires land agreements with County of Maui and State of Hawai'i on 3 parcels. Affects 5 Land Commission Award/ Kuleana parcels.
Parklands and Recreational Resources/Beach Access	<ul style="list-style-type: none"> No changes to parklands or access. Road disruptions and closures could affect beach access. 	<ul style="list-style-type: none"> All existing parks and public shoreline remain accessible via the existing highway. Access to Awalua and Ka'ili'ili beaches would be potentially limited with no through local road. 	All existing parks and public shoreline remain accessible via the existing highway.	Same as Build Alternative 2.	Same as Build Alternative 2.
Archaeological and Architectural Historic Properties	No changes that would have direct or indirect adverse effects in the Area of Potential Effects. <u>Based on archeological study, expanded Olowalu Historic District was found to be an eligible resource.</u>	<ul style="list-style-type: none"> Programmatic Agreement would define additional investigations and mitigation commitments. Common alignment elements disturb archaeological resources at the Launiupoko connection with the Lāhainā Bypass. <u>Passes through and has potential adverse effect to historic district</u> 	Same as Build Alternative 1. <ul style="list-style-type: none"> <u>Programmatic Agreement would define additional investigations and mitigation commitments.</u> <u>Common alignment elements disturb archaeological resources at the Launiupoko connection with the Lāhainā Bypass.</u> <u>Passes through and has no adverse effect to historic district</u> 	<ul style="list-style-type: none"> Same as Build Alternative 1 <u>in terms of Programmatic Agreement and common alignment elements.</u> <u>Does not pass through historic district</u> 	Same as Build Alternative 1, except located closest to Olowalu Petroglyphs with adverse effects on visual character and noise levels. <ul style="list-style-type: none"> <u>Same as Build Alternative 1 in terms of Programmatic Agreement and common alignment elements</u> <u>Located closest to Olowalu Petroglyphs with adverse effects on visual character and noise levels.</u> <u>Does not pass through historic district</u>
Cultural Resources	No changes that would have direct or indirect adverse effects to resources or practices.	Limited effects on cultural resources and practices based on alignment and environmental design best practices.	Same as Build Alternative 1.	Similar to Build Alternative 1 but closer to Olowalu Petroglyphs	Similar to Build Alternative 1 but closest to Olowalu Petroglyphs.
Visual and Scenic Character	No direct changes. Continued deterioration of existing highway based on storm and sea level rise, and its effects in terms of hardening and other temporary construction would likely deteriorate visual character.	<ul style="list-style-type: none"> Overall Visual Impact Assessment of critical viewpoints show marginal improvements to viewers compared to the No Build Alternative. Partial loss of monkeypod tree canopy detracts from visual character. 	<ul style="list-style-type: none"> No impact to the visual character of the monkeypod tree canopy. Potentially visible to subdivision residents; however, the alignment would be largely screened from the Olowalu Petroglyphs. 	Changes viewer perspectives based on roadway location and elevation, raising the visual awareness for mauka residences and cultural viewers at Olowalu Petroglyphs.	Same as Build Alternative 3, except closer and more visually disruptive at Olowalu Petroglyphs.



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2 (PREFERRED)	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
Water Resources, Wetlands, and Floodplains	<ul style="list-style-type: none"> No changes to current conditions on water resources, wetlands, or floodplains <u>and the existing roadway would continue to be within the low-lying areas with floodplain exposure.</u> No Build Alternative has no established stormwater management infrastructure <u>and is comparatively worse for overall water quality than the Build Alternatives.</u> <u>Maintaining current highway as a regional arterial would require continued repairs and coastal hardening of entire corridor.</u> 	<ul style="list-style-type: none"> Crosses the most flood hazard areas, and approximately 0.72 acre of wetlands and other waters. Closest to the Pacific Ocean connections of the Lihau and Olowalu Streams. Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands. 	<ul style="list-style-type: none"> Crosses over the flood hazard zone along the Olowalu Stream and near the mouth of the Mōpua Stream. Crosses approximately 0.53 acre of wetlands and other waters and overlaps the least with the Mōpua Stream. Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands. 	<ul style="list-style-type: none"> Crosses over the flood hazard zone along the Olowalu Stream and approximately 0.54 acre of wetlands and other waters. Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands. 	<ul style="list-style-type: none"> Crosses over the flood hazard zone along the Olowalu Stream and approximately 0.61 acre of wetlands and other waters. Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands.
Flora and Fauna, Endangered Species	No changes to current conditions and effects to flora and fauna, or endangered species.	<ul style="list-style-type: none"> Partial loss of monkeypod tree canopy; would have adverse effect per their status as “exceptional trees.” No adverse effects anticipated with best management practices and recommended conservation measures. 	Same as Build Alternative 1, except no loss of monkeypod tree canopy.	Same as Build Alternative 2.	Same as Build Alternative 2.
Geology, Soils, and Natural Hazards	<ul style="list-style-type: none"> No changes to geology or soils. No potential to serve as a wildfire break. Not compliant with current seismic standards. 89% within tsunami evacuation zone. Increased susceptibility to hurricane and tropical storms. 	<ul style="list-style-type: none"> No geologic or soil constraints. Firebreak benefit by alignment through hot spot. Compliant with current seismic standards. 53% within tsunami evacuation zone. Decreased susceptibility to hurricanes and tropical storms. Similar susceptibility to volcanic hazards. 	Similar to Build Alternative 1, except: 52% within tsunami evacuation zone; most mauka alignment still within mapped wildfire hotspot.	Similar to Build Alternative 1, except: 37% within tsunami evacuation zone; reduced fire break value as alignment is not in mapped hot spot.	Similar to Build Alternative 1, except: 35% within tsunami evacuation zone; reduced fire break value as alignment is not in mapped hot spot.
Coastal Zone Management and Hawai'i Special Management Areas	<ul style="list-style-type: none"> Inconsistent with Coastal Zone Management policies. Within Special Management Areas, currently adversely affecting coastal processes. 	<ul style="list-style-type: none"> Generally consistent with Coastal Zone Management policies with less consistency regarding scenic and open space resources (due to the limited access to Awalua and Ka'ilili beaches) compared with the other Build Alternatives. Potential for a small area of the alignment to fall within Special Management Areas near Launiupoko. 	<ul style="list-style-type: none"> Generally consistent with Coastal Zone Management policies. With the exception of an area within the vicinity of the Olowalu Recycling and Refuse Convenience Center, the alignment would be outside of the Special Management Areas. 	Same as Build Alternative 2.	Same as Build Alternative 2.



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2 (PREFERRED)	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
Climate Change and Sea Level Rise (SLR)	<ul style="list-style-type: none"> 38% makai of the coastal erosion line. 29% within annual high-wave flooding area. 5% within annual passive flooding area. 5% within 6-foot SLR scenario (High Confidence). 9% within 6-foot SLR scenario (Low Confidence). 51% within overall SLR-XA. 	<ul style="list-style-type: none"> 0% makai of the coastal erosion line. 3% within annual high-wave flooding area. 0% within annual passive flooding area. 0% within 6-foot SLR scenario (High Confidence). 1% within 6-foot SLR scenario (Low Confidence). 3% within overall SLR-XA. 	<ul style="list-style-type: none"> 0% makai of the coastal erosion line. 2% within annual high-wave flooding area. 0% within annual passive flooding area. 0% within 6-foot SLR scenario (High Confidence). 1% within 6-foot SLR scenario (Low Confidence). 2% within overall SLR-XA. 	<ul style="list-style-type: none"> 0% makai of the coastal erosion line. 1% within annual high-wave flooding area. 0% within annual passive flooding area. 0% within 6-foot SLR scenario (High Confidence). 1% within 6-foot SLR scenario (Low Confidence). 1% within overall SLR-XA. 	<ul style="list-style-type: none"> 0% makai of the coastal erosion line. 1% within annual high-wave flooding area. 0% within annual passive flooding area. 0% within 6-foot SLR scenario. 1% within 6-foot SLR scenario (Low Confidence). 1% within overall SLR-XA.
Transportation	<ul style="list-style-type: none"> No change to current highway configuration. Access to existing businesses solely reliant on Honoapi'ilani Highway. No improvements to highway safety. No improvements to level of service or delays. Limited to two-lane highway, least able to provide a reliable evacuation route. 	<ul style="list-style-type: none"> Improved regional reliability. Maintains access to existing businesses. Improves highway safety. Improves level of service and delays over the No Build Alternative. Potentially disrupts continuous use of old highway. Ready for four-lane configuration to accommodate future demand. 	Same as Build Alternative 1 except no disruption to use of old highway.	Same as Build Alternative 2.	Same as Build Alternative 2.
Air Quality and Energy	No changes in air quality <u>or energy</u> .	No adverse effects to air quality and energy.	Same as Build Alternative 1.	Same as Build Alternative 1.	Same as Build Alternative 1.
Noise	No change in noise levels other than background growth in traffic.	No adverse effects to noise levels.	No adverse effects to noise levels.	No adverse effects to noise levels.	One adverse effect due to a 15 <u>A-weighted decibels</u> (dBA) increase at the Olowalu Petroglyphs.
Infrastructure and Utilities	No changes to existing infrastructure and utilities present in the project area.	<ul style="list-style-type: none"> No adverse effect to infrastructure and utilities; however, the Olowalu Recycling and Refuse Convenience Center would require relocation. Water mains in Olowalu where the alignment overlaps with the existing highway may require relocation. No anticipated relocation of utilities to new alignment, but future utility use of right-of-way could be coordinated with HDOT and utilities. 	Similar to Build Alternative 1, except no potential water main relocation in Olowalu village.	Same as Build Alternative 2.	Same as Build Alternative 2.
Hazardous Materials	<ul style="list-style-type: none"> No change or adverse effect to hazardous materials. Temporary use of former landfill expected to be closed prior to start of construction. 	<ul style="list-style-type: none"> No adverse effect to hazardous materials. Alignment would have the potential to disturb potentially contaminated materials at the Mauna Kahālāwai Watershed Partnership Storage Yard. 	<ul style="list-style-type: none"> No adverse effect to hazardous materials. Temporary use of former landfill expected to be closed prior to start of construction. 	Same as Build Alternative 2.	Same as Build Alternative 2.



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2 (PREFERRED)	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
Environmental Justice and Socioeconomic Conditions	Less reliable transportation infrastructure could limit workforce mobility, adversely affecting both environmental justice and general populations.	<ul style="list-style-type: none"> No disproportionate high and adverse effects. Benefit to regional environmental justice population through improvement and more resilient regional mobility. May result in disruption or displacement of Maui Paintball and Living Earth Systems farm, which may be environmental-justice owned. 	Same as Build Alternative 1.	Same as Build Alternative 1.	Same as Build Alternative 1.
Indirect Effects	Reduced reliability could indirectly contribute to adverse regional effects by disrupting workforce mobility, goods and services, and tourist mobility.	No indirect effects.	Same as Build Alternative 1.	Same as Build Alternative 1.	Same as Build Alternative 1.
Cumulative Effects	Disruption from reduced reliability and increased congestion could be worsened by cumulative effects from outside project area.	No cumulative effects.	Same as Build Alternative 1.	Same as Build Alternative 1.	Same as Build Alternative 1.



5.2.2 Ukumehame

Across the technical assessments presented in ~~this~~ the Draft EIS, **TABLE 5-4** provides a visual comparison of the four Build Alternatives and indicates how refinements to the Preferred Alternative change certain outcomes. Further, **TABLE 5-5** provides a summary of the findings of the impact assessment. Overall, Build Alternative 1 was found to be the Preferred Alternative in Ukumehame based on this evaluation (particularly in consideration of the refinements to the alignment presented in this chapter).

Notable considerations include the following:

- Build Alternative 1 meets the purpose and need because it provides for a new highway alignment that is mostly out of the 3.2-foot SLR-XA and is consistent with regional land use and transportation plans while minimizing environmental effects compared with the other Build Alternatives. In comparison, Build Alternatives 2 and 3 (which have the same alignment in Ukumehame) have a greater area of the right-of-way within the SLR-XA with fewer design options to avoid adverse effects. While Build Alternative 4 has slightly more ability to avoid the SLR-XA, it results in substantially more adverse effects on land use, property acquisition, and visual quality.
- Build Alternative 1 is largely on public property and therefore avoids the acquisition of private property (compared with Build Alternative 4). Public policy supports the use of the County land the right-of-way traverses as both appropriate for the relocated highway as well as to secure public open space makai of the revised highway alignment.

The refinements proposed as part of the Preferred Alternative provided for opportunities to avoid adverse cultural resources effects in the northern connection point with Olowalu as well as in the Pali at the southern connection point. Cultural resources will continue to be were further assessed for the refined Preferred Selected Alternative through the development of the Final EIS (see Sections 5.3 and 5.4) as well as the Section 106 Programmatic Agreement, which governs Section 106 compliance for the Project after NEPA environmental review and into final design through the design build process.



TABLE 5-4. **Draft EIS Evaluation of the No Build Alternative and the Build Alternatives in Ukumehame**

TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4	PREFERRED ALTERNATIVE
Preliminary Construction Cost Estimates	●	●	●	●	●
Land Use and Zoning	●	●	●	●	●
Agriculture and Farmlands	●	●	●	●	●
Community Services	●	●	●	●	●
Land Acquisition, Displacement, and Relocation	●	●	●	○	●
Parklands and Recreational Resources	●	●	●	●	●
Archaeological and Architectural Historic Properties	●	●	●	●	●
Cultural Resources	●	●	●	●	●
Visual and Scenic Character	●	●	●	●	●
Water Resources, Wetlands, and Floodplains	●	●	○	●	●
Flora and Fauna, Endangered Species	●	●	●	●	●
Geology, Soils, and Natural Hazards	●	●	●	●	●
Coastal Zone Management/Hawai'i Special Management Areas	○	●	●	●	●
Climate Change and Sea Level Rise	○	●	●	●	●
Transportation	○	●	●	●	●
Air Quality and Energy	●	●	●	●	●
Noise	●	●	●	●	●
Infrastructure and Utilities	●	●	●	●	●
Hazardous Materials	●	●	●	●	●
Environmental Justice/ <u>Socioeconomic Conditions</u>	●	●	●	●	●
UKUMEHAME OVERALL ASSESSMENT	●	●	●	●	●

○ = Worst; ● = Poor; ● = Neutral; ● = Good; ● = Best



TABLE 5-5. **Draft EIS Summary of Effects Assessment in Ukumehame**

TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1 (PREFERRED)	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4
Preliminary Construction Costs	Ongoing maintenance and repair would continue to disrupt to Honoapi'ilani Highway traffic conditions.	\$90.6 million	\$91.3 million	\$88.2 million
Land Use and Zoning	No changes to land use or zoning.	<ul style="list-style-type: none"> Converts land to highway use but no overall changes to land uses, development patterns, or zoning. Potential acquisition/relocation of one residence. No displacement of businesses. 	Same as Build Alternative 1.	<ul style="list-style-type: none"> No residential displacement but could displace two active sod farms. Would eliminate development potential of several undeveloped lots in Ukumehame Subdivision. Could eliminate much of Paeki'i Place, requiring new access to two existing homes.
Agriculture and Farmlands	No changes to agricultural designations or uses.	<ul style="list-style-type: none"> No changes to agricultural designations or displacement of agricultural uses. Does not trigger Agricultural Lands of Importance to the State of Hawai'i or Farmland Protection Policy Act analysis. 	Same as Build Alternative 1.	<ul style="list-style-type: none"> Alignment would partially or fully displace two active sod farm uses. Similar to Build Alternative 1, does not trigger Agricultural Lands of Importance to the State of Hawai'i or Farmland Protection Policy Act analysis.
Community Services	<ul style="list-style-type: none"> No community services in project area. As road deteriorates and becomes less reliable into the future, could adversely affect use of corridor to access services. 	<ul style="list-style-type: none"> No community services in project area. More resilient transportation corridor would help ensure continued access to services. 	Same as Build Alternative 1.	Same as Build Alternative 1.
Land Acquisition, Displacement, and Relocation	No additional land acquisition required.	<ul style="list-style-type: none"> May affect up to three private parcels, all of which are undeveloped parcels of the Ukumehame subdivision. Requires land agreements with County of Maui and State of Hawai'i on 14 parcels. Affects five Land Commission Award/Kuleana parcels. One residence located on Kuleana and County land may require mitigation to ensure access and could require relocation in conformance with the Uniform Relocation Act. 	<ul style="list-style-type: none"> May affect up to one private parcel, which is an undeveloped parcel of the Ukumehame subdivision. Would require land agreements with County of Maui and State of Hawai'i on 16 parcels. Affects six Land Commission Award/Kuleana parcels. One residence located on Kuleana and County land may require mitigation to ensure access and could require relocation in conformance with the Uniform Relocation Act. 	<ul style="list-style-type: none"> May affect up to 20 private parcels, which are primarily undeveloped parcels in the Ukumehame subdivision, except for two parcels that are active use agricultural uses (Maui Sod and Ukumehame Sod). This could require mitigation to ensure access to all of the private parcels and for the active agricultural uses could require relocation in conformance with the Uniform Relocation Act. Would require land agreements with County of Maui and State of Hawai'i on 12 parcels. Affects seven Land Commission Award/Kuleana parcels.
Parklands and Recreational Resources/Beach Access	<ul style="list-style-type: none"> No changes to parklands or access. Road disruptions and closures could affect beach access. 	<ul style="list-style-type: none"> Existing parks and public shoreline would remain accessible via the existing highway. <u>The existing highway's use into the future will be assessed by The Nature Conservancy.</u> Access to the Ukumehame and Pāpalaua Wayside Park beaches and Ukumehame Firing Range would be through the new highway's intersections with Pōhaku 'Aeko or Ehehene Streets and along the existing highway with a viaduct crossing over the firing range driveway. 	<ul style="list-style-type: none"> Existing parks and public shoreline would remain accessible via the existing highway but would be through the new highway's intersections with Pōhaku 'Aeko or Ehehene Streets and along the existing highway. <u>The existing highway's use into the future will be assessed by The Nature Conservancy.</u> Access to the Ukumehame Firing Range would be provided through a new driveway connected to the new highway alignment. 	Same as Build Alternative 1.



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1 (PREFERRED)	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4
Archaeological and Architectural Historic Properties	No changes that would have direct or indirect adverse effects in the Area of Potential Effect.	<ul style="list-style-type: none"> Programmatic Agreement would define additional investigations and mitigation commitments. Potentially adversely affects archaeological resources, primarily at two locations: where alignment joins the existing highway (Pali connection), and at the northernmost area of Ukumehame leading into Olowalu. 	Similar to Build Alternative 1, except less intrusion and minimized impact potential in the Pali area compared to Build Alternative 1.	Similar to Build Alternative 1, except less intrusion and minimized impact potential in the Pali area compared to Build Alternative 1.
Cultural Resources	No changes that would have direct or indirect adverse effects to resources or practices.	Overall, the alignment and environmental design best practices limit effects on cultural resources and practices. The cultural practices of one known family in the project area may be impacted by limiting access to a lot, which would be mitigated by ensuring continued access.	Same as Build Alternative 1.	Same as Build Alternative 1.
Visual and Scenic Character	<ul style="list-style-type: none"> No direct changes. Continued deterioration of existing highway based on storm and sea level rise and its effects in terms of hardening and other temporary construction would likely deteriorate visual character. 	Overall Visual Impact Assessment of critical viewpoints show marginal improvements to viewers compared to No Build Alternative due to removing the highest traffic flows from the existing highway, thereby improving the visual environment for beach users.	Same as Build Alternative 1.	Substantial visual change due to the displacement of portions of Paeki'i Place, proximity to mauka residences, and the potential to displace the active sod farms present in the subdivision north of the Ukumehame Stream.
Water Resources, Wetlands, and Floodplains	<p>No change in location of highway.</p> <ul style="list-style-type: none"> <u>No changes to current conditions on water resources, wetlands, or floodplains and the existing roadway would continue to be largely low-lying areas with floodplain exposure.</u> <u>No Build Alternative has no established stormwater management infrastructure and is comparatively worse for overall water quality than the Build Alternatives.</u> <u>Maintaining current highway as a regional arterial would require continued repairs and coastal hardening of entire corridor.</u> 	<ul style="list-style-type: none"> Crosses approximately 6.36 acres of wetlands and other waters. Construction best management practices would be used to minimize the potential for water quality effects to the streams and wetlands. 	<ul style="list-style-type: none"> Crosses approximately 15.877 acres of wetlands and other waters. Greatest water resource disturbance. Construction best management practices would be used to minimize the potential for water quality effects to the streams and wetlands. 	<ul style="list-style-type: none"> Crosses approximately 1.96 acres of wetlands and other waters. Least water resource disturbance. Construction best management practices would be used to minimize the potential for water quality effects to the streams and wetlands.
Flora and Fauna, Endangered Species	No changes to current conditions and effects to flora and fauna, or endangered species.	<ul style="list-style-type: none"> With best management practices and recommended conservation measures, no anticipated adverse effects. Viaduct construction in the vicinity of the Ukumehame Firing Range would minimize potential conflicts with stilts and nēnē loafing areas. 	Similar to Build Alternative 1.	Similar to Build Alternative 1.



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1 (PREFERRED)	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4
Geology, Soils, and Natural Hazards	<ul style="list-style-type: none"> No changes to geology or soils. No potential to serve as a wildfire break. 100% within tsunami evacuation zone. Not compliant with current seismic standards. Increased susceptibility to hurricane and tropical storms. 	<ul style="list-style-type: none"> More slope stabilization required in Pali. Firebreak benefit by alignment through hot spot. 95% within tsunami evacuation zone. Compliant with current seismic standards. Decreased susceptibility to hurricanes and tropical storms. Similar susceptibility to volcanic hazards. 	Similar to Build Alternative 1; however, Build Alternative 3 would be 100% within tsunami evacuation zone.	<ul style="list-style-type: none"> Similar to Build Alternative 1; however, Build Alternative 4 would be 87% within tsunami evacuation zone. Mauka alignment offer additional hot spot fire break.
Coastal Zone Management and Hawai'i Special Management Areas	<ul style="list-style-type: none"> Inconsistent with Coastal Zone Management policies. Within Special Management Areas, currently adversely affecting coastal processes. 	Portions of the alignment would fall within the Special Management Areas, particularly at the Pali where the alignment would connect with the existing highway.	Similar to Alternative 1; however, an additional portion of the alignments would fall within the Special Management Areas in the vicinity of Pōhaku 'Aeko Street.	Same as Build Alternative 1.
Climate Change and Sea Level Rise (SLR)	<ul style="list-style-type: none"> 42% makai of the coastal erosion line. 62% within annual high-wave flooding area. 14% within annual passive flooding area. 11% within 6-foot SLR scenario (High Confidence). 27% within 6-foot SLR scenario (Low Confidence). 73% within overall SLR-XA. 	<ul style="list-style-type: none"> 0% makai of the coastal erosion line. 9% within annual high-wave flooding area. 9% within annual passive flooding area. 8% within 6-foot SLR scenario (High Confidence). 12% within 6-foot SLR scenario (Low Confidence). 12% within overall SLR-XA. 	<ul style="list-style-type: none"> 1% makai of the coastal erosion line. 32% within annual high-wave flooding area. 24% within annual passive flooding area. 13% within 6-foot SLR scenario (High Confidence). 17% within 6-foot SLR scenario (Low Confidence). 35% within overall SLR-XA. 	<ul style="list-style-type: none"> 1% makai of the coastal erosion line. 6% within annual high-wave flooding area. 5% within annual passive flooding area. 3% within 6-foot SLR scenario (High Confidence). 9% within 6-foot SLR scenario (Low Confidence). 8% within overall SLR-XA.
Transportation	<ul style="list-style-type: none"> Access to existing businesses solely reliant on Honoapi'ilani Highway. No improvements to highway safety. No improvements to level of service or delays. Least able to accommodate future growth. 	<ul style="list-style-type: none"> Improved regional reliability. Access to existing beaches and parks would be remain only along existing highway. Access to beaches and firing range would be through the new highway's intersections with Pōhaku 'Aeko or Ehehene Streets and along the existing highway. Improvements to highway safety. Improvements to level of service and delays. Same driveway but new access route for Ukumehame Firing Range. 	Similar to Build Alternative 1, except driveway to firing range would be rebuilt to meet new highway in same location.	Same as Build Alternative 1.
Air Quality and Energy	No changes in air quality or energy.	No adverse impacts to air quality and energy.	Same as Build Alternative 1.	Same as Build Alternative 1.
Noise	No change in noise levels other than background growth in traffic.	No adverse effect on noise levels.	Same as Build Alternative 1.	Same as Build Alternative 1.
Infrastructure and Utilities	No changes to existing infrastructure and utilities present in the project area.	<ul style="list-style-type: none"> No adverse effect to infrastructure and utilities. No anticipated relocation of utilities to new alignment, but future utility use of right-of-way could be coordinated with HDOT and utilities. 	Same as Build Alternative 1.	Same as Build Alternative 1.



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1 (PREFERRED)	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4
Hazardous Materials	<ul style="list-style-type: none"> No change or adverse effect to hazardous materials. USEPA will continue to temporarily use a portion of the Ukumehame Firing Range as storage for contaminated debris from the wildfire. 	<ul style="list-style-type: none"> No adverse effect to hazardous materials. Alignment would have the potential to disturb potentially hazardous materials at Ukumehame Firing Range (that is, lead contamination). USEPA temporary use of Ukumehame Firing Range for storage would not be affected by alignment. 	No adverse effect to hazardous materials; alignments would avoid potential to disturb potentially hazardous materials at Ukumehame Firing Range.	Same as Build Alternative 1.
Environmental Justice and Socioeconomic Conditions	<ul style="list-style-type: none"> No potential benefit to regional environmental justice populations through improved mobility. Relocation of encampments of unhoused people in the project area is being addressed by a consortium of County and State agencies independent of the proposed action. 	<ul style="list-style-type: none"> No disproportionate high and adverse effects with mitigation to ensure continued access to one family's kuleana parcel and local cultural practice. Benefit to regional environmental justice population through improvement and more resilient regional mobility. Relocation of encampments of unhoused people in the project area is being addressed by a consortium of County and State agencies independent of the proposed action. 	Same as Build Alternative 1.	Similar to Build Alternative 1, except may result in displacement of Ukumehame and Maui sod farms, which may be environmental-justice owned.
Indirect Effects	Reduced reliability could indirectly contribute to adverse regional effects by disrupting workforce mobility, goods and services, and tourist mobility.	No indirect effects.	Same as Build Alternative 1.	Same as Build Alternative 1.
Cumulative Effects	Disruption from reduced reliability and increased congestion could be worsened by cumulative effects from outside project area.	No cumulative effects.	Same as Build Alternative 1.	Same as Build Alternative 1.



5.2.3 Summary Assessment

The combined Preferred Alternative is the alignment that would minimize or avoid potential adverse environmental effects from the construction and future operation of the completed highway through the project area, most notably the following:

- The potential adverse effects of the Preferred Alternative would be minimized by HDOT's agreement to adhere to a range of environmental commitments, best practices, and mitigation (Section 5.5 ~~3~~, ~~Preliminary Identification of Environmental Commitments and Mitigation for the Preferred Alternative~~).
- The Preferred Alternative would be built with protective best management practices in terms of stormwater and sediment control both during construction and into the future with a completed highway alignment (Chapter 2, Alternatives, and Section 3.9, Water Resources, Wetlands, and Floodplains).
- With adherence to environmental commitments developed in coordination with resource agencies, there would be no anticipated adverse effects on flora and fauna and, specifically, on threatened and endangered species (Section 3.10, Flora and Fauna, Endangered Species).
- With refinements to the Preferred Alternative alignment, the Project would avoid or minimize adverse effects on the majority of preliminarily identified eligible archaeological and architectural historic properties resources. After publication of the Draft EIS, FHWA determined, and SHPO concurred, that the Selected Alternative would result in No Adverse Effects on architectural historic properties. A Programmatic Agreement ensures that testing, mitigation, and procedures for unexpected occurrences are part of the Project's environmental commitments (Section 3.6, Archaeological and Architectural Historic Properties).
- The Preferred Alternative would result in no direct residential or business displacement but could take a portion of lots in Olowalu that are used for a paintball facility and the Living Earth Systems farm in Launiupoko, where the Project would require new access (Section 3.1, Land Use and Zoning). Conditional upon final design, the Preferred Alternative may require a small land acquisition from the Ukumehame Sod Farm but is not anticipated to affect sod farm operations. Access to the sod farm on either side of Ehehene Street is located on the mauka end of the parcel, away from the preferred alternative footprint, and is not anticipated to be affected by the Project.
- The Preferred Alternative would affect up to 15 private parcels that are undeveloped or used for storage or other uses. Up to eight kuleana land parcels could be affected. For all affected parcels and land rights, the level of taking and appropriate compensation and mitigation would be determined in further analysis and outreach through HDOT right-of-way procedures (Section 3.4, Land Acquisition, Displacement, and Relocation).
- The Preferred Alternative would have no adverse effects on infrastructure and utilities, and the new alignment would provide additional ability to accommodate future relocation of regional and local energy lines.
- The Preferred Alternative is not anticipated to result in indirect and cumulative effects because the Project would not create a new regional transportation link or expanded regional capacity



(beyond the improved operating conditions in the immediate project area). In addition, because there would be no changes to development regulations as a result of the Project, increases in traffic are unlikely. There are no foreseeable changes in the project area or elsewhere that would result in indirect or cumulative effects. Project construction is likely to overlap with rebuilding Lāhainā after the devastating 2023 wildfire, although the majority of the highway construction would be isolated from construction worker/materials through-traffic (Section 3.14, Transportation).

- As analyzed in Section 3.19, Environmental Justice and Socioeconomic Conditions, the Preferred Alternative would not directly displace or cause a disproportionate and adverse effect on any environmental justice populations that may be living in the project area. (The immediate project area is not specifically identified as an environmental justice community, but it is assumed to include some environmental justice populations.) Relocation of encampments of unhoused people in the project area is being addressed by a consortium of County and State agencies independent of the proposed action. Regionally, the Preferred Alternative would benefit environmental justice populations because the transportation link is an essential connector of employment centers of West Maui and higher proportions of environmental justice populations in Central Maui.
- The Section 4(f) Evaluation (Chapter 4) has determined a de minimis effects on the Ukumehame Firing Range and, as determined after publication of the Draft EIS, the Olowalu Sugar Plantation Historic District, parklands and Overall, the refined alignment to the Preferred Alternative avoids and minimizes adverse effects on archaeological resources at the northern connection in Olowalu, in the area between Olowalu and Ukumehame, and at the southernmost connection point at the Pali in Ukumehame. There are no adverse effects on architectural historic properties resources. ~~Overall, there are no Section 4(f) historic properties.~~ In addition, the Programmatic Agreement incorporates required testing and mitigation for other identified ~~archaeological and architectural~~ historic properties resources (or for unanticipated discoveries during construction).

5.3 REFINEMENTS TO THE SELECTED ALTERNATIVE FOR THE FINAL EIS¹

Since the Draft EIS was published, and in response to public and agency comments, design refinements have been incorporated into the Selected Alternative to prepare the Project for final design and implementation. The refinements are also intended to further minimize and avoid adverse effects of the Project and are presented below. The final design and the design-build process may provide additional opportunities to further refine the Selected Alternative to optimize constructability, lower costs, and be responsive to unforeseen conditions that would result in changes to environmental impacts.

5.3.1 Full Corridor Refinements

The design refinements to the Selected Alternative address multi-modal considerations, right-of-way requirements, intersection design, implementation of avoidance and minimization measures for archeological and natural resources, and refinement of stormwater Best Management Practices

¹ This section is new text for the Final EIS. For ease of reading, the new text is not double underlined



(BMPs). FIGURE 5-6 and FIGURE 5-7 present the current alignment of the Selected Alternative compared with the Draft EIS alternatives for Olowalu and Ukumehame. Design refinements are summarized below.

5.3.1.1 Addition of Shared-Use Pathway within New Highway Right-of-Way

For the entire length of the proposed new highway segment, the Selected Alternative now includes a bi-directional paved 10-foot wide shared-use pathway along the makai edge of the roadway, separated from the roadway by a buffer area of 12 feet including a guardrail zone and an eight-foot drainage-way. FIGURE 5-8 shows a typical detail of the proposed roadway with the shared-use path. This change is based on public comments and HDOT policy initiatives to ensure multimodal opportunities for the new roadway. The change would also address public comments by setting the groundwork for future multimodal transportation network connections to the planned West Maui Greenway, which could be constructed adjacent to the existing highway.

5.3.1.2 Intersection Refinements

For each of the five intersections along the corridor, the design concepts were refined based on operational requirements, incorporating the shared-use path, and consideration of roundabouts and other intersection design options. This includes one signalized intersection in both Olowalu and Ukumehame to facilitate bicycle and pedestrian crossings. One or more roundabouts remain an option that FHWA and HDOT are requesting the design-build contractor (Contractor) evaluate as part of final design.² Reduced conflict intersections were evaluated but determined to be impractical primarily based on the right-of-way requirements. In summary, from south to north, intersection refinements are as follows:

- At Pōhaku ʻAeko Street, the Selected Alternative would continue with the originally planned unsignalized, four-leg intersection with stop-sign controls for the side-street approaches. There would be turning lanes and merging lanes to facilitate turning movements.
- At Ehehene Street, the Selected Alternative would install a signalized, four-leg intersection that would be demand responsive to bicycle and pedestrian traffic as well as side-street vehicular traffic.
- At Luawai Street, the Selected Alternative would continue with the originally planned signalized, four-leg intersection. The geometry and location of the intersection has been adjusted slightly based on modification to the roadway alignment (described below).
- At North Street, the Selected Alternative would continue with the originally planned unsignalized, four-leg intersection with stop-sign controls for the side-street approaches. There would be turning lanes and merging lanes to facilitate turning movements.
- At the Olowalu Landfill entrance, the Selected Alternative would continue the originally planned unsignalized, three-leg intersection with stop control for the landfill driveway. There would be turning lanes and merging lanes to facilitate turning movements.

² The evaluation of roundabouts would require additional environmental analysis completed through a NEPA Reevaluation.



FIGURE 5-6. Selected Alternative Compared to Draft EIS Alternatives - Olowalu

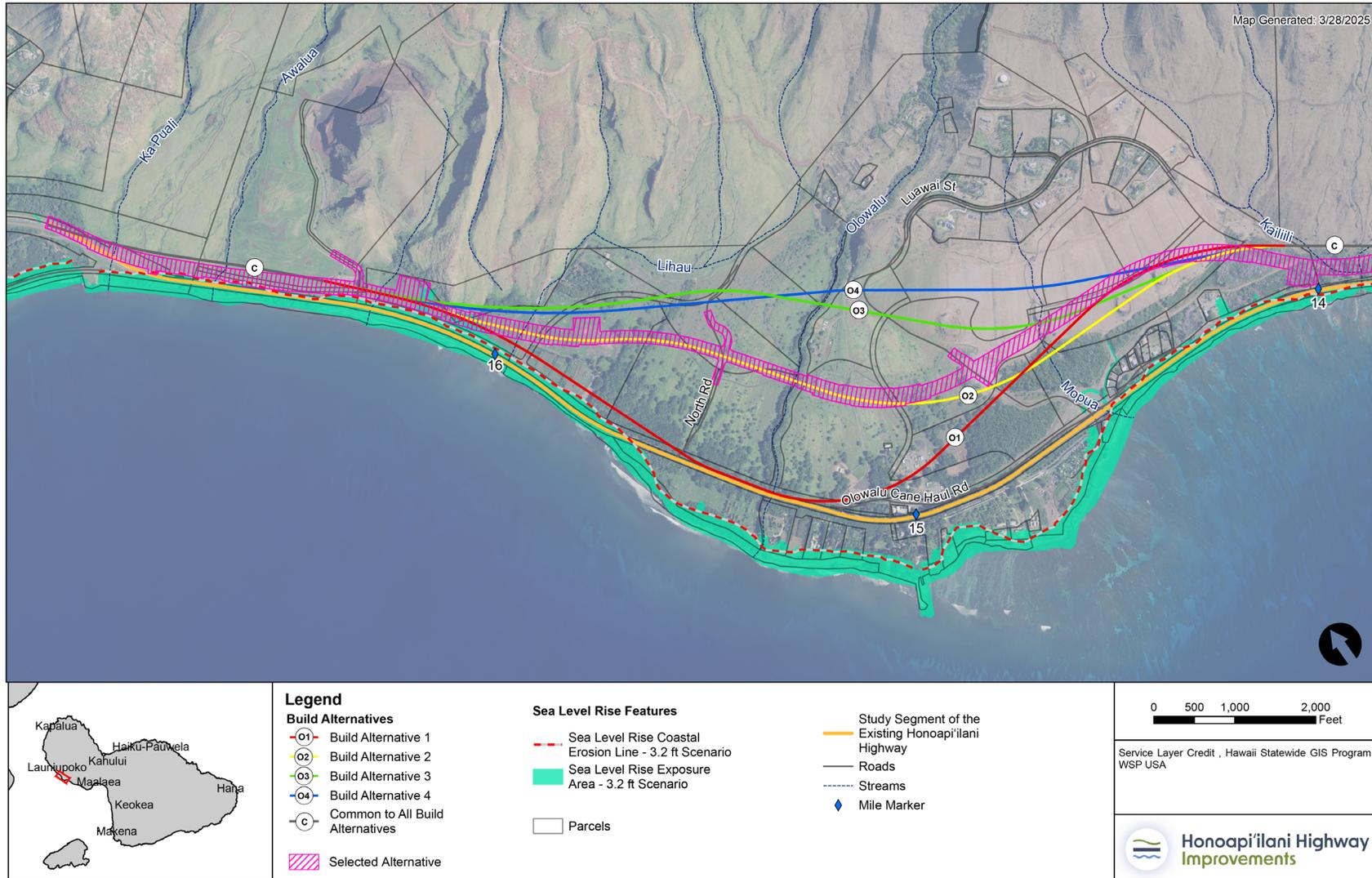




FIGURE 5-7. Selected Alternative Compared to Draft EIS Alternatives - Ukumehame

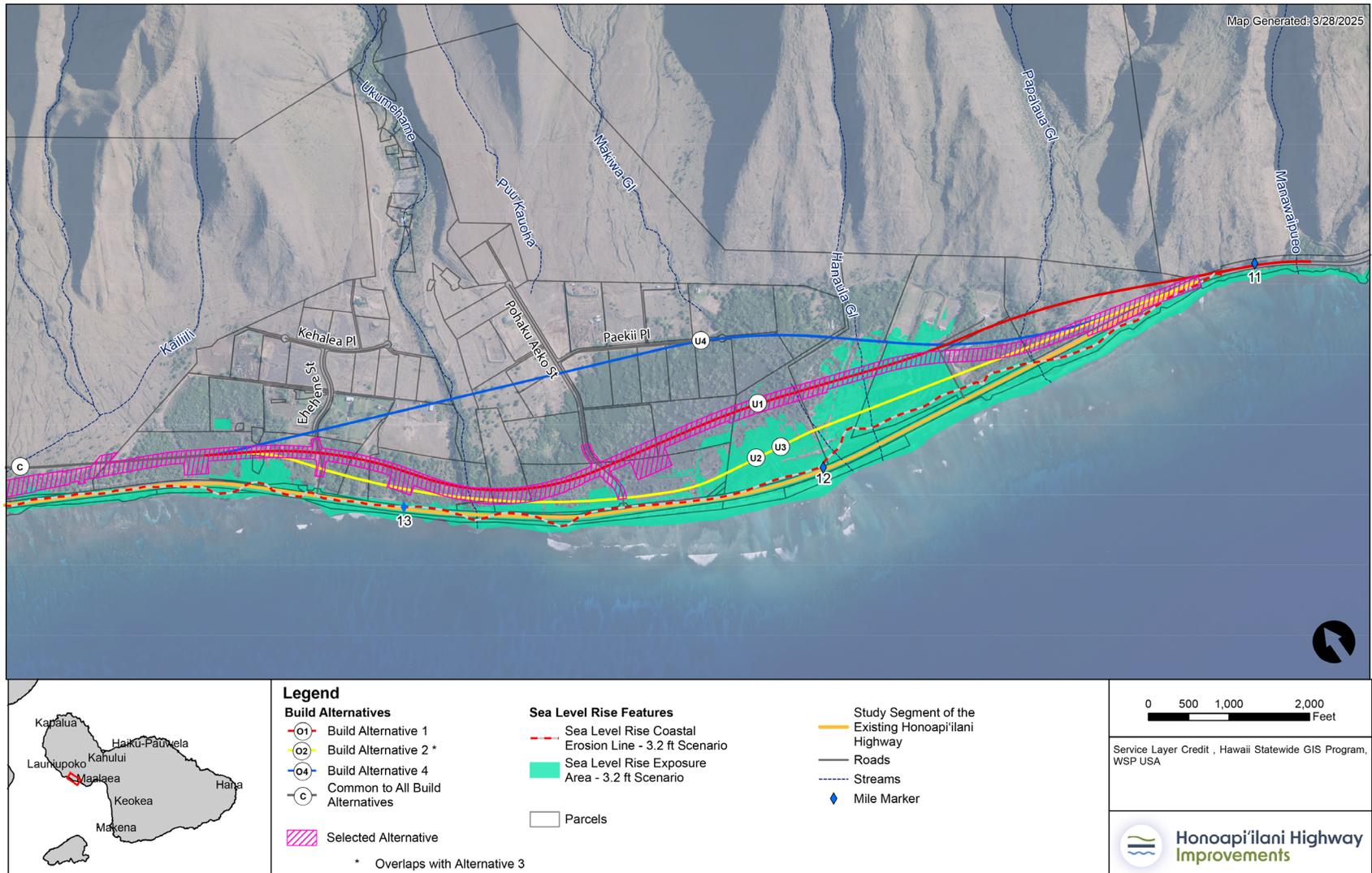
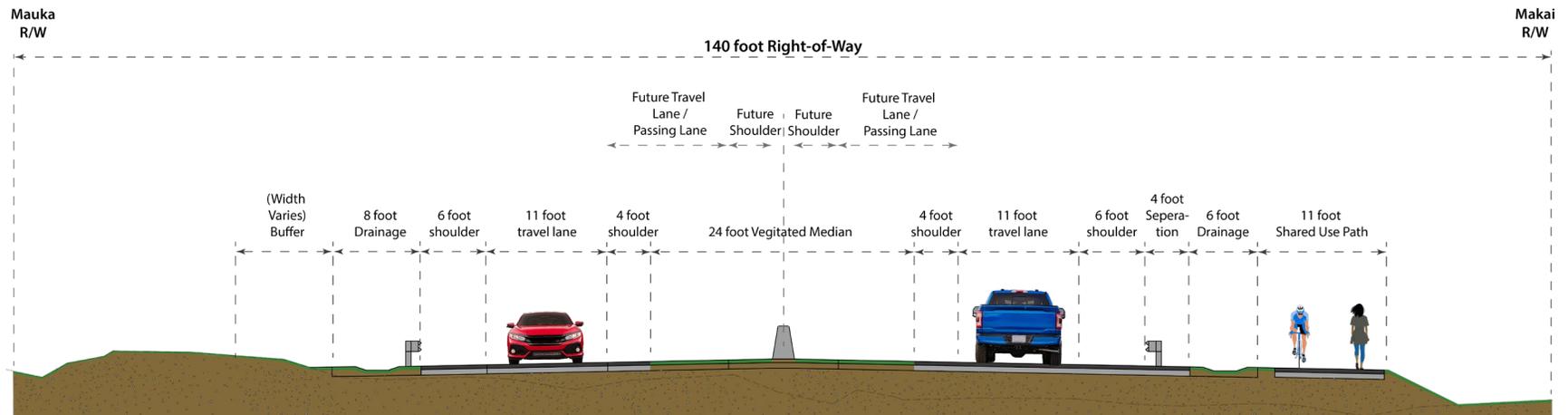




FIGURE 5-8. Cross Section with Shared-Use Path





5.3.1.3 Passing Lanes

As initially presented in the Draft EIS, the Project is intended to be constructed as a two-lane highway. The Project will include clearing, grading, and infrastructure (bridges and culverts other than the proposed viaduct structure in Ukumehame) to facilitate a future four-lane configuration, should there be demand and available funding. Should HDOT pursue a four-lane configuration in the future, an additional NEPA/HEPA assessment would be undertaken. In Ukumehame, the Selected Alternative would continue to provide a two-lane viaduct structure across the HDOT detention basin and the Ukumehame Firing Range, although sufficient right-of-way would be acquired to build a second viaduct (if required in the future).

Based on comments raised at the public hearings and in writing, there was public interest in a full four-lane roadway configuration or, at a minimum, provision of passing lanes to allow higher-speed traffic to pass slower vehicles. In response to these concerns, HDOT considers the addition of passing lanes as an optional element that would be determined during final design. If passing lanes are implemented, it is anticipated they would be centrally located in the area between Ehehene Street and Luawai Street, and would not result in additional right-of-way or other potential impacts not evaluated in this Final EIS.

5.3.1.4 Rights-of-Way Adjustments

Along the corridor, smaller adjustments optimize the location of right-of-way to minimize effects on adjacent properties, location and sizing of BMP facilities for stormwater, and interim construction staging area locations. Most notably this includes the identification of an area for construction staging within Ukumehame where the right-of-way is constrained and narrow.

5.3.2 Refinements in Olowalu

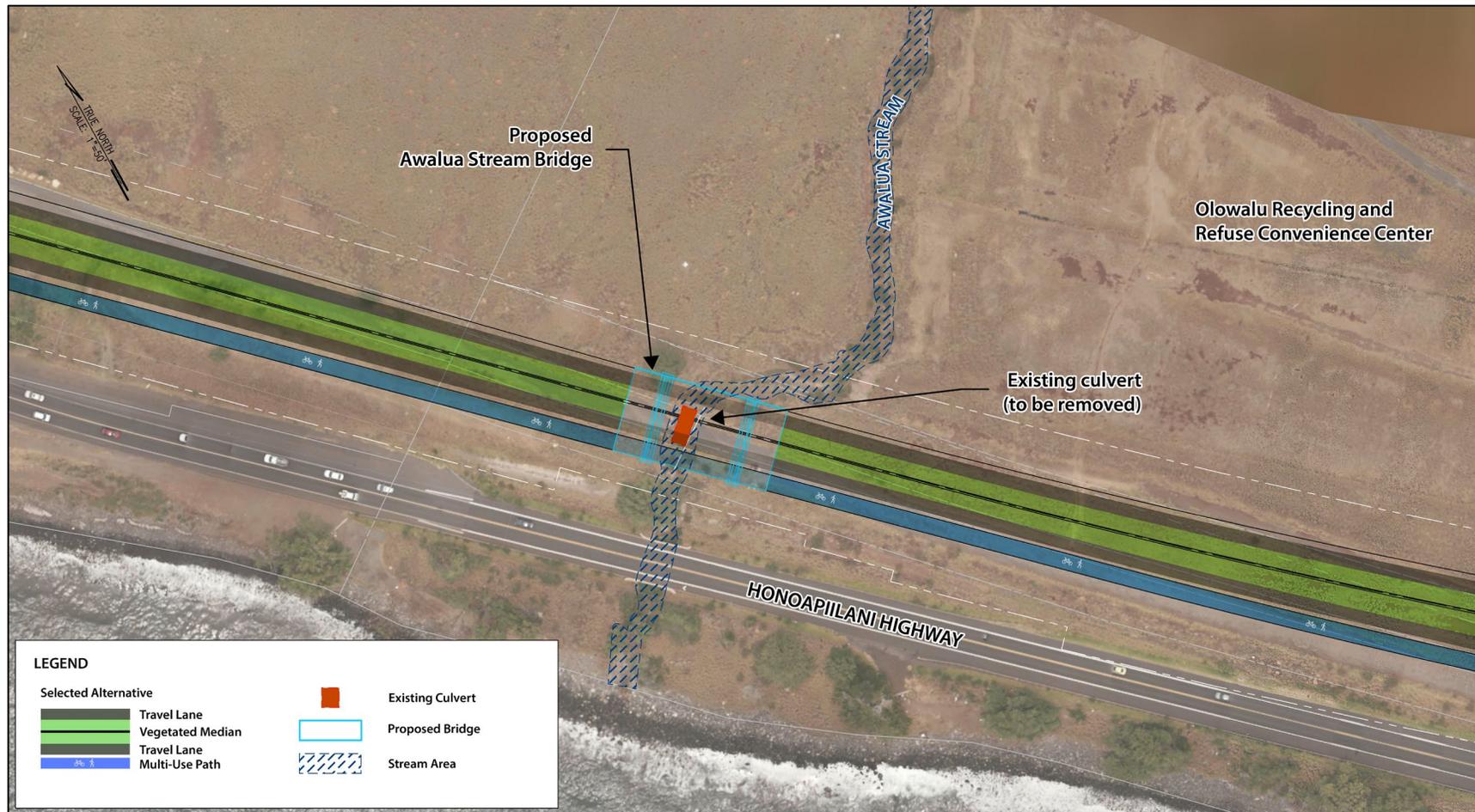
In Olowalu, the Selected Alternative has been refined compared to the Draft EIS in two locations to avoid archaeological sites, minimize potential effects on property owners by moving the alignment slightly mauka, and to optimize the design in terms of intersection alignment and location of detention basins.

5.3.2.1 Awalua Stream Crossing

The Draft EIS identified that a portion of the Preferred Alternative was narrowed and moved more makai of the original alignment to avoid and minimize potential effects to archeological resources identified just mauka of the proposed roadway. To implement this refinement, the Final EIS Selected Alternative would include a bridge crossing across the intermittent Awalua Stream instead of a culvert as originally proposed. The stream crossing was refined to be located more makai and now occurs at a bend in the stream. A bridge allows for a longer span that remains fully out of the stream and would allow for removal of the existing culvert under the cane-haul road that would be eliminated by the new roadway. Overall, this allows for an opportunity to improve and naturalize this small section of the Awalua Stream. **FIGURE 5-9** provides a conceptual presentation of this new crossing. The final configuration would be determined in final design by a Contractor who would also confirm and obtain the necessary level of applicable permitting, if required.



FIGURE 5-9. Refined Awalua Stream Crossing from a Culvert to a Bridge





5.3.2.2 Alignment Adjustment near Luawai Street

Between Luawai Street and the southern end of the Olowalu Subdivision, the Selected Alternative alignment has been shifted slightly mauka. The design consideration was incorporated based on public comments to optimize the alignment’s vertical profile with existing topography, improve the layout of the Luawai Street intersection, and provide the most flexibility of use for adjacent property owners. In addition, the change in alignment allows the Selected Alternative to be routed just mauka of two push-piles that would have been displaced by the original alignment. The push-piles are not eligible for listing on the National Register of Historic Places but were noted by the public as locally important. FIGURE 5-10 provides detail of this alignment change.

5.3.3 Ukumehame

5.3.3.1 Alignment Adjustment between Pōhaku ‘Aeko Street and Ehehene Street

The Selected Alternative has been slightly adjusted makai in this area to maximize distances from the closest residences. As depicted in FIGURE 5-11, it is also anticipated that the Selected Alternative would include a culvert adjacent to the Ukumehame Stream bridge to allow for a driveway to the kuleana parcel east of Ukumehame Stream.

5.3.4 Final EIS Revised Cost Estimate for the Preferred Alternative

As summarized in TABLE 5-6, the initial construction costs (exclusive of property acquisition and other non-construction costs) presented in the Draft EIS for the Preferred Alternative \$160.8 million. In finalizing the Selected Alternative in the Final EIS, the current construction estimate is \$298 million. This increase of \$138 million is primarily to accommodate the addition of the shared-use path, the second signalized intersection at Ehehene Street, potential passing lanes between Ehehene and Luawai Streets, adding a culvert to maintain access to a kuleana parcel in Ukumehame, and the switch from a culvert to a bridge across the Awalua Stream. In addition, continued refinement has advanced cost estimate for other factors including mobilization, labor costs, materials (actual costs and transportation costs to import materials and equipment to Maui), as well as escalation and contingencies. Initial property acquisition for Right-of-Way is estimated at \$18 million but will not be finalized until negotiations with property owners are completed.

TABLE 5-6. **Preliminary Construction Cost Estimate for the Draft EIS Preferred Alternative and Final EIS Selected Alternative**

SEGMENT	PREFERRED ALTERNATIVE (MILLIONS)
Draft EIS Preferred Alternative Preliminary Cost Estimate	\$160.8
Final EIS Selected Alternative Revised Cost Estimate	\$298.0



FIGURE 5-10. Olowalu Mauka Shift

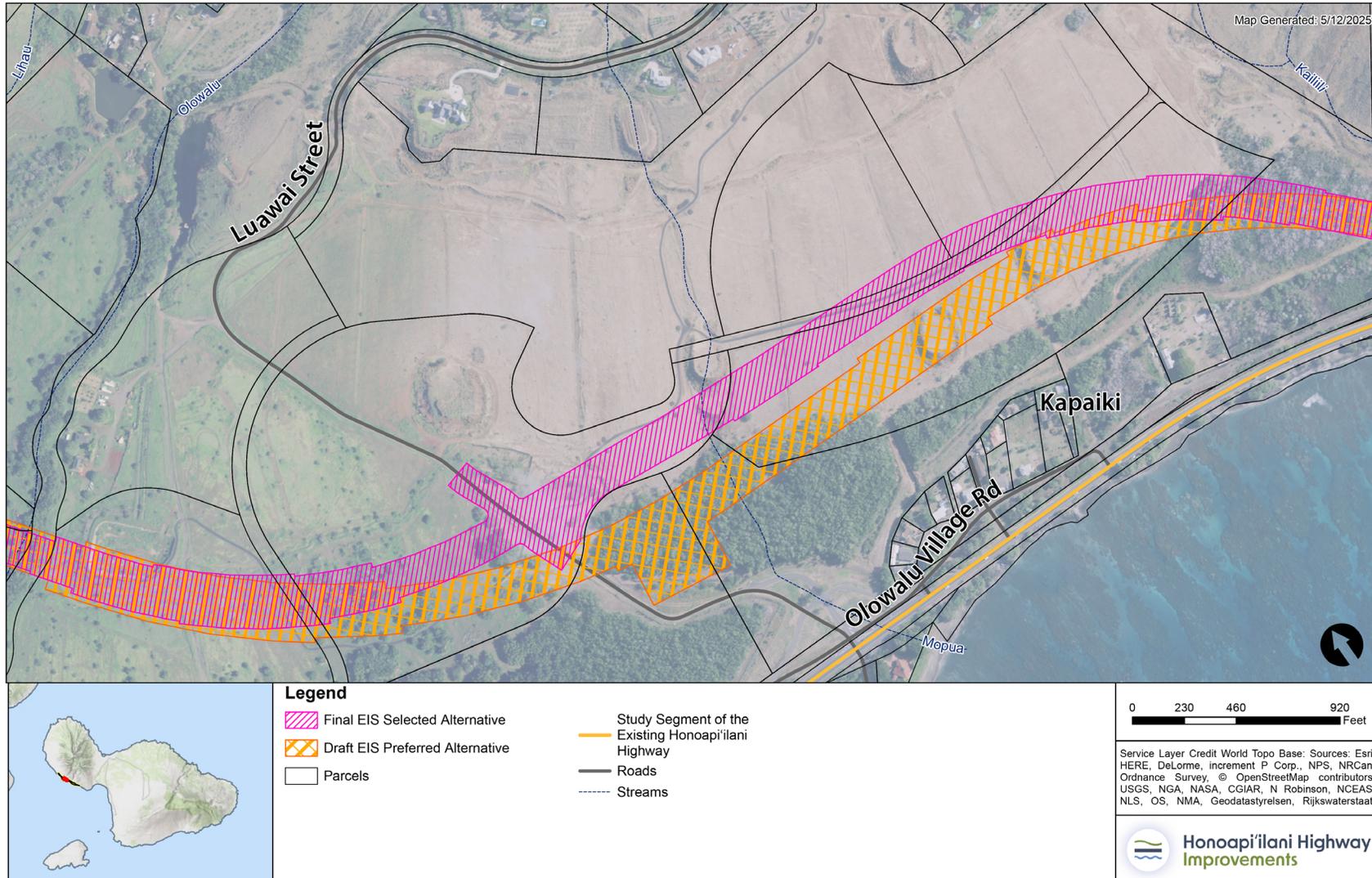
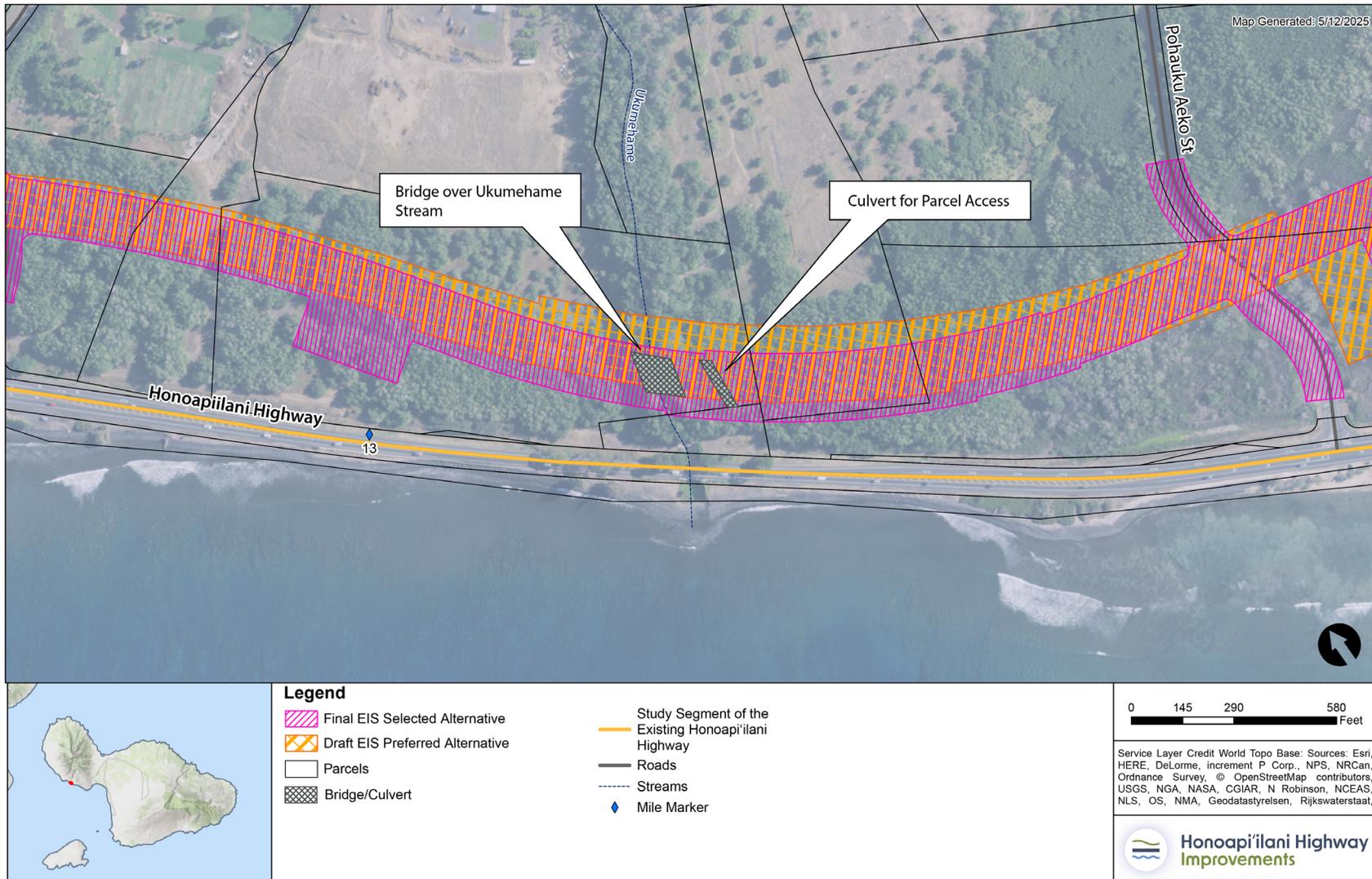




FIGURE 5-11. Ukumehame Makai Shift





5.4 ENVIRONMENTAL EVALUATION OF FINAL EIS REFINEMENTS³

HDOT and the FHWA evaluated refinements to the Selected Alternative for any new or different environmental effects (most importantly, any new adverse effects). Because the refinements are responsive to the goal of further minimizing and avoiding environmental constraints, the general effect is of “no change” or “improved change” compared to what was presented in the Draft EIS.

Of the technical evaluations conducted as part of the Draft EIS, there are only a few environmental assessment areas where the refinements in the Selected Alternative, in combination with new analyses for this Final EIS, have changed the initial evaluation. While no new adverse effects were identified, assessment areas with a change in environmental impact are summarized below.

5.4.1 Land Use

The change in land use to accommodate the refinements incorporated into the Selected Alternative for this Final EIS remains the same as reported for the Preferred Alternative in the Draft EIS.

Between the publication of the Draft EIS and completion of this Final EIS, there were changes within the study area in Ukumehame, notably where four new houses are now being constructed. Effects on these new houses have been considered in this Final EIS; the Selected Alternative would not displace the houses, nor would the alternative require property acquisition from these parcels. Further, one property owner—whose property would require acquisition for the Selected Alternative—informed HDOT and the FHWA that this property was being actively used as a sod farm and was not vacant, as was first reported in the Draft EIS. The refinements to the Selected Alternative do not change the reasonably foreseeable effects of the Project.

5.4.2 Land Acquisition, Displacement, and Relocation

Modest shifts to the Selected Alternative alignment would affect two additional private parcels in Olowalu and two parcels in Ukumehame (a land parcel is identified by its Tax Map Key, abbreviated as TMK). There would be no change in the potential effects on kuleana parcels.

5.4.2.1 Background

As established in the Draft EIS, property acquisition would be carried out during the design-build phase of final design when right-of-way configurations would be fully identified. The HDOT Right-of-Way Branch has primary responsibility for the acquisition and management of lands, right-of-way easements, and other real property interests. The branch also provides right-of-way cost estimates and monitors real property acquisition and relocation activities conducted by local public agencies.

A federally funded project must adhere to the Uniform Standards of Professional Appraisal Practice and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), as codified in 42 United States Code Sections 4601 et seq., and the applicable

³ This section is new revised text for the Final EIS. For ease of reading, the new text is not double underlined



implementing regulations set forth in Title 49 CFR Part 24. The Uniform Act protects the rights of owners and tenants of property that is acquired to implement a project without discrimination.

In Hawaiʻi, the acquisition of real property must adhere to the Hawaii State Eminent Domain Law (2022 Hawaii Revised Statutes, Title 9 Public Property, Purchasing, and Contracting, Section 101, Eminent Domain), which establishes the public purpose and procedures for private property acquisition by the State, and Hawaii Revised Statutes, Title 12 Conservation and Resources, Chapter 171, Public Lands, Management, and Disposition. In addition, the HDOT Highways Division established property acquisition procedures in its 2011 Right-of-Way Manual, as amended, including the agency's compliance with federal and State of Hawaiʻi regulations and guidance.

The limits of disturbance (including permanent BMPs) identified in the Final EIS for the Selected Alternative were used to identify any changes to or additional properties where land acquisition or easements would most likely be required for either the Project's construction or operation. The land area of each affected lot is identified with a preliminary level of acquisition (partial or full) with the acknowledgment that the level of acquisition is ultimately determined by completion of the HDOT right-of-way process.

The ultimate determination of the extent of the property acquisition is based on the right-of-way requirements of the anticipated final design as well as completion of the State's acquisition process in terms of property appraisal (including any condominium parcelization of a larger parcel), evaluation of residual value or use for remaining portions of a property, and negotiation with parcel owners. In some cases, negotiations with parcel owners could yield parcel acquisition extents that exceed the specific right of way required just to build the project due to various unforeseen circumstances. HDOT initiates the formal acquisition after completion of the NEPA and Hawaiʻi Environmental Policy Act reviews. Therefore, the final parcel acquisition program or disposition of residual parcels could require limited additional environmental review that would be determined in the future as needed. This could be limited to State actions subject to Section 343 compliance or a NEPA Reevaluation of this Final EIS and ROD.

5.4.2.2 Changes to Land Acquisition Requirements Resulting from Refinements to the Preferred Alternative or New Information

FIGURE 5-12 shows the Olowalu TMK parcels that would be affected by the refined Selected Alternative alignment, which would shift mauka by approximately 200 feet and would touch the makai edge of two lots previously not affected (TMKs 48003098 and 48003099). Each of these lots is about 15 acres, and the total area of required acquisition would be less than 0.6 acres, or around 3.5% to 4.4% of the total lot area, indicating that a partial acquisition would likely be required. These are undeveloped lots, and the extent of the required acquisition (partial or full) would be determined during the final design and in coordination with HDOT Right-of-Way specialists. One parcel (TMK 48003102) would no longer require any right-of-way acquisition.

In Ukumehame, there would be a small area of three TMK parcels (TMKs 48002075 and 48002091 along Ehehene Street and TMK 48002093 along Pōhaku ʻAeko Street) that would require acquisition to allow for the construction of the new intersections with the refined Selected Alternative (see FIGURE 5-13). The acquisition area for each of these lots is less than 0.06 acres and well less than



1% of the total lot area. This reflects a minor property acquisition, though the extent of the property acquisition requirements would be determined as part of the final design.

The land use status of a property that requires acquisition in Ukumehame (Parcel 48002115) has changed from vacant to an active sod farm based on public comment from the property owner. This would primarily change the valuation of the parcel as part of the future land acquisition process and may result in a change of status of applicability and conformance with the Uniform Act. The refinements to the Selected Alternative do not change the basic context of the Project's alignment on the property with this new information.



FIGURE 5-12. Change in Private TMK Parcels with Refined Preferred Alternative – Olowalu

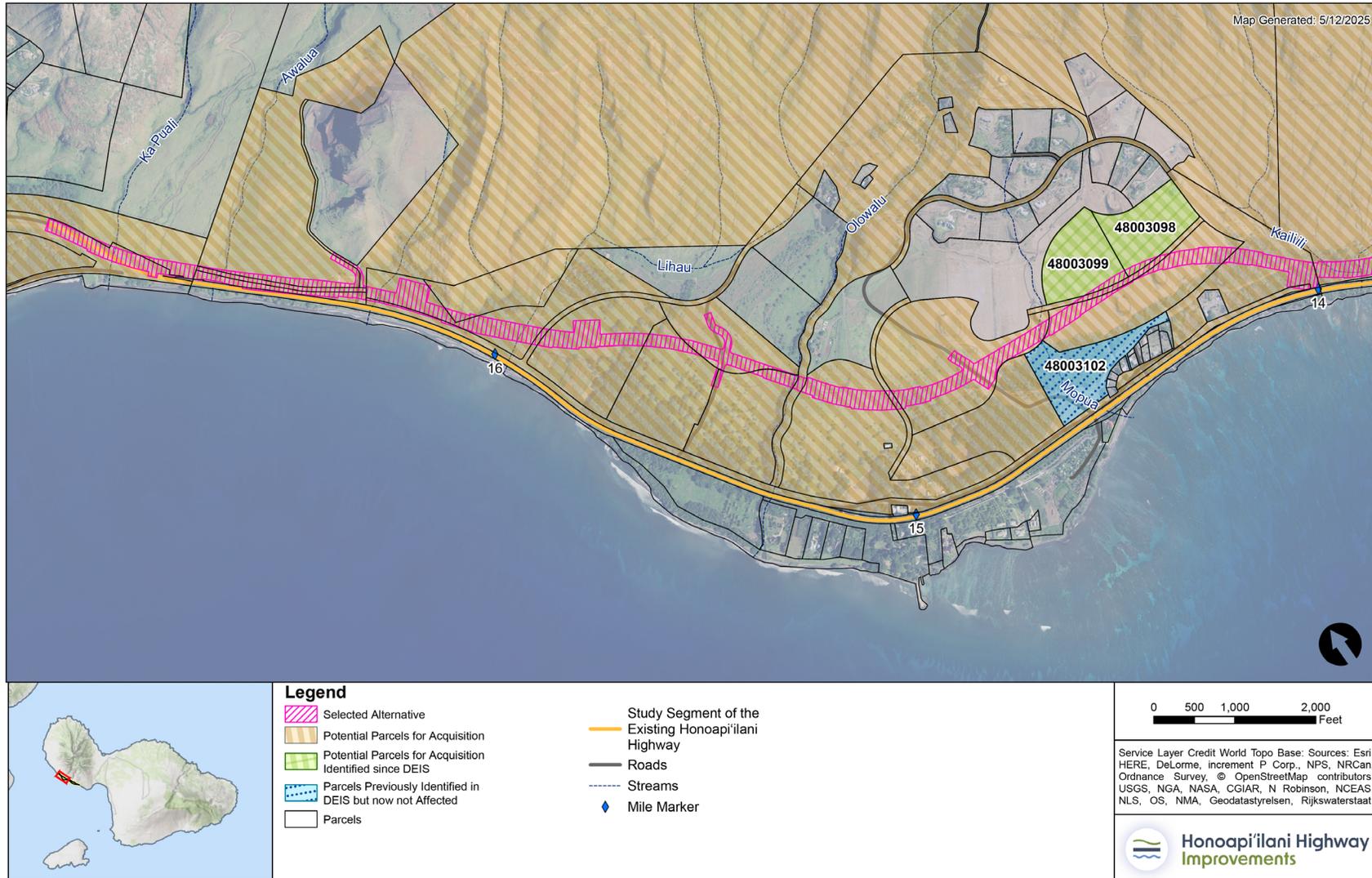
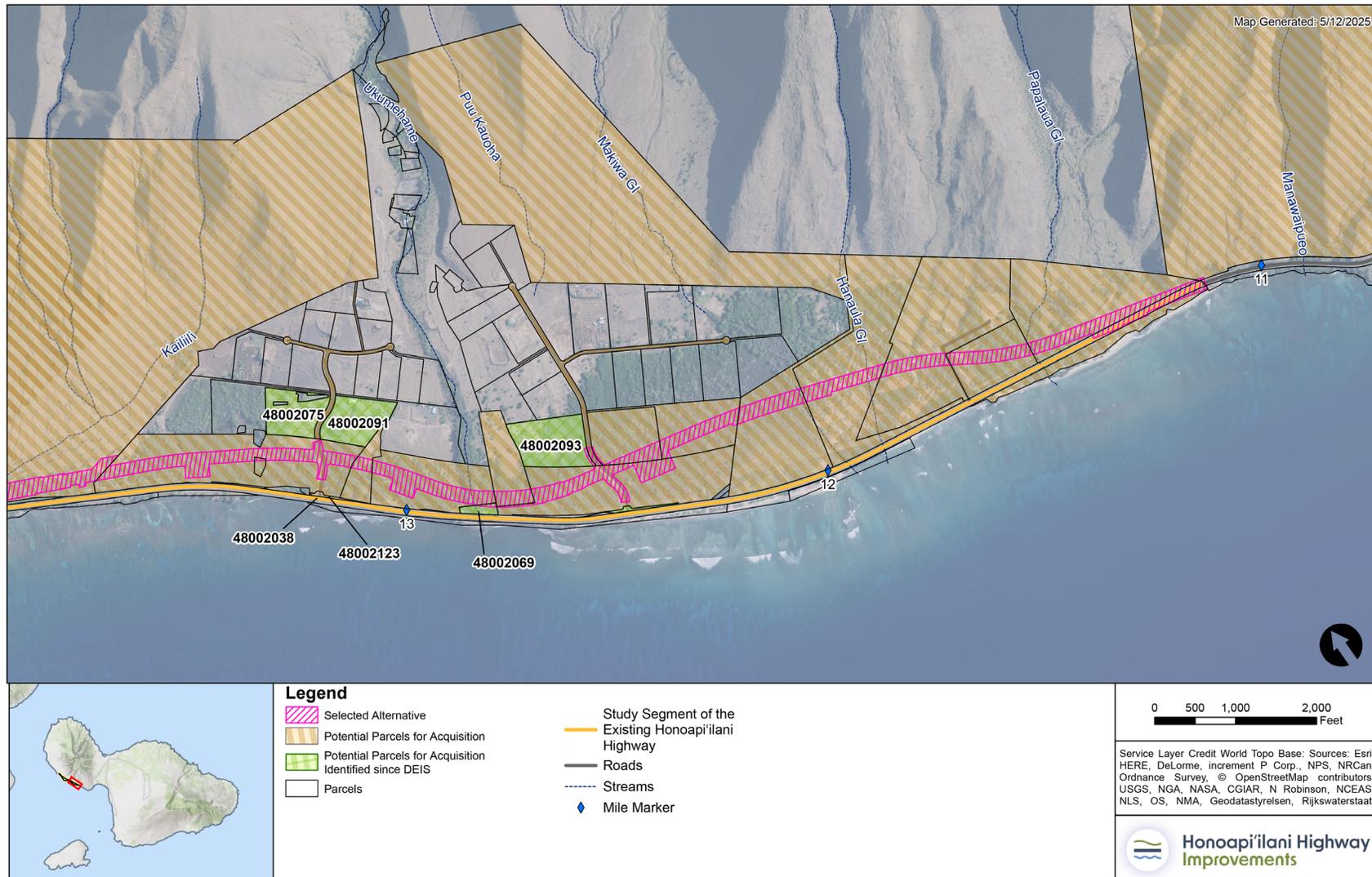




FIGURE 5-13. Change in Private TMK Parcels with Refined Preferred Alternative – Ukumehame





5.4.3 Archeological and Architectural Historic Resources

Refinements to the Selected Alternative (such as roadway realignment to avoid effects, addition of stormwater permanent BMPs) resulted in several locations where the Selected Alternative extended beyond the Draft EIS environmental survey limits. An additional environmental survey for archaeological and architectural resources was completed for these areas in March and April 2025 (see Appendix 3.6). Effects to architectural historic properties (identified in Chapter 3.6) were assessed based on the Selected Alternative and refinements thereto; FHWA determined the Project (the Selected Alternative) would result in no adverse effect on architectural historic properties and SHPO concurred with that determination in a letter dated August 13, 2025.

Appendix 3.6 of this Final EIS includes the Executed Programmatic Agreement, which provides the basis for future investigations and evaluation through the Archaeological Inventory Survey and mitigation of potential adverse effects on historic properties. The Programmatic Agreement also commits the Project to complete measures necessary to evaluate any areas of the final design which were not fully surveyed as part of the Draft or Final EIS; this work must be completed after NEPA but prior to construction. FHWA will assess the Project's effects on archaeological historic properties, and determine appropriate treatment measures to resolve any adverse effects, following completion of the Archaeological Inventory Survey and pursuant to the Programmatic Agreement.

5.4.3.1 Archeological Historic Resources

The March and April 2025 archaeological surveys identified three new potentially eligible archaeological resources in Olowalu within the Selected Alternative right-of-way. As presented in Appendix 3.6, these archaeological resources are documented in the *Addendum Archaeological Reconnaissance Report for the Honoapiʻilani Highway Realignment Project Ukumehame, Olowalu, and Launiupoko Ahupuaʻa, Lāhainā Moku, Lāhainā Modern Tax District, Maui Island*. Based on the refinement to the Selected Alternative as described in the Final EIS, **TABLE 5-7** identifies the five previously identified archaeological historic resources and the three new potentially eligible archaeological resources (shown in bold), pending further investigation pursuant to the Programmatic Agreement. In Ukumehame, the supplemental survey from March and April 2025 found no new potentially eligible archaeological resources within the Selected Alternative, and the Selected Alternative continues to potentially affect five eligible archeological resources (see **TABLE 5-8**).

In summary, the Final EIS Selected Alternative reduces the number of eligible or potentially eligible archaeological resources that could be affected by the Project in comparison with the Draft EIS Preferred Alternative (Alternative 2 in Olowalu and Alternative 1 in Ukumehame).

In Olowalu, the Selected Alternative avoids potentially adverse effects on five of the 10 archaeological sites found to be potentially eligible in the Draft EIS. Three new archaeological resources were added from the March and April 2025 surveys for a total of eight archaeological resources with potential adverse effects. The Final EIS alignment changes also avoid and minimize effects to the most intact archaeological resources identified in the Draft EIS.

In Ukumehame, the Selected Alternative refinements reduce potential adverse effects from 22 archaeological resources to five archaeological resources.



5.4.3.2 Architectural Historic Resources

For architectural resources, the March and April 2025 survey work identified remnants of plantation-era irrigation infrastructure previously identified during the original architectural survey of the Area of Potential Effects. The March and April 2025 survey also identified remnants of a road segment in the northern portion of the study area between Olowalu and Launiupoko. This road segment was subsequently evaluated and determined not eligible. This evaluation is documented in the *Addendum Report to the Reconnaissance Level Architectural Historic Resource Survey (RLS) for the Honoapiʻilani Highway Improvements, West Maui, from Launiupoko to Ukumehame, Lāhainā District, Hawaiʻi* (Appendix 3.6) and was submitted to SHPD on June 3, 2025. The Selected Alternative will traverse through the Olowalu Sugar Plantation Historic District, although none of the contributing resources within the historic district or the three individually eligible architectural historic properties identified in the Draft EIS are adversely affected by the Selected Alternative.

FHWA assessed the Selected Alternative’s effects on architectural historic properties and determined the Project would result in no adverse effect on the Olowalu Sugar Plantation Historic District and no effect on the remaining architectural historic properties, including the contributing resources within the historic district. FHWA submitted its determination to SHPO in a letter dated August 8, 2025, and SHPO concurred with FHWA’s determination in a letter dated August 13, 2025. These letters are included in Appendix 3.6.

TABLE 5-7. **Archaeological Resources with Potential Effects with the Preferred Alternative - Olowalu Segment (including Launiupoko)**

AHUPUAʻA	SURVEY NO.	FORMAL TYPE
Olowalu	AA2216-023	Alignment, C-shape, Enclosure, Mound, Terrace
Olowalu	AA2216-028	Wall, Fenceline
Olowalu	AA2216-106	Terraces, Circular Alignments, Small Semi-Circular Terraces, Enclosures
Olowalu	AA2216-107	Alignment, C- Shape, Enclosure, Modified Outcrop, Terrace
Olowalu	AA2216-111	Surface Scatter
Olowalu	AA2216-115	Surface Scatter
Olowalu	AA2216-116	Surface Scatter
Olowalu	SIHP -04700	Rock Shelters, C-shape, Wall

Note: **Bold** text reflects information added based on March 2025 Survey

TABLE 5-8. **Archaeological Resources with Potential Effects with the Preferred Alternative - Ukumehame Segment**

AHUPUAʻA	SURVEY NO.	FORMAL TYPE
Ukumehame	AA2216-017	Surface Scatter
Ukumehame	AA2216-018	Surface Scatter
Ukumehame	AA2216-022	Stone Well
Ukumehame	AA2216-072	Enclosure, Mound, Wall
Ukumehame	AA2216-091	Surface Scatter



5.4.4 Water Resources, Wetlands, and Floodplains

Additional environmental surveys for water resources and wetlands were completed in April 2025 to account for the several locations where the Selected Alternative extended beyond Draft EIS environmental survey limits. The addendum surveys identified an expansion of the previously delineated wetland within the Selected Alternative's viaduct footprint near the Ukumehame Firing Range, and a previously un-delineated ditch just mauka of the existing highway through the common alignment area between Olowalu and Ukumehame. This additional wetland resulted in a slight increase in total wetlands within the project area and in potential wetland effects where viaduct piers may be placed. The additional ditch resulted in a slight increase in total water resources within the project area and in potential effects to waterways where permanent BMPs may be located. These findings are not anticipated to modify future Section 404 permitting requirements for the project as presented in the Draft EIS.

5.4.5 Flora and Fauna, Endangered Species

Addendum environmental surveys for flora and fauna and Threatened and Endangered Species were completed in April 2025 to account for the several locations where the Selected Alternative extended beyond Draft EIS environmental survey limits. The addendum surveys did not observe any of the ESA-protected endangered plant taxa or endangered fauna species (including nēnē and ae'ō) that the Draft EIS noted may occur in the study area. The survey also did not observe any associated critical habitats.

The refinements to the Selected Alternative do not alter the impact assessment as provided in the Draft EIS because the slight adjustments to the alignment do not change the Project's basic routing in the context of observed Threatened and Endangered species and potential habitat.

In response to U.S. Fish and Wildlife Service concerns regarding the nēnē and ae'ō, Endangered Species Act Section 7 consultation was completed and the Service has issued a Biological Opinion for the project (see Appendix 3.10).

5.4.6 Transportation

The refinements to the Selected Alternative do not change the overall results of the Draft EIS transportation analyses, which found that the Project would result in a road with improved regional reliability, improved levels of service and delays, and reduce accident rates. Further, the Project would continue to provide local access to residences, businesses, and parks via the existing highway.

Final EIS refinements would further improve transportation infrastructure in the project area by adding a second signalized intersection. The refined Selected Alternative would incorporate a dedicated shared-use pathway, which would provide additional multimodal options along the corridor in combination with anticipated future construction of the West Maui Greenway to be located along the existing highway. Based on comments on the Draft EIS, HDOT will also consider the option of adding a segment of passing lanes along a portion of the Selected Alternative which would have no adverse effects on traffic operations and does not require additional highway right-of-way.



5.4.7 Noise

The Final EIS refinements to the Selected Alternative resulted in slight adjustments to the alignment, most notably in Olowalu near Luawai Street, where the alignment is slightly more mauka, and in Ukumehame, where the alignment is slightly more makai in the area of the Ukumehame Stream and Pōhaku 'Aeko Street. These alignment shifts have a modest change in modeled noise levels, and in no instance does the change result in noise levels that are considered an adverse increase of 15 dBA or more or in noise levels above the established threshold of 66 dBA (Chapter 3.16 provides a detailed explanation of noise criteria and impact methodologies). **TABLE 5-9** presents a comparison of the noise level results for the Preferred Alternative in the Draft EIS and Selected Alternative in this Final EIS (and includes the new residences identified between the Draft and Final EIS).

In Ukumehame, all but one of the originally modeled sites have a slight reduction in noise levels based on the refinements to the Selected Alternative. The one location where the increment is higher is at Pāpalaua Wayside Park, where the Selected Alternative is still anticipated to have a net reduction in worst-case noise levels.

In Olowalu, the majority of the sites experience a slight decrease in noise levels. Where the alignment is slightly mauka of the Draft EIS Preferred Alternative, there are several small incremental increases associated with the refined alignment. Overall, the noise increases and noise levels remain well below threshold levels that indicate an adverse effect.



TABLE 5-9. Predicted Existing and Future Build Worst-Hour Traffic Noise Levels (Leq dBA⁴)

SITE ID	LOCATION/DESCRIPTION	MODELED EXISTING 2023 WORST-HOUR LEQ, DBA	MODELED DRAFT EIS PREFERRED ALT 2045 WORST-HOUR LEQ, DBA	LEQ, DBA INCREASE (+) OR DECREASE (-)	MODELED FINAL EIS REFINED SELECTED ALT 2045 WORST-HOUR LEQ, DBA	LEQ, DBA INCREASE (+) OR DECREASE (-)	CHANGE DRAFT EIS TO FINAL EIS	IMPACT TYPE (S, A/E, OR NONE)
Ukumehame								
M1	Pāpalaua Wayside Park	60	52	-8	57	-3	4	None
M2	Ukumehame Beach Park	62	49	-13	47	-15	-2	None
M3	Ukumehame Firing Range	46	55	9	56	10	1	None
M4	Residence at Paeki'i Pl.	41	45	4	43	2	-2	None
M5	Residence at Pōhaku 'Aeko St.	41	43	2	42	1	-1	None
M6	SOD Farm at Ehehene St.	46	51	5	50	4	-1	None
M7	Residence at Ehehene St.	44	45	1	45	1	0	None
M8	Residence beyond Ehehene St.	39	40	1	40	1	0	None
M9	Ukumehame Cultural Sites	38	39	1	38	0	-1	None
M61	Residence - north end Ehehene St.	42	44	2	44	2	0	None
M62	Residence - Ukumehame Stream	51	57	6	55	4	-2	None
M63	Residence at Pōhaku 'Aeko St.	49	56	7	54	5	-2	None
M64	Residence at Pōhaku 'Aeko St.	46	52	6	50	4	-2	None
M65	Residence at Pōhaku 'Aeko St.	44	48	4	47	3	-1	None
M66	Residence at Pōhaku 'Aeko St.	43	46	3	45	2	-1	None
Olowalu								
M10	Olowalu Lanakila Hawaiian Church	56	53	-3	52	-4	-1	None
M11	Residence at Olowalu Village Rd.	54	53	-1	50	-4	-3	None
M12	Residence at Olowalu Village Rd.	59	50	-9	48	-11	-2	None
M13	Residence at Olowalu Village Rd.	58	50	-8	48	-10	-2	None
M14	Residence at Olowalu Village Rd.	57	51	-6	49	-8	-2	None

⁴ Leq = Equivalent Continuous Sound Level), dBA = A-weighted decibels



SITE ID	LOCATION/DESCRIPTION	MODELED EXISTING 2023 WORST-HOUR LEQ, DBA	MODELED DRAFT EIS PREFERRED ALT 2045 WORST-HOUR LEQ, DBA	LEQ, DBA INCREASE (+) OR DECREASE (-)	MODELED FINAL EIS REFINED SELECTED ALT 2045 WORST-HOUR LEQ, DBA	LEQ, DBA INCREASE (+) OR DECREASE (-)	CHANGE DRAFT EIS TO FINAL EIS	IMPACT TYPE (S, A/E, OR NONE)
M15	Residence at Olowalu Village Rd.	57	51	-6	49	-8	-2	None
M16	Residence at Olowalu Village Rd.	57	51	-6	49	-8	-2	None
M17	Residence at Olowalu Village Rd.	60	51	-9	48	-12	-3	None
M18	Residence at Olowalu Village Rd.	54	52	-2	50	-4	-2	None
M19	Residence at Olowalu Village Rd.	55	51	-4	49	-6	-2	None
M20	Residence at Olowalu Village Rd.	53	52	-1	50	-3	-2	None
M21	Residence at Olowalu Village Rd.	53	53	0	50	-3	-3	None
M22	Residence at Olowalu Village Rd.	60	50	-10	49	-11	-1	None
M23	Olowalu Beach	50	46	-4	46	-4	0	None
M24	Camp Olowalu	56	49	-7	48	-8	-1	None
M25	Residence at Olowalu Village Rd.	48	44	-4	44	-4	0	None
M26	Residence at Olowalu Village Rd.	48	45	-3	45	-3	0	None
M27	Residence at Olowalu Village Rd.	49	45	-4	44	-5	-1	None
M28	Olowalu Landing	47	44	-3	43	-4	-1	None
M29	Commercial – Plantation House	48	44	-4	43	-5	-1	None
M30	Residence at Kuahulu Pl.	51	45	-6	44	-7	-1	None
M31	Residence at Kuahulu Pl.	49	45	-4	44	-5	-1	None
M32	Residence at Kuahulu Pl.	48	45	-3	44	-4	-1	None
M33	Commercial – Leoda’s	66	55	-11	55	-11	0	None
M34	Residence/Commercial – Store	65	54	-11	54	-11	0	None
M35	Commercial – Maui Butterfly Farm	65	53	-12	53	-12	0	None
M36	Commercial – Olowalu Juice Stand	69	58	-11	58	-11	0	None
M37	Residence at Luawai St.	41	44	3	47	6	3	None
M38	Residence at Luawai St.	43	47	4	50	7	3	None



SITE ID	LOCATION/DESCRIPTION	MODELED EXISTING 2023 WORST-HOUR LEQ, DBA	MODELED DRAFT EIS PREFERRED ALT 2045 WORST-HOUR LEQ, DBA	LEQ, DBA INCREASE (+) OR DECREASE (-)	MODELED FINAL EIS REFINED SELECTED ALT 2045 WORST-HOUR LEQ, DBA	LEQ, DBA INCREASE (+) OR DECREASE (-)	CHANGE DRAFT EIS TO FINAL EIS	IMPACT TYPE (S, A/E, OR NONE)
M39	Residence at Luawai St.	43	46	3	50	7	4	None
M40	Residence at Luawai St.	43	46	3	49	6	3	None
M41	Residence at Luawai St.	42	47	5	49	7	2	None
M42	Residence at Luawai St.	43	46	3	49	6	3	None
M43	Residence at Luawai St.	43	46	3	49	6	3	None
M44	Residence at Luawai St.	42	46	4	47	5	1	None
M45	Residence at Luawai St.	41	43	2	44	3	1	None
M46	Residence at Kalai Pl.	41	43	2	47	2	0	None
M47	Residence at Kalai Pl.	41	43	2	45	4	2	None
M48	Residence at Kalai Pl.	43	45	2	48	5	3	None
M49	Residence at Luawai St.	42	44	2	47	5	3	None
M50	Residence at Luawai St.	42	45	3	49	7	4	None
M51	Residence at Kalai Pl.	41	43	2	43	2	0	None
M52	Residence at Kalai Pl.	40	43	3	43	3	0	None
M53	Olowalu Cultural Reserve	35	39	4	41	6	2	None
M54	Residence at Luawai St.	36	40	4	40	4	0	None
M55	Olowalu Petroglyphs	36	41	5	41	5	0	None
M56	Residence at Luawai St.	41	53	12	52	11	-1	None
M57	Residence at Luawai St.	41	54	13	54	13	0	None
M58	Awalua Cemetery	46	51	5	50	4	-1	None
M59	Commercial – Paintball	49	53	4	52	3	-1	None
M60	Residence at Olowalu Village Rd	45	51	6	51	6	0	None



5.5 ENVIRONMENTAL COMMITMENTS AND MITIGATION FOR THE PREFERRED ALTERNATIVE⁵

This section provides a complete summary of the anticipated environmental commitments and mitigation identified in the technical analyses of the Final and Draft EIS. Consistent with 23 CFR 771.105(e), these measures are based on consultation with resource agencies, built from HDOT policies and best practices, and identified based on the impact assessment. Combined with the benefits of the Selected Alternative, these commitments ensure that the Project would provide the best opportunity to minimize, avoid, and mitigate adverse effects to the extent practicable. (TABLE 5-10).

⁵ This section is fully revised text for the Final EIS. For ease of reading, the new text is not double underlined



TABLE 5-10. Environmental Commitments and Mitigation Measures

TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p>Land Use/Land Acquisition</p>	<p>HDOT will continue to consult with property owners and business tenants to ensure the following:</p> <ul style="list-style-type: none"> Continued access to land parcels is maintained during construction and once Project is complete to the extent practicable Adhere to the applicable process requirements of the Uniform Standards of Professional Appraisal Practice, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Hawai'i State Eminent Domain Law, and the Hawai'i Revised Statutes, Title 12 Chapter 171; and For extended right-of-way acquisitions, conduct supplemental environmental assessment (if necessary).
<p>Archaeological and Historic Resources</p>	<ul style="list-style-type: none"> HDOT will implement all stipulations specified in the Project's Section 106 Programmatic Agreement. The Programmatic Agreement provides treatment measures to avoid, minimize, and mitigate adverse effects to historic properties; provides protocols for continued consultation during project implementation; and describes processes for project changes and unanticipated discoveries.⁶ The Programmatic Agreement includes: roles and responsibilities of signatories (Stipulation I); qualifications for individuals completing work pursuant to the Programmatic Agreement (Stipulation II); Identification and evaluation of historic properties, process, surveys, reviews, and consultation requirements (Stipulation III); Archaeological Inventory Survey (AIS) plan, investigations, reporting and consultation requirements for subsurface archaeological surveys (Stipulation IV); assessment of effects on identified historic properties and seeking ways to avoid, minimize, or mitigate adverse effects through consultation (Stipulation V); proposed treatment measures to resolve adverse effects on historic properties (Stipulation VI); consultation with Native Hawaiians and consulting parties (Stipulation VII); changes in project scope (Stipulation VIII); post review discoveries of architectural and archaeological historic properties as well as burials and human remains, and required consultation and reporting requirements (Stipulation IX); and, administrative provisions covering confidentiality, Programmatic Agreement annual reporting, dispute resolution, amendments to the Programmatic Agreement, termination of the Programmatic Agreement, and Programmatic Agreement duration (Stipulations X through XV). The HRS § 6E Memorandum of the Programmatic Agreement includes: roles and responsibilities of HDOT, FHWA, and SHPD; qualifications for individuals completing work pursuant to HRS § 6E; consultation requirements; inadvertent effects to known historic properties within the right-of-way; identification and evaluation of historic properties, including a phased archaeological inventory survey; determining effects to historic properties under HRS § 6E; mitigation options for effects to significant historic properties including preservation (avoidance), data recovery, access and stewardship; and, archaeological monitoring, cultural monitoring, pre-construction training, unanticipated discoveries and effects on significant historic properties, and burials and iwi kupuna.
<p>Cultural Resources</p>	<ul style="list-style-type: none"> HDOT will implement all stipulations specified in the Project's Section 106 Programmatic Agreement. HDOT will continue consultation with the FHWA, the State Historic Preservation Division, and Consulting Parties for final design and through construction. As a part of the public outreach during construction, HDOT will notify the local communities who depend on stream water and marine resources at the muliwai (stream mouth) regarding the onset and status of construction activities. HDOT and the FHWA will commit to continued dialogue with the community throughout the design process and up through completion of construction for the purposes of (1) obtaining more information about the cultural practices and history of the area and (2) mitigating any impacts the Project's design, construction, or both may have on those practices. This effort will be memorialized as a Continued Community Dialogue Plan in a Programmatic Agreement prepared pursuant to the National Historic Preservation Act Section 106 process. The Continued Community Dialogue Plan will describe details and manage logistics of the continued community engagement. HDOT will include language in the design build agreement requiring the selected contractor to provide a culturally focused training program prior to fieldwork. This will be in addition to any standard safety or project-related training in the procurement notice. HDOT will include language in the procurement notice and design build agreement requiring that the selected contractor provide a cultural monitoring program including pre-construction awareness training led by HDOT's lead archaeologist, archaeological monitors, and cultural monitors for anyone with access to the construction site, including all laborers, skilled construction workers, vehicle operators, management, and visitors. HDOT will require the selected contractor to develop and commit to a construction cultural monitoring plan that is compliant with HAR § 13-279 <u>To protect natural resources associated with Native Hawaiian cultural practices, HDOT will provide funding for annual water quality monitoring connected to Ukumehame and Olowalu Reefs, as well as Ukumehame and Olowalu Streams. Monitoring will be managed by HDOT, conducted by qualified water quality specialists, will start no later than one year prior to the start of physical roadway construction, and have a duration of at least three years.</u>
<p>Visual and Scenic Character</p>	<p>HDOT commits to completing the following items to minimize visual prominence:</p> <ul style="list-style-type: none"> Shield streetlights to direct light to roadway surfaces, minimize light spill to surrounding areas, and minimize light and glare impacts, particularly where visible from the Olowalu Petroglyphs (HDOT would identify such areas, as needed, on construction plans); and Provide or expand opaque fencing and visual screening for adjacent residential and commercial viewers as a part of final design (if applicable). <p>HDOT commits to completing the following items during construction:</p> <ul style="list-style-type: none"> Preserve existing vegetation and minimize clearing for storage and laydown areas, using existing hard/paved areas for project staging where practical; Restore landscaping disturbed by construction-related activities after completion of work; Limit construction to daylight hours whenever possible;

⁶ The Programmatic Agreement and HRS 6E Memorandum are included as part of this Final EIS and establish required procedures during development of the final design and throughout construction of the Project.



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
	<ul style="list-style-type: none"> • Include directional work and safety lighting and direct lights away from residential areas where nighttime construction is necessary; • Reduce temporary construction light and glare impacts by shielding and aiming light sources downward and toward work areas to avoid light spillover; and • Screen views of construction equipment and materials from pedestrians and residential areas, as practical.
<p>Water Resources</p>	<ul style="list-style-type: none"> • HDOT will comply with National Pollutant Discharge Elimination System General Permit • If required with an individual permit, HDOT would prepare a Stormwater Pollution Prevention Plan • If necessary and prior to ground disturbance, HDOT will obtain and comply with Clean Water Act Section 404 permits for water crossings that would discharge dredge or fill material into Waters of the U.S. • If necessary, HDOT will obtain a Section 401 Water Quality Certification • HDOT will obtain and comply with Stream Channel Alteration Permit for each occurrence where activities occur within a streambed or on the banks below the ordinary high-water mark. • HDOT will ensure the Contractor adheres to HDOT Construction Best Management Practices Field Manual (January 2008) or superseding manual. • HDOT will ensure the Contractor adheres to HDOT Storm Water Post-Construction Best Management Practices Manual (February 2022) • HDOT will ensure the Contractor adheres to the HDOT Standard Specifications for Road and Bridge Construction, Section 209 Temporary Water Pollution, Dust, and Erosion Control • HDOT will monitor for construction work that may impact water resources important to traditional and customary practices • Contractor will prioritize previously disturbed and bare areas for use as staging and lay-down yards, disposal and borrow sites, and concrete batch plants • Contractor shall protect project construction-related materials from erosion (for example, with filter fabric) to prevent materials from being carried into waters by wind, rain, or high surf • All deliberately exposed soil or under-layer materials used in the Project near water shall be protected from erosion and stabilized by the Contractor as soon as possible with geotextile, filter fabric, or native vegetation matting, hydroseeding, or something similar • Contractor will minimize disturbances to stream banks. Seek to maintain baseline water flow volume and velocity within the system • Concrete wastes, solid wastes, and any sanitary/septic wastes will be located away from and managed by the Contractor to ensure there will be no contamination to ocean or critical habitats • Site-specific stormwater Best Management Practices would be implemented and/or installed at the staging and work areas by the Contractor to prevent water quality degradation associated with stormwater runoff. • Contractor shall enact stormwater Best Management Practices such as 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. • Contractor will maintain drip pans beneath construction equipment. • Contractor will prevent any debris from falling into the water. • Stockpiling, storage, and equipment staging by the Contractor will utilize appropriate Best Management Practices to prevent potential surface runoff from entering the stream. No stockpiling, storage, or heavy equipment will be placed in the streams. • Turbidity and sediment from project-related work will be minimized and contained to the immediate vicinity of the Project by the Contractor 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 will be installed properly by the Contractor and maintained in a functioning manner for the life of the construction period by the Contractor and until the impact area is permanently stabilized, self-sustaining, and/or turbidity levels, elevated due to construction, return to ambient levels. • Contractor will install sediment, turbidity, and/or pneumatic curtains, and 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 401 water quality certification). In areas of soft sediment, Contractor will consider partial length turbidity curtains to reduce resuspension of sediment during high winds and currents. • Contractor will maintain baseline water flow, volume, and velocity of the waterbody. • Contractor will use natural or bio-engineered solutions when feasible. • Contractor will fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures. • Temporary fills must be removed in their entirety by the Contractor and the affected areas returned to pre-construction conditions and elevations by the Contractor. • Contractor will minimize disturbances to stream banks, and place abutments outside of the floodplain whenever possible. • Contractor will design the structure to maintain or replicate natural stream channel and flow conditions to the greatest extent practicable. • Contractor will revegetate shoreline areas with appropriate native species and fully stabilize disturbed upland areas prior to removing silt fences and erosion prevention measures. • For anticipated stream crossings, Contractor will remove all temporary structures at the completion of in-water work. • For anticipated stream crossings, Contractor will not stockpile or stage materials in the marine environment unless necessary. • Contractor is not authorized to use treated wood for in-water work.
<p>Flora and Fauna</p>	<ul style="list-style-type: none"> • Contractor will prepare a construction lighting plan for HDOT approval prior to start of construction



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p>Flora and Fauna (continued)</p>	<ul style="list-style-type: none"> • All permanent lighting by the Contractor will adhere to the 2022 Maui Dark Skies Ordinance 5434. • The Contractor will utilize DLNR seabird-friendly light styles for all permanent lighting design. • Night work by the Contractor is not allowed during the sea turtle nesting/hatching and seabird fledgling period (May 1 – December 15). • Contractor design of bridge, culvert, and viaduct structures will avoid fill to wetland habitats. • Contractor will, in coordination with and approved by HDOT, avoid placing staging areas in or directly adjacent to delineated wetland habitat and streambanks to avoid and minimize adverse effects to habitat that may support listed waterbirds and nēnē. • Drilled shaft foundations will be used by the Contractor for pier bents, as appropriate, to minimize potential construction-related noise and vibrations. • Fueling of project-related vehicles and equipment by Contractor shall take place at least 50 feet, or the maximum distance possible, away from the aquatic environment and within a containment area, preferably over an impervious surface. A contingency plan will be prepared by the Contractor for HDOT approval prior to start of construction to control petroleum products accidentally spilled during the Project. The plan shall be retained on-site by the Contractor with the person responsible for its compliance. Absorbent pads and containment booms shall be stored on-site by the Contractor to facilitate the clean-up of accidental petroleum releases. • All vehicles and equipment cleaning, maintenance, and refueling done by the HDOT or the Contractor will be located away from and managed to assure no contamination to critical habitats. Notably, there is no critical habitat in the project area. • Contractor's 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. • Contractor's worksite will have sufficient materials to contain and clean possible spills. • Contractor's equipment storage will occur in an appropriate staging area designed to prevent unexpected spills when equipment is not in use or during fueling. • HDOT and FHWA will ensure that a monitoring plan developed by the Contractor prior to start of construction identifies the methods, equipment, communication, and all necessary measures to adequately observe ESA-listed species in the affected areas and communicate with workers. • Contractor will ensure that trained competent observers are exclusively looking for ESA-listed marine species at the work site during active construction adjacent to marine habitat and not assigned to other tasks <ul style="list-style-type: none"> – Trained competent observers shall report to the Contractor 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 Hawaiian green sea turtle, Hawksbill sea turtle, or Hawaiian monk seal are noticed in the area after work has already begun, that work may continue only if, in the best judgment of the Contractor's project supervisor, there is no way for the activity to adversely affect the animal(s) – Contractor will ensure that project-related personnel will NOT attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species. • Contractor will incorporate permanent highly visible signs placed along the new Honoapi'ilani Highway through Ukumehame during construction and operation of the new roadway. These signs would alert workers and drivers to the presence of listed birds known to be in the area to reduce the chance of vehicle collisions. • Contractor will also secure all temporary structures to avoid them blowing over during heavy winds and hitting listed bird species. • Speed limits of 15 miles per hour (mph) on active construction roadways within the project site will be posted by HDOT through the Olowalu area and 10 mph within the Ukumehame area. These speed limits are applicable to all construction access roads within the Project Area and do not apply to the existing Honoapi'ilani Highway alignment. All construction personnel including contractors, cultural monitors, and subcontractors shall adhere to the posted speed limits at all times. • Contractor will ensure that prior to the initial clearing and grubbing phase of the Project, the State's qualified biologist would be on-site to perform visual surveys for listed species and nests. Should individuals or nests be observed, then species specific buffers and protocol would apply. • Contractor will ensure that the State's qualified biologist would be on-call throughout the duration of construction to assist in monitoring, surveys, and in an advisory capacity. • Contractor will ensure that prior to the start of any construction activities, a qualified biologist would produce a handout on listed species that occur within the Action Area and present a mandatory Environmental Awareness Program (developed by HDOT) to on-site personnel, including contractors, contractor's employees, supervisors, inspectors, and all subcontractors that educates Project personnel about the presence of endangered species on-site and associated avoidance and minimization measures. • A list of Environmental Awareness Program attendees will be produced by the Contractor to ensure comprehensive compliance. A hard-hat sticker will be produced by the Contractor to display completion of HDOT's Environmental Awareness Program. • HDOT's Environmental Awareness Program will contain, at minimum, information concerning the biology and distribution of Hawaiian geese, Hawaiian stilt, Hawaiian coot, and Least Terns including recognition of various behaviors, such as nesting, breeding, and molting; their occurrence in the area; measures to avoid impacts; and procedures to follow if encounters with these species occur. • HDOT's Environmental Awareness Program will also have information on invasive species and predator species including Best Management Practices to reduce the likelihood of predators being attracted to the construction footprint. • HDOT will contact the U.S. Fish and Wildlife Service to review the awareness program prior to the Contractor administering to on-site personnel. The State's qualified on-call biologist will be present on-site once every three weeks, or as needed, to provide training to new on-site personnel. • No portable jobsite radios or other music equipment shall be used within the construction footprint at anytime and enforced by the Contractor.



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p>Flora and Fauna (continued)</p>	<ul style="list-style-type: none"> • Feeding any wildlife or feral cats shall be prohibited in all active work areas and enforced by Contractor-dedicated personnel during daily monitoring. • Contractor shall maintain and require a copy of the approved Biological Assessment and the approved Biological Opinion in the on-site construction office. • Following initial clearing and grubbing phases, if any ESA-listed species is observed the State's on-call biologist will be contacted by the Contractor to evaluate and advise on next steps in accordance with the Biological Opinion. • If nēnē or ae'o (or other listed species) become injured in the Action Area, Contractor's on-site staff will contact the State's on-call biologist immediately who will arrange for the bird(s) (or other listed animal species) to be picked up by the Division of Forestry and Wildlife and provide guidance on temporary handling prior to Division of Forestry and Wildlife pickup. Injuries to listed animals (e.g., nēnē or ae'o) resulting from project actions may require care from the Hawai'i Wildlife Center on the island of Hawai'i. Should transport to and care at the Hawai'i Wildlife Center be necessary, HDOT will provide funds to facilitate necessary and appropriate actions. <ul style="list-style-type: none"> – The State's on-call biologist will use the U.S. Fish and Wildlife Service Standard Operating Procedure for handling and transporting injured birds or other listed animal species. – The State's on-call biologist will complete the U.S. Fish and Wildlife Service Avian Injury/Mortality Form (Appendix D of the BO) and submit it to the U.S. Fish and Wildlife Service within 72 hours of the incident. • When engaging in activities that have a high risk of starting a wildfire—like welding in/near tall grass, the Contractor will wet down the area before starting the task, continuously wet down the area as needed, have a fire extinguisher on hand, and in the event that vision is impaired, (i.e. welding goggles) have a spotter to watch for fire ignitions. • Contractor will install permanent bird diversion poles along both sides of the viaduct. 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. <p>With regard to the Hawaiian Hoary Bat:</p> <ul style="list-style-type: none"> • To the greatest extent possible, large [> 15 foot tall (4.6m)] trees will be preserved in place by Contractor. If Contractor must remove large trees, they will be cut down outside of the bat birthing and pup rearing season of June 1 to September 15. • Neither HDOT nor the Contractor will use barbed wire for fencing <p>With regard to the Hawaiian Goose (nēnē):</p> <ul style="list-style-type: none"> • On-site workers will not approach, feed, or disturb Hawaiian geese, if observed in the project area, to be enforced by the Contractor. • Prior to the initial clearing and grubbing phase of the Project, the State's qualified biologist will be on-site to perform visual surveys for nēnē nests. Should individuals or nests be observed, then species specific buffers and protocol would apply. The State's on-call biologist shall be contacted by the contractor to repeat surveys within 72 hours of initial clearing and grubbing phase of the Project, and after any subsequent delay of work of 72 or more hours. • 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 by the Contractor 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 State's on-call biologist familiar with nēnē nesting behavior will be contacted by the contractor to survey for nests in and around the buffer zone prior to the resumption of any work in the area. • If a nest or active brood is discovered, the Contractor will 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 State's on-call biologist would be contacted by the Contractor, who would then contact the U.S. Fish and Wildlife Service and Division of Forestry and Wildlife within 48 hours upon discovery for further guidance. • The project site will be adequately signposted by HDOT with high-visibility signs alerting crew to the presence of Hawaiian geese in Ukumehame. • HDOT will install temporary signs that 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. • To prevent nesting, the State's on-call biologist (not construction crew) may perform hazing or other deterrent measures as long as such actions conform to the nēnē 4(d) rule (84 FR 69918; December 19, 2019, 50 CFR 17.41). Any hazing that occurs to nēnē must follow the 4(d) rule. The Contractor will maintain and require a copy of the 4(d) regulations on-site. • Work within 150 feet (45.7 meters) of a loafing or foraging Hawaiian goose can begin only after the birds have left on their own, to be enforced by the Contractor. <p>With regard to the Hawaiian stilt (ae'o) and Hawaiian coot:</p> <ul style="list-style-type: none"> • Crew will not approach, feed, or disturb Hawaiian stilt or Hawaiian coot, if observed in the project area, to be enforced by the Contractor. • Prior to the initial clearing and grubbing phase of the Project, the State's on-call biologist familiar with the species' biology will perform visual surveys for Hawaiian waterbird nests where appropriate habitat occurs within the vicinity of the proposed project site (Ukumehame wetlands). Surveys will be repeated by the State's on-call biologist within 72 hours of initial clearing and grubbing phase of the Project and after any subsequent delay of work of 72 or more hours. If a nest or active brood is found at any time during the duration of the Project, the following measures would apply: • The State's on-call biologist will be contacted by the Contractor, who will then contact the U.S. Fish and Wildlife Service and Division of Forestry and Wildlife within 48 hours upon discovery for further guidance; • Contractor will 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 will be conducted within this buffer; and



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p>Flora and Fauna (continued)</p>	<ul style="list-style-type: none"> • Contractor's biological monitor or State's on-call biologist 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 Hawaiian waterbird and nests are not adversely impacted. • If a Hawaiian stilt or Hawaiian coot is observed exhibiting nesting behavior within the Action Area during the nesting season (mid-February to August), then the State's on-call biologist familiar with Hawaiian stilt or Hawaiian coot nesting behavior will be contacted by the Contractor to advise on next steps. • If observed after work has begun, work in the vicinity of a loafing or foraging Hawaiian stilt or Hawaiian coot can begin only after the birds have left on their own and a 100-foot buffer maintained by the contractor until that time. • Border slopes of the permanent Best Management Practices will be designed by the Contractor to have a slope greater than 6:1 to deter Hawaiian stilt or Hawaiian coot from nesting adjacent to the ponds. <p>With regard to Hawaiian Ducks:</p> <ul style="list-style-type: none"> • To the greatest extent possible, the Contractor will preserve suitable habitat such as wetlands, streams, and open water features in their natural condition. • Through the Environmental Awareness Program, the State's on-call biologist will inform project personnel and contractors about the potential presence of endangered species on-site. • HDOT will post and enforce speed limits in areas where waterbirds are known to be present. • Contractor will incorporate the U.S. Fish and Wildlife Service Best Management Practices for Work in Aquatic Environments into the project design. • If a nest or active brood is discovered, the Contractor will immediately establish and maintain a 100-foot buffer around all active nests and/or broods until the chicks have fledged. No work would occur within this buffer. • The State's on-call biologist will be contacted by the Contractor, who will then contact the U.S. Fish and Wildlife Service and Division of Forestry and Wildlife within 48 hours upon discovery for further guidance. <p>With regard to Hawaiian Seabirds:</p> <ul style="list-style-type: none"> • Night work will not be allowed during seabird fledgling periods (September 15 to December 15), to be enforced by the Contractor. • Should night work be required (outside of seabird fledgling periods and sea turtle nesting/hatching periods), then lighting will be configured by the Contractor to be "dark sky friendly," in compliance with Hawai'i Revised Statute § 201-8.5. These additional measures will be incorporated into the Project by the Contractor if night time work is required to avoid and minimize potential project effects to Hawaiian seabirds: • Contractor will fully shield all outdoor lights so the bulb can only be seen from below; • Contractor will 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; and, • To avoid collisions for seabirds, where fences extend above vegetation, the Contractor will integrate three strands of polytape into the fence. For powerlines, guy-wires and other cables, the Contractor will minimize exposure above vegetation height and vertical profile as best as practicable. <p>With regard to Sea Turtles:</p> <ul style="list-style-type: none"> • There will be no vehicle use on or modification of the beach/dune environment during the sea turtle nesting or hatching season (May to December), to be enforced by the Contractor. Notably, there was no such habitat observed in the project area. • Contractor will 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. Notably, there was no dune vegetation observed in the project area. • Contractor will incorporate applicable best management practices regarding Work in Aquatic Environments into the project design. • Contractor will not stockpile project-related materials in the intertidal zone, reef flats, sandy beach and adjacent vegetated areas, or stream channels. Notably, there are no such resources observed in the project area. • Contractor will remove any project-related debris, trash, or equipment from the beach or dune daily, if not actively being used. Notably, there was no such habitat observed within the project area. • When mechanical or construction activities are performed directly adjacent to or on top of the existing Honoapi'ilani Highway, the Contractor will assign a competent observer who has undergone Environmental Awareness Program training to perform visual surveys for basking sea turtles. • If a basking sea turtle is observed within the project area, the Contractor will not permit mechanical or construction activities within 164 feet (50m) of the animal, and no such activities will be permitted in the area between the basking sea turtle and the ocean. Construction activities will not resume in such areas until the animal voluntarily leaves the area, to be enforced by the Contractor. • Night work will not be allowed by the Contractor during the sea turtle nesting/hatching period and seabird fledgling period (May 1 -December 15). • Should night work be required (outside of sea turtle nesting/hatching periods and seabird fledgling periods), then lighting will be configured by the Contractor to be "dark sky friendly," in compliance with Hawai'i Revised Statute § 201-8.5. These additional measures will be incorporated into the Project to avoid and minimize potential project effects to sea turtles: <ul style="list-style-type: none"> – Contractor will 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 cannot be fully shielded or if headlights must be used, the Contractor will fully enclose the light source with light filtering tape or filters; – Contractor will reduce the height of exterior lighting to below 3 feet (0.9 meters) and point downward or away from the beach; and – Contractor will minimize light intensity to the lowest level feasible and, when possible, include timers and motion sensors. • Contractor will incorporate the following design measures into the construction or operation of buildings adjacent to the beach to reduce ambient outdoor lighting. Notably there will be no buildings constructed adjacent to the beach:



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p>Flora and Fauna (continued)</p>	<ul style="list-style-type: none"> - 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. <p>With regard to Blackburn's Sphinx Moth:</p> <ul style="list-style-type: none"> • The State's biologist familiar with Blackburn's Sphinx Moth will survey for the species and its larval host plants during the wettest portion of the year (November to April or several weeks after a significant rain) and within four to six weeks prior to construction. Surveys will include searches for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage). • If moths, eggs, larvae, or native 'aiea or tree tobacco over 3 feet tall, are found during the survey, then the State's on-call biologist will be informed by the Contractor who would then inform the U.S. Fish and Wildlife Service within 48 hours 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 feet (10m) of the parent plant. In this scenario, the Contractor will create a 33-foot (10m), disturbance-free buffer where no work activities at all will be performed around the woody host plant to prevent disturbance to any pupating larvae. The plant roots will be removed by the Contractor with guidance from the State's on-call biologist 90 days following the initial survey to prevent resprouting. • If no Blackburn's Sphinx Moth, 'aiea, or tree tobacco are found during survey, then the Contractor will take measures to ensure that tree tobacco plants do not establish in the project site. If tree tobacco grows more than 3 feet (0.9 meters) tall, it may become a host plant for Blackburn's Sphinx Moth larvae, which can occur in as few as six weeks. Therefore, to ensure that tree tobacco does not get established in the project site, dedicated staff with prior completion of the State's Environmental Awareness Program training and visual aids of tree tobacco at various life stages, will survey for tree tobacco every six weeks before, during, and after ground disturbing construction activities within a 33-foot (10 meters) buffer. If tree tobacco is found, the dedicated staff will remove and dispose of the pulled tree tobacco per guidance provided by the State's on-call biologist. <p>With regard to Assimulans Yellow-faced Bee:</p> <ul style="list-style-type: none"> • If yellow-faced bee nests are observed by the State's on-call biologist during pre-construction surveys, the State's on-call biologist will contact the U.S. Fish and Wildlife Service for further guidance. • If any ground disturbing activities will occur in or adjacent to known occupied habitat (on the beach or makai side of the highway), a buffer area around the habitat will be required and determined on a site-specific basis through consultation with the U.S. Fish and Wildlife Service. Contractor will inform HDOT who will consult the U.S. Fish and Wildlife Service for this site-specific buffer area. • Contractor will not collect wood nor have any fires. • Contractor will restrict vehicles to existing and temporary construction roads and trails. • Following completion of the Environmental Awareness Program training, the Contractor will post educational signs to inform people of the presence of sensitive species. <p>The Project will implement the following Reasonable and Prudent Measures to minimize the potential for injury and mortality of nēnē and ae'o during project activities, as listed in the Biological Opinion (See Appendix 3):</p> <ul style="list-style-type: none"> • The State's on-call biologist will be notified by telephone and email immediately by the Contractor upon the discovery of an injured or dead nēnē or ae'o in the Action Area. • The State's on-call biologist will arrange for the bird(s) (or other listed animal species) to be picked up by the Division of Forestry and Wildlife and provide guidance on temporary handling prior to Division of Forestry and Wildlife pickup. • The State's on-call biologist will use the U.S. Fish and Wildlife Service Standard Operating Procedure for handling and transporting injured birds or other listed animal species. • The State's on-call biologist will provide the Pacific Islands Fish and Wildlife Office with a written notification using the Avian Injury/Mortality Form in Appendix D of the Biological Opinion, summarizing the event, within 3 calendar days and will contact and arrange for care from the Hawai'i Wildlife Center or other permitted rehabilitation facility for any injured bird. • Should transport to and care at the Hawai'i Wildlife Center or other permitted rehabilitation facility be necessary, HDOT will 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 Endangered Species Act. • FHWA shall submit an annual report, to be drafted by HDOT in coordination with the Contractor, to the Pacific Islands Fish and Wildlife Office within 45 calendar days after each year-end in which Project actions occur. This reporting requirement enables the U.S. Fish and Wildlife Service to determine if take has been reached or exceeded and to ensure that the terms and conditions are appropriate and effective. <ul style="list-style-type: none"> - 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 of the Biological Opinion. - Lastly, the annual reports will include all of the conservation measures implemented each year. - Upon the final year during which Project actions occur, FHWA will submit a final report to the Pacific Islands Fish and Wildlife Office within 45- calendar 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.



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p>Flora and Fauna (continued)</p>	<ul style="list-style-type: none"> – 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 U.S. Fish and Wildlife Service Division of Law Enforcement in Honolulu, Hawai'i (telephone: 808/861-8525; fax: 808/861-8515) for instructions on disposition. <p>The Contractor will implement the following Best Management Practices related to invasive species:</p> <ul style="list-style-type: none"> • Prior to entry into a project site, project materials, vehicles, machinery, and equipment will be pressure-washed by the Contractor thoroughly (preferably with hot water) in a designated cleaning area. Project materials, vehicles, machinery, and equipment will 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. • Contractor will ensure the interior and exterior of vehicles, machinery, and equipment 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. • Following Contractor cleaning and/or treatment, project materials, vehicles, machinery, and equipment, will 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. • All materials imported to the project area will be certified weed-free. Contractor will ensure that 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. • Prior to entry into the project site, all on-site personnel will visually inspect and clean their clothes, boots or other footwear, backpack, radio harness, tools and other personal gear and equipment for insects, seeds, soil, plant parts, or other debris. Seeds found on clothing, footwear, backpacks, etc., will 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. • Only weed-free seed mixtures will be used for hydroseeding and hydromulching on the project area. The State's qualified botanist will inspect each seeded area once a minimum of 60 calendar days after application of hydroseed/hydromulch. Any species of plant other than those intended to be in the hydroseed/hydromulch will be removed. In particular, plant species that are not known to occur on Maui and those that are actively being controlled on the island will be removed. • Vegetation and landscaping will follow all applicable guidelines set forth in the HDOT Highway Manual for Sustainable Landscape Maintenance including an annual comprehensive inspection (HDOT 2011). • Revegetation and landscaping will include native plants found in the action area during biological surveys, native plants historically known from the area, as well as native and possibly nonnative plants not considered invasive species that are fire resistant and recommended by the Pacific Fire Exchange, Plant Pono website, and following County of Maui Planting Guidelines. These species include, but are not limited to 'iliahialo'e (<i>Santalum ellipticum</i>), 'a'ali'i (<i>Dodonaea viscosa</i>), hoary abutilon (<i>Abutilon incanum</i>), akulikuli (<i>Sesuvium portulacastrum</i>), milo (<i>Thespesia populnea</i>), 'ilima (<i>Sida fallax</i>), naupaka (<i>Scaevola taccada</i>), and uhaloa (<i>Waltheria indica</i>). An additional three species are included for consideration in revegetation: Pōhinahina (<i>Vitex rotundifolia</i>), 'Ūlei (<i>Osteomeles anthyllidifolia</i>), and 'Āweoweo (<i>Chenopodium oahuense</i>). • As best as practicable, disturbance to endemic plant species such as 'iliahialo'e will be avoided by the Contractor. • Only plants grown locally on Maui will be used for landscaping purposes to the extent practicable. If locally grown plants are unavailable, then imported plants may be used, but they will 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. • A litter-control plan shall be developed and implemented by the Contractor prior to start of construction to prevent attraction and introduction of nonnative species. • Vehicles infested with little fire ants will be treated by the Contractor following recommendations by the Hawaii Ant Lab outlined in the 2024 Pacific Islands Fish and Wildlife Office Biosecurity Protocols. • Contractor will adhere to little fire ant baiting recommendations for vehicles, materials, and storage areas as outlined in the 2024 Pacific Islands Fish and Wildlife Office Biosecurity Protocols. • If little fire ants are detected, the Contractor will report it to 808-643-PEST. • Contractor will adhere to Hawaii Department of Agriculture Plant Quarantine Interim Rule 24-1 prohibiting the movement of Coconut Rhinoceros Beetle host material from the island of O'ahu. • If felling or trimming palms, the Contractor will contact Coconut Rhinoceros Beetle Response for a free inspection ((808) 679-5244 or email at info@crbhawaii.org). • Contractor will keep green waste whole until it is ready to be treated and removed. Green waste will be chipped on site and transported on the same day to a secure and managed green waste disposal site/facility. • Contractor will minimize accumulations of green waste by regularly treating mulch piles or depositing it in sealed green waste bins. • If injured or dying coconut palm trees are observed or if Coconut Rhinoceros Beetle are detected, Contractor will contact the State's on-call biologist who will then contact Coconut Rhinoceros Beetle Response at (808) 679-5244 or email at info@crbhawaii.org or online at https://www.crbhawaii.org/report. <p>With regard to predator control:</p> <ul style="list-style-type: none"> • In areas of known nēnē and ae'ō habitat (Ukumehame near firing range), the Contractor will be responsible for predator trapping and will develop a predator control plan for approval by HDOT. • On-site staff will practice good project-site hygiene to avoid litter and garbage from attracting rodents, feral cats, mongoose, and other wildlife. • Contractor will provide covered waste bins and ensure they are emptied weekly. • Contractor will ensure that all food waste is properly disposed of in covered waste bins. • Contractor will monitor for construction work that may impact flora and fauna resources important to traditional and customary practices. <p>With regard to reinitiation of Endangered Species Act Section 7 Consultation:</p>



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
	<ul style="list-style-type: none"> Any significant changes made during final design will be evaluated by the State's on-call biologist in coordination with the Contractor and HDOT for any impacts not previously considered in the Biological Assessment. HDOT will work with FHWA to coordinate with the U.S. Fish and Wildlife Service and reinitiate Section 7 Consultation if needed. If take is exceeded, reinitiation of consultation and review of reasonable and prudent measures is required by FHWA in coordination with HDOT. See Biological Opinion for Incidental Take Statement.
Traffic, Right-of-way, Pedestrians/Bicycles	<ul style="list-style-type: none"> Contractor will maintain signs, lights, barricades, and other safety equipment for motorists and pedestrians. HDOT will inform the public of planned construction activities that may affect service on the existing roadways. During construction, the Contractor will develop a transportation management plan for HDOT's approval to minimize traffic congestion and maintain traffic, bicycle, and pedestrian safety in the project area.
Air Quality and Energy	<ul style="list-style-type: none"> Airborne, visible fugitive dust during construction will be controlled at the project site by the Contractor in accordance with the provisions of HAR Chapter 11-60.1-33, Fugitive Dust, HDOT's Standard Specifications, and HDOT's <i>Construction Best Management Practices Field Manual</i> (BMP SM-18). Exhaust emissions and energy consumption from construction vehicles and equipment will be reduced through the following control measures to be enforced by the Contractor: <ul style="list-style-type: none"> Keeping construction equipment and vehicles properly tuned and maintained; Avoiding idling of diesel equipment, particularly near the air intake of any building heating, ventilation, and air conditioning systems; Avoiding the use and routing of construction equipment near residential areas and clusters of sensitive receptors like hospitals, schools, day care facilities, elderly housing, and convalescent facilities; and Timing the assembly of construction crews, equipment, and work to minimize conflicts with typical commuting hours. Contractor will implement controls to limit fugitive dust, including watering (as appropriate), wind screens, and proper material transport and storage techniques.
Noise	<ul style="list-style-type: none"> Contractor will comply with HDOT Standard Specifications and local sound control and noise level rules, regulations, and ordinances. Contractor will obtain a Noise Permit from the State of Hawai'i Department of Health in order to comply with community noise control standards (Hawai'i Administrative Rules [HAR] §11 46) during construction. During construction, noise control measures will be implemented by the Contractor to minimize construction noise and the effect on existing noise sensitive land uses including the following: <ul style="list-style-type: none"> During the early stages of construction plan development, strategic placement of stationary equipment, such as compressors and generators, will be considered for shielding against construction noise; Contractor will comply with HDOT Standard Specifications and all local sound control and noise level rules, regulations, and ordinances which apply to work performed pursuant to the contract. Each internal combustion engine used for any purpose on the job, or related to the job, will be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine will be operated without a muffler; At community meetings, project representatives by HDOT and the Contractor will explain the work, schedule, and planned noise control measures related to construction; and The aforementioned measures will be incorporated by the Contractor into site-specific construction plans, and additional noise emission limits could be developed as well,
Infrastructure and Utilities	<ul style="list-style-type: none"> Contractor will coordinate with the affected utilities, and private water supply systems, as applicable for relocation.
Hazardous Materials	<ul style="list-style-type: none"> Prior to construction activities, Contractor will develop a construction Health and Safety Plan Contractor will comply with HAR §12-110 (Construction Standards – General Safety and Health Requirements) Contractor will perform lead and asbestos surveys prior to construction and provide to HDOT, as applicable If contamination is identified, the Contractor will report it to HDOT immediately. Any potential handling of hazardous materials or on-site remediation by the Contractor or HDOT will be in accordance with applicable State and federal laws specifying the handling, treatment, and disposal of contaminated materials.