



# Contents

<b>5. Preferred Alternative .....</b>	<b>5-1</b>
5.1 PREFERRED ALTERNATIVE .....	5-1
5.1.1 Refinements to the Preferred Alternative .....	5-1
5.1.2 Preliminary Cost Estimate for the Preferred Alternative .....	5-10
5.2 EVALUATION SUPPORTING SELECTION OF PREFERRED ALTERNATIVE .....	5-10
5.2.1 Olowalu.....	5-10
5.2.2 Ukumehame .....	5-18
5.2.3 Summary Assessment.....	5-24
5.3 PRELIMINARY IDENTIFICATION OF ENVIRONMENTAL COMMITMENTS AND MITIGATION FOR THE PREFERRED ALTERNATIVE .....	5-25

## TABLES

TABLE 5-1.	Preliminary Cost Estimate for the Preferred Alternative .....	5-10
TABLE 5-2.	Evaluation of No Build Alternative and Build Alternatives in Olowalu .....	5-12
TABLE 5-3.	Summary of Effects Assessment in Olowalu .....	5-13
TABLE 5-4.	Evaluation of the No Build Alternative and the Build Alternatives in Ukumehame .....	5-19
TABLE 5-5.	Summary of Effects Assessment in Ukumehame .....	5-20
TABLE 5-6.	Environmental Commitments and Mitigation Measures .....	5-26

## FIGURES

FIGURE 5-1.	Build Alternatives .....	5-3
FIGURE 5-2.	Preferred Alternative .....	5-4
FIGURE 5-3.	Olowalu – Refinement at Northern Connection to Existing Lāhainā Bypass .....	5-5
FIGURE 5-4.	Ukumehame – Refinement at Northern Connection to Olowalu .....	5-7
FIGURE 5-5.	Ukumehame – Refinement at Pali Connection through Ukumehame Firing Range .....	5-9





## 5. Preferred Alternative

This chapter describes the Preferred Alternative and summarizes the comparative evaluation of the Build Alternatives for the Honoapi'ilani Highway Improvements Project (the Project).

---

### 5.1 PREFERRED ALTERNATIVE

---

Based on environmental assessment of 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 provides the best opportunity to meet the Project's purpose and need while minimizing potential adverse environmental effects.

#### 5.1.1 Refinements to the Preferred Alternative

While the Preferred Alternative provides the best overall alignment, certain adverse effects were identified in this Draft Environmental Impact Statement (EIS). In identifying the Preferred Alternative, refinements have been 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 alignment's 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 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 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 Draft EIS.



FIGURE 5-1. Build Alternatives

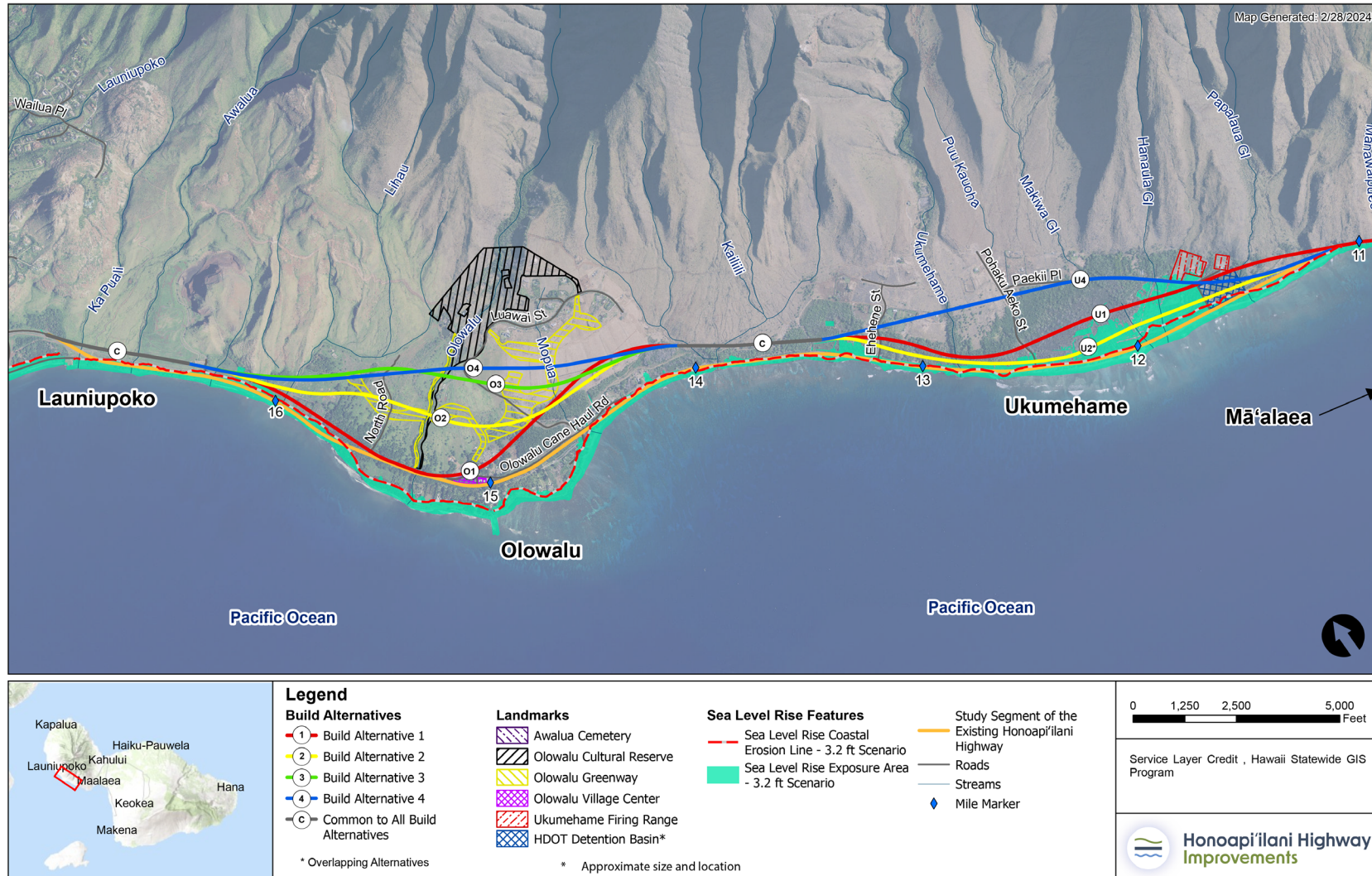




FIGURE 5-2. Preferred Alternative

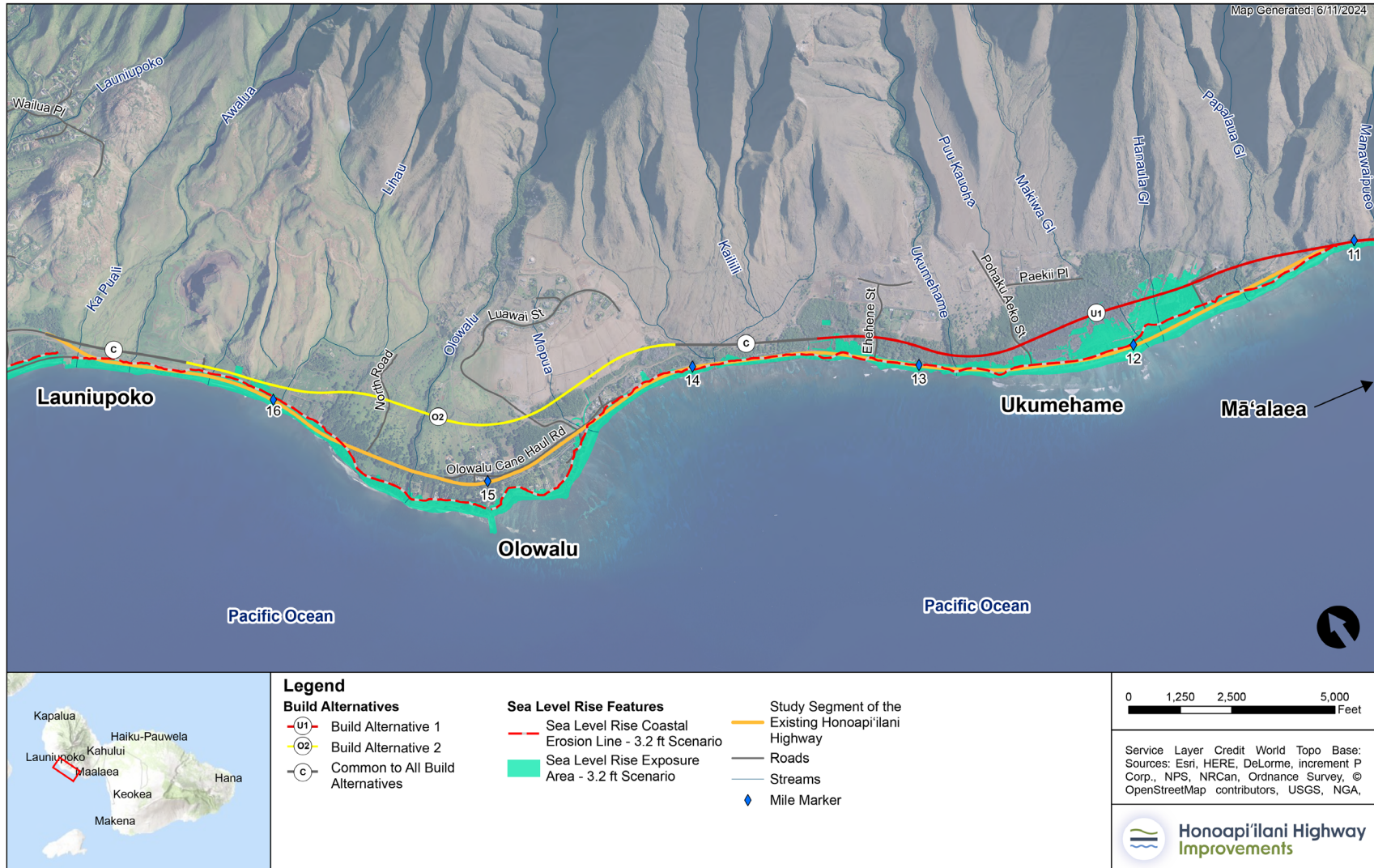
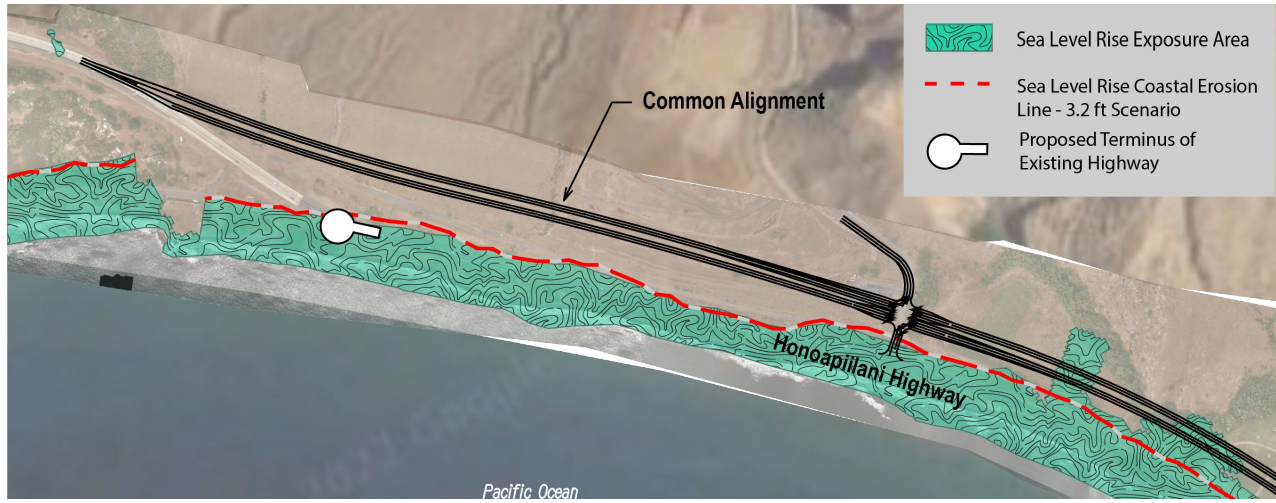


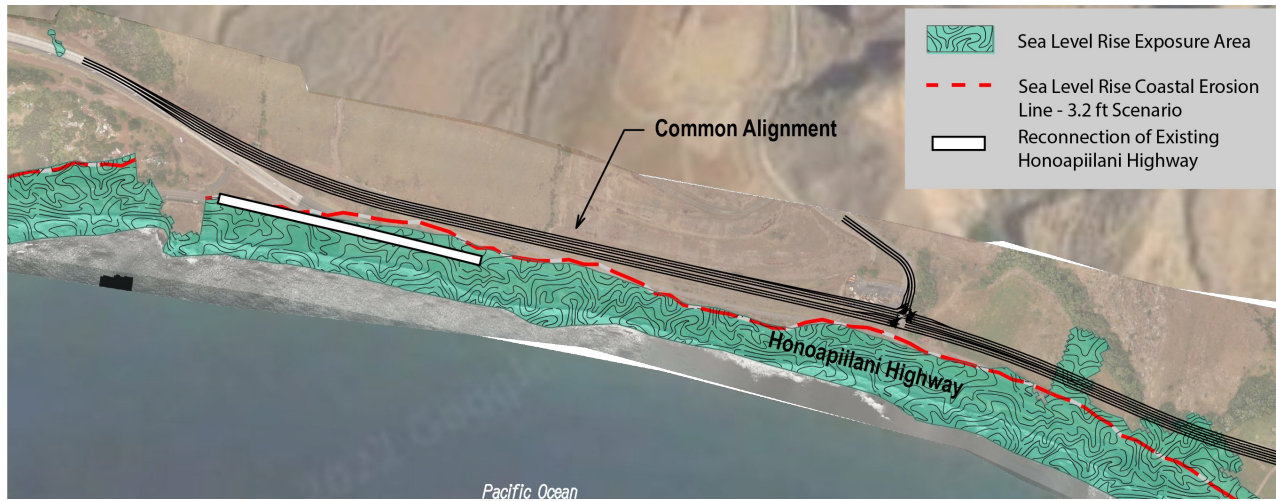


FIGURE 5-3. Olowalu – Refinement at Northern Connection to Existing Lāhainā Bypass

(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 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 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, 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.

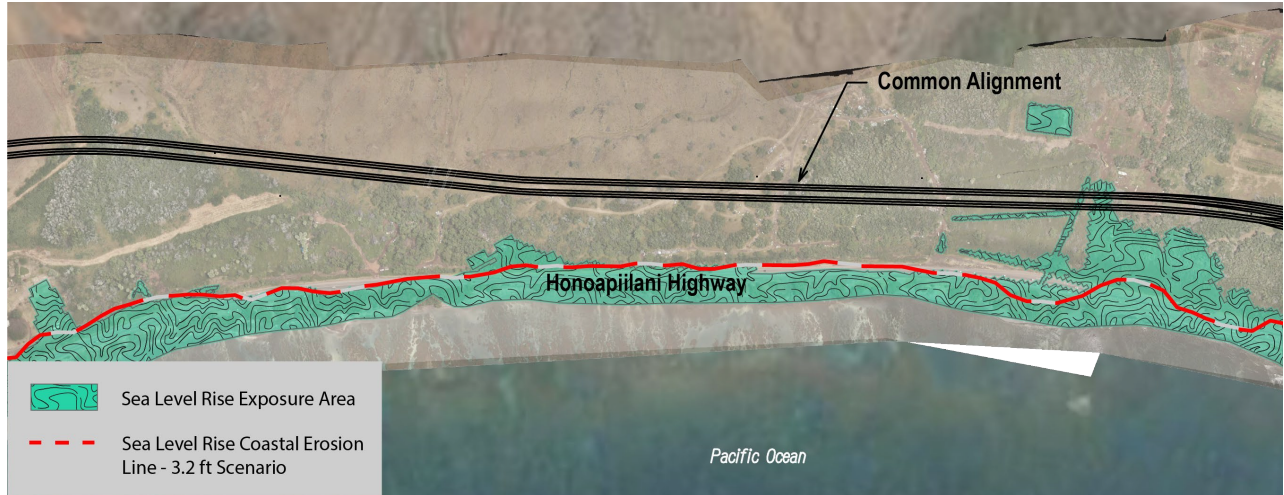




- Originally designed to meet the Project's objective of providing right-of-way that is suitable for four lanes of traffic, the conceptual alignment required two parallel viaduct structures that add substantially to the overall cost of the Project.

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

(a) Original Alignment



(b) Refined Alignment

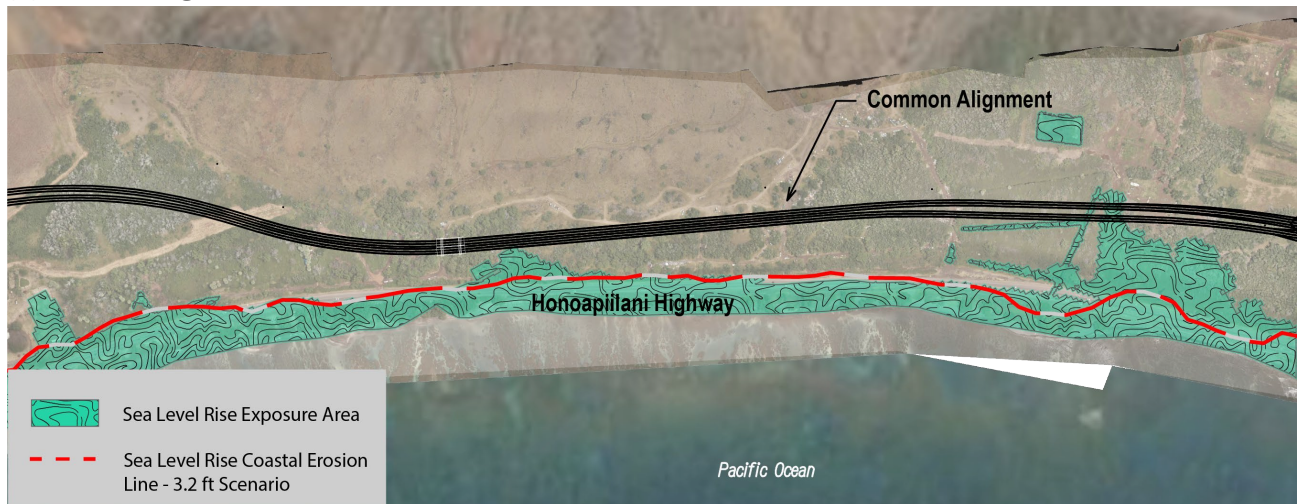




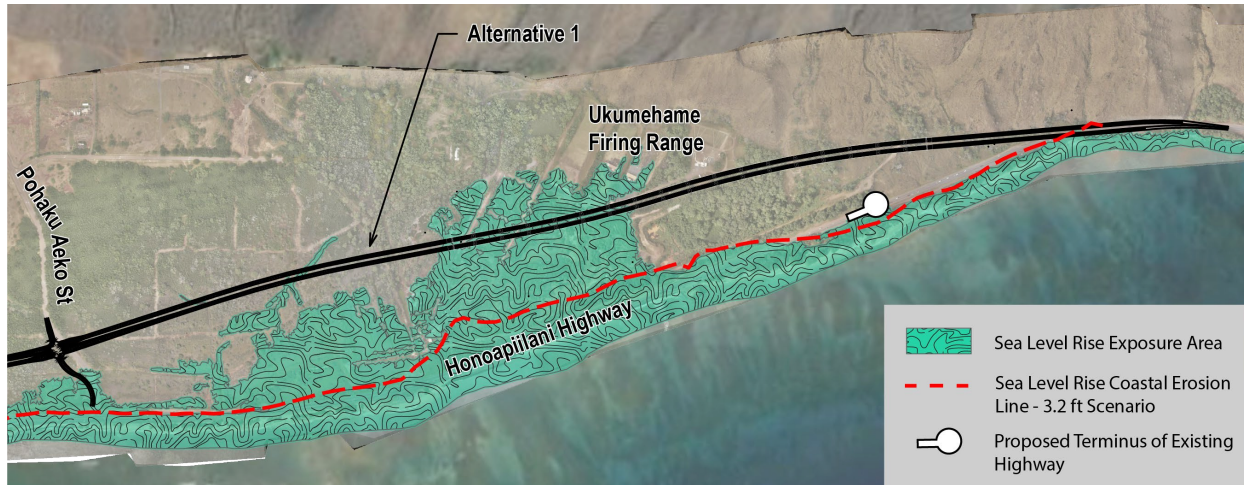
FIGURE 5-5 shows the refinements to the Preferred Alternative, which include the following features:

- 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).

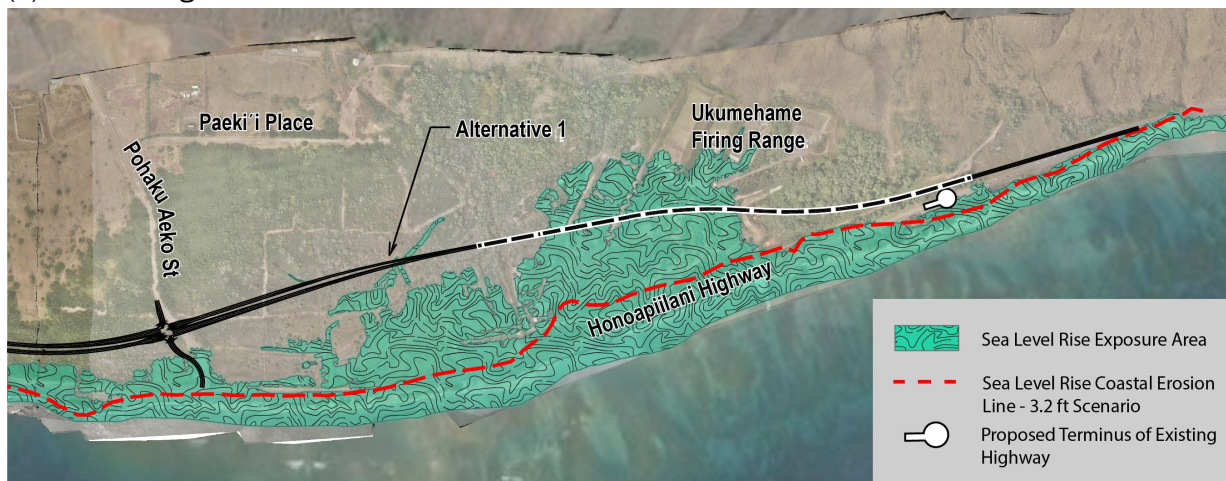


FIGURE 5-5. Ukumehame – Refinement at Pali Connection through Ukumehame Firing Range

(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
<b>Total</b>	<b>\$160.8</b>

## 5.2 EVALUATION SUPPORTING SELECTION OF PREFERRED ALTERNATIVE

The four Build Alternatives analyzed in this 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 Draft EIS, TABLE 5-2 provides a visual comparison of the four Build Alternatives and indicates how refinements to the Preferred Alternative change the 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 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. 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	●	●	●	●	●	●
<b>OLOWALU OVERALL ASSESSMENT</b>	●	●	●	●	●	●

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



TABLE 5-3. Summary of Effects Assessment in Olowalu

TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
<b>Preliminary Construction Costs</b>	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.
<b>Land Use and Zoning</b>	<ul style="list-style-type: none"> <li>No changes to land use, development patterns, or zoning.</li> <li>No displacement of residences, commercial establishments, or agricultural uses.</li> </ul>	<ul style="list-style-type: none"> <li>Converts land to highway use but no overall changes to land uses, development patterns, or zoning.</li> <li>No displacement of residences, but could affect access to or take a portion of Maui Paintball, Living Earth Systems farm, and the Mauna Kahālawai Watershed Partnership Storage Yard.</li> </ul>	<ul style="list-style-type: none"> <li>Converts land to highway use but no overall changes to land uses, development patterns, or zoning.</li> <li>No displacement of residences or business, but could affect access to Maui Paintball and could take a portion of the Living Earth Systems farm.</li> <li>Crosses greenway easements on five lots and could require relocation or elimination of portions of the private multiuse path.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to Build Alternative 2 regarding Maui Paintball and Living Earth Systems farm.</li> <li>One residential lot requires right-of-way acquisition that may displace a residence.</li> <li>Alignment closer to Olowalu Petroglyphs and mauka residences.</li> <li>Crosses greenway easement on one lot and could require relocation or elimination of portions of the private multiuse path.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to Build Alternative 3 overall</li> <li>Alignment is closest to Olowalu Petroglyphs and mauka residences.</li> <li>Crosses greenway easement on one lot, and could require relocation or elimination of portions of the private multiuse path</li> </ul>
<b>Agriculture and Farmlands</b>	No changes to agricultural designations or uses.	<ul style="list-style-type: none"> <li>No changes to agricultural designations.</li> <li>Does not trigger Agricultural Lands of Importance to the State of Hawai'i or Farmland Protection Policy Act analysis.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No changes to agricultural designations.</li> <li>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.</li> </ul>	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.
<b>Community Services</b>	<ul style="list-style-type: none"> <li>No community services in project area.</li> <li>As road deteriorates and becomes less reliable into the future, could adversely affect use of corridor to access services.</li> </ul>	<ul style="list-style-type: none"> <li>No community services in project area.</li> <li>More resilient transportation corridor to help ensure continued access to services.</li> </ul>	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	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
<p><b>Land Acquisition, Displacement, and Relocation</b></p>	<p>No additional land acquisition required.</p>	<ul style="list-style-type: none"> <li>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).</li> <li>Mitigation may be required to ensure access to these businesses and could require relocation in conformance with the Uniform Relocation Act.</li> <li>Requires land agreements with County of Maui and State of Hawai'i on 4 parcels.</li> <li>Affects 3 Land Commission Award/ Kuleana parcels.</li> </ul>	<ul style="list-style-type: none"> <li>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).</li> <li>Mitigation may be required to ensure access to these businesses and could require relocation in conformance with the Uniform Relocation Act.</li> <li>Requires land agreements with County of Maui and State of Hawai'i on 3 parcels.</li> <li>Affects 5 Land Commission Award/ Kuleana parcels.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>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</li> <li>Requires land agreements with County of Maui and State of Hawai'i on 3 parcels.</li> <li>Affects 8 Land Commission Award/ Kuleana parcels.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>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</li> <li>Requires land agreements with County of Maui and State of Hawai'i on 3 parcels.</li> <li>Affects 5 Land Commission Award/ Kuleana parcels.</li> </ul>
<p><b>Parklands and Recreational Resources/Beach Access</b></p>	<ul style="list-style-type: none"> <li>No changes to parklands or access.</li> <li>Road disruptions and closures could affect beach access.</li> </ul>	<ul style="list-style-type: none"> <li>All existing parks and public shoreline remain accessible via the existing highway.</li> <li>Access to Awalua and Ka'ili'ili beaches would be potentially limited with no through local road.</li> </ul>	<p>All existing parks and public shoreline remain accessible via the existing highway.</p>	<p>Same as Build Alternative 2.</p>	<p>Same as Build Alternative 2.</p>
<p><b>Archaeological and Architectural Historic Properties</b></p>	<p>No changes that would have direct or indirect adverse effects in the Area of Potential Effect.</p>	<ul style="list-style-type: none"> <li>Programmatic Agreement would define additional investigations and mitigation commitments.</li> <li>Common alignment elements disturb archaeological resources at the Launiupoko connection with the Lāhainā Bypass.</li> </ul>	<p>Same as Build Alternative 1.</p>	<p>Same as Build Alternative 1.</p>	<p>Same as Build Alternative 1, except located closest to Olowalu Petroglyphs with adverse effects on visual character and noise levels.</p>
<p><b>Cultural Resources</b></p>	<p>No changes that would have direct or indirect adverse effects to resources or practices.</p>	<p>Limited effects on cultural resources and practices based on alignment and environmental design best practices.</p>	<p>Same as Build Alternative 1.</p>	<p>Similar to Build Alternative 1. but closer to Olowalu Petroglyphs</p>	<p>Similar to Build Alternative 1 but closes to Olowalu Petroglyphs.</p>
<p><b>Visual and Scenic Character</b></p>	<p>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.</p>	<ul style="list-style-type: none"> <li>Overall Visual Impact Assessment of critical viewpoints show marginal improvements to viewers compared to the No Build Alternative.</li> <li>Partial loss of monkeypod tree canopy detracts from visual character.</li> </ul>	<ul style="list-style-type: none"> <li>No impact to the visual character of the monkeypod tree canopy.</li> <li>Potentially visible to subdivision residents; however, the alignment would be largely screened from the Olowalu Petroglyphs.</li> </ul>	<p>Changes viewer perspectives based on roadway location and elevation, raising the visual awareness for mauka residences and cultural viewers at Olowalu Petroglyphs.</p>	<p>Same as Build Alternative 3, except closer and more visually disruptive at Olowalu Petroglyphs.</p>





TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
<b>Water Resources, Wetlands, and Floodplains</b>	<ul style="list-style-type: none"> <li>No changes to current conditions on water resources, wetlands, or floodplains.</li> <li>No Build Alternative has no established stormwater management infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>Crosses the most flood hazard areas, and approximately 0.72 acre of wetlands and other waters.</li> <li>Closest to the Pacific Ocean connections of the Līhau and Olowalu Streams.</li> <li>Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>Crosses over the flood hazard zone along the Olowalu Stream and near the mouth of the Mōpua Stream.</li> <li>Crosses approximately 0.53 acre of wetlands and other waters and overlaps the least with the Mōpua Stream.</li> <li>Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>Crosses over the flood hazard zone along the Olowalu Stream and approximately 0.54 acre of wetlands and other waters.</li> <li>Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>Crosses over the flood hazard zone along the Olowalu Stream and approximately 0.61 acre of wetlands and other waters.</li> <li>Construction best management practices used to minimize the potential for water quality effects to the streams and wetlands.</li> </ul>
<b>Flora and Fauna, Endangered Species</b>	No changes to current conditions and effects to flora and fauna, or endangered species.	<ul style="list-style-type: none"> <li>Partial loss of monkeypod tree canopy; would have adverse effect per their status as “exceptional trees.”</li> <li>No adverse effects anticipated with best management practices and recommended conservation measures.</li> </ul>	Same as Build Alternative 1, except no loss of monkeypod tree canopy.	Same as Build Alternative 2.	Same as Build Alternative 2.
<b>Geology, Soils, and Natural Hazards</b>	<ul style="list-style-type: none"> <li>No changes to geology or soils.</li> <li>No potential to serve as a wildfire break.</li> <li>Not compliant with current seismic standards.</li> <li>89% within tsunami evacuation zone.</li> <li>Increased susceptibility to hurricane and tropical storms.</li> </ul>	<ul style="list-style-type: none"> <li>No geologic or soil constraints.</li> <li>Firebreak benefit by alignment through hot spot.</li> <li>Compliant with current seismic standards.</li> <li>53% within tsunami evacuation zone.</li> <li>Decreased susceptibility to hurricanes and tropical storms.</li> <li>Similar susceptibility to volcanic hazards.</li> </ul>	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.
<b>Coastal Zone Management and Hawaiʻi Special Management Areas</b>	<ul style="list-style-type: none"> <li>Inconsistent with Coastal Zone Management policies.</li> <li>Within Special Management Areas, currently adversely affecting coastal processes.</li> </ul>	<ul style="list-style-type: none"> <li>Generally consistent with Coastal Zone Management policies with less consistency regarding scenic and open space resources (due to the limited access to Awalua and Kaʻiliʻili beaches) compared with the other Build Alternatives.</li> <li>Potential for a small area of the alignment to fall within Special Management Areas near Launiupoko.</li> </ul>	<ul style="list-style-type: none"> <li>Generally consistent with Coastal Zone Management policies.</li> <li>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.</li> </ul>	Same as Build Alternative 2.	Same as Build Alternative 2.



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



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2	BUILD ALTERNATIVE 3	BUILD ALTERNATIVE 4
<b>Environmental Justice and Socioeconomic Conditions</b>	Less reliable transportation infrastructure could limit workforce mobility, adversely affecting both environmental justice and general populations.	<ul style="list-style-type: none"> <li>No disproportionate high and adverse effects.</li> <li>Benefit to regional environmental justice population through improvement and more resilient regional mobility.</li> <li>May result in disruption or displacement of Maui Paintball and Living Earth Systems farm, which may be environmental-justice owned.</li> </ul>	Same as Build Alternative 1.	Same as Build Alternative 1.	Same as Build Alternative 1.
<b>Indirect Effects</b>	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.
<b>Cumulative Effects</b>	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 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 provide 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 assessed for the refined Preferred Alternative through the development of the Final EIS as well as the Section 106 Programmatic Agreement, which governs Section 106 compliance for the Project after NEPA and into final design.



TABLE 5-4. 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	●	●	●	●	●
UKUMEHAME OVERALL ASSESSMENT	●	●	●	●	●

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



TABLE 5-5. Summary of Effects Assessment in Ukumehame

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



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4
<b>Archaeological and Architectural Historic Properties</b>	No changes that would have direct or indirect adverse effects in the Area of Potential Effect.	<ul style="list-style-type: none"> <li>Programmatic Agreement would define additional investigations and mitigation commitments.</li> <li>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.</li> </ul>	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.
<b>Cultural Resources</b>	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.
<b>Visual and Scenic Character</b>	<ul style="list-style-type: none"> <li>No direct changes.</li> <li>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.</li> </ul>	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.
<b>Water Resources, Wetlands, and Floodplains</b>	No change in location of highway.	<ul style="list-style-type: none"> <li>Crosses approximately 6.36 acres of wetlands and other waters.</li> <li>Construction best management practices would be used to minimize the potential for water quality effects to the streams and wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>Crosses approximately 15.877 acres of wetlands and other waters.</li> <li>Greatest water resource disturbance.</li> <li>Construction best management practices would be used to minimize the potential for water quality effects to the streams and wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>Crosses approximately 1.96 acres of wetlands and other waters.</li> <li>Least water resource disturbance.</li> <li>Construction best management practices would be used to minimize the potential for water quality effects to the streams and wetlands.</li> </ul>
<b>Flora and Fauna, Endangered Species</b>	No changes to current conditions and effects to flora and fauna, or endangered species.	<ul style="list-style-type: none"> <li>With best management practices and recommended conservation measures, no anticipated adverse effects.</li> <li>Viaduct construction in the vicinity of the Ukumehame Firing Range would minimize potential conflicts with stilts and nēnē loafing areas.</li> </ul>	Similar to Build Alternative 1.	Similar to Build Alternative 1.
<b>Geology, Soils, and Natural Hazards</b>	<ul style="list-style-type: none"> <li>No changes to geology or soils.</li> <li>No potential to serve as a wildfire break.</li> <li>100% within tsunami evacuation zone.</li> <li>Not compliant with current seismic standards.</li> <li>Increased susceptibility to hurricane and tropical storms.</li> </ul>	<ul style="list-style-type: none"> <li>More slope stabilization required in Pali.</li> <li>Firebreak benefit by alignment through hot spot.</li> <li>95% within tsunami evacuation zone.</li> <li>Compliant with current seismic standards.</li> <li>Decreased susceptibility to hurricanes and tropical storms.</li> <li>Similar susceptibility to volcanic hazards.</li> </ul>	Similar to Build Alternative 1; however, Build Alternative 3 would be 100% within tsunami evacuation zone.	<ul style="list-style-type: none"> <li>Similar to Build Alternative 1; however, Build Alternative 4 would be 87% within tsunami evacuation zone.</li> <li>Mauka alignment offer additional hot spot fire break.</li> </ul>



TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4
<b>Coastal Zone Management and Hawai'i Special Management Areas</b>	<ul style="list-style-type: none"> <li>Inconsistent with Coastal Zone Management policies.</li> <li>Within Special Management Areas, currently adversely affecting coastal processes.</li> </ul>	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.
<b>Climate Change and Sea Level Rise</b>	<ul style="list-style-type: none"> <li>42% makai of the coastal erosion line.</li> <li>62% within annual high-wave flooding area.</li> <li>14% within annual passive flooding area.</li> <li>11% within 6-foot SLR scenario (High Confidence).</li> <li>27% within 6-foot SLR scenario (Low Confidence).</li> <li>73% within overall SLR-XA.</li> </ul>	<ul style="list-style-type: none"> <li>0% makai of the coastal erosion line.</li> <li>9% within annual high-wave flooding area.</li> <li>9% within annual passive flooding area.</li> <li>8% within 6-foot SLR scenario (High Confidence).</li> <li>12% within 6-foot SLR scenario (Low Confidence).</li> <li>12% within overall SLR-XA.</li> </ul>	<ul style="list-style-type: none"> <li>1% makai of the coastal erosion line.</li> <li>32% within annual high-wave flooding area.</li> <li>24% within annual passive flooding area.</li> <li>13% within 6-foot SLR scenario (High Confidence).</li> <li>17% within 6-foot SLR scenario (Low Confidence).</li> <li>35% within overall SLR-XA.</li> </ul>	<ul style="list-style-type: none"> <li>1% makai of the coastal erosion line.</li> <li>6% within annual high-wave flooding area.</li> <li>5% within annual passive flooding area.</li> <li>3% within 6-foot SLR scenario (High Confidence).</li> <li>9% within 6-foot SLR scenario (Low Confidence).</li> <li>8% within overall SLR-XA.</li> </ul>
<b>Transportation</b>	<ul style="list-style-type: none"> <li>Access to existing businesses solely reliant on Honoapi'ilani Highway.</li> <li>No improvements to highway safety.</li> <li>No improvements to level of service or delays.</li> <li>Least able to accommodate future growth.</li> </ul>	<ul style="list-style-type: none"> <li>Improved regional reliability.</li> <li>Access to existing beaches and parks would be remain only along existing highway.</li> <li>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.</li> <li>Improvements to highway safety.</li> <li>Improvements to level of service and delays.</li> <li>Same driveway but new access route for Ukumehame Firing Range.</li> </ul>	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.
<b>Air Quality and Energy</b>	No changes in air quality.	No adverse impacts to air quality and energy.	Same as Build Alternative 1.	Same as Build Alternative 1.
<b>Noise</b>	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.
<b>Infrastructure and Utilities</b>	No changes to existing infrastructure and utilities present in the project area.	<ul style="list-style-type: none"> <li>No adverse effect to infrastructure and utilities.</li> <li>No anticipated relocation of utilities to new alignment, but future utility use of right-of-way could be coordinated with HDOT and utilities.</li> </ul>	Same as Build Alternative 1.	Same as Build Alternative 1.
<b>Hazardous Materials</b>	<ul style="list-style-type: none"> <li>No change or adverse effect to hazardous materials.</li> <li>USEPA will continue to temporarily use a portion of the Ukumehame Firing Range as storage for contaminated debris from the wildfire.</li> </ul>	<ul style="list-style-type: none"> <li>No adverse effect to hazardous materials.</li> <li>Alignment would have the potential to disturb potentially hazardous materials at Ukumehame Firing Range (that is, lead contamination).</li> <li>USEPA temporary use of Ukumehame Firing Range for storage would not be affected by alignment.</li> </ul>	No adverse effect to hazardous materials; alignments would avoid potential to disturb potentially hazardous materials at Ukumehame Firing Range.	Same as Build Alternative 1.





TOPIC	NO BUILD ALTERNATIVE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVES 2 AND 3	BUILD ALTERNATIVE 4
<b>Environmental Justice and Socioeconomic Conditions</b>	<ul style="list-style-type: none"> <li>No potential benefit to regional environmental justice populations through improved mobility.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No disproportionate high and adverse effects with mitigation to ensure continued access to one family's kuleana parcel and local cultural practice.</li> <li>Benefit to regional environmental justice population through improvement and more resilient regional mobility.</li> <li>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.</li> </ul>	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.
<b>Indirect Effects</b>	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.
<b>Cumulative Effects</b>	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 5.3, 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 of preliminarily eligible archaeological and architectural historic resources. 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 has determined a *de minimis* effect on parklands and 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 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 resources (or for unanticipated discoveries during construction).

---

### 5.3 PRELIMINARY IDENTIFICATION OF ENVIRONMENTAL COMMITMENTS AND MITIGATION FOR THE PREFERRED ALTERNATIVE

---

This section provides a preliminary summary compilation of the environmental commitments and mitigation identified in the technical analyses of this Draft EIS. (See individual chapters for a more detailed breakdown of these commitments.) These measures are based on consultation with resource agencies, built from HDOT policies and best practices, and identified based on the impact assessment of this Draft EIS. Combined with the benefits of the Preferred Alternative, these commitments ensure that the Project would provide the best opportunity to minimize, avoid, and mitigate adverse effects to the extent practicable (TABLE 5-6).



TABLE 5-6. **Environmental Commitments and Mitigation Measures**

TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p><b>Alternative Refinement</b></p>	<p>HDOT and the FHWA would explore and identify opportunities to refine the Preferred Alternative to further avoid or minimize environmental effects. Such opportunities could be identified through public input and comments on this Draft EIS, continued consultation through the Agency Coordination Plan, and as an outcome of the Section 106 consultation process. Any refinements would be evaluated to ensure that there are no new additional adverse effects, and any changes to the Preferred Alternative would be disclosed in the Final EIS.</p> <p>At the Pali connection, it is anticipated that a cutoff wall would be required to protect the existing and new roadway connection from erodible soil conditions and potential future erosion. A design requirement would be that this design feature would be built within the paved area of the highway in the makai shoulder to avoid encroachment on adjacent beach areas.</p>
<p><b>Land Use/Land Acquisition</b></p>	<p>HDOT would continue to consult with property owners and business tenants to ensure the following:</p> <ul style="list-style-type: none"> <li>• Continued access to land parcels</li> <li>• Minimize takings of entire parcels and to retain existing uses</li> <li>• Adhere to the process requirements of the Uniform Relocation Act and Hawaiʻi eminent domain laws</li> </ul>
<p><b>Archaeological and Historic Resources</b></p>	<ul style="list-style-type: none"> <li>• Implement all stipulations specified in the Project’s Section 106 Programmatic Agreement</li> <li>• Continue consultation with the FHWA, the State Historic Preservation Division, the Advisory Council on Historic Preservation, and Consulting Parties</li> <li>• Implement a construction monitoring plan that is compliant with HAR §13-279</li> </ul>



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<p><b>Cultural Resources</b></p>	<ul style="list-style-type: none"> <li>• Implement all stipulations specified in the Project’s Section 106 Programmatic Agreement</li> <li>• Continue consultation with the FHWA, the State Historic Preservation Division, the Advisory Council on Historic Preservation, and Consulting Parties</li> <li>• As a part of the public outreach during construction, the State would 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.</li> <li>• 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 design and/or construction project may have on those practices. This effort will be memorialized as a Continued Community Dialogue Plan in a Programmatic Agreement prepared pursuant to the NHPA Section 106 process. The Continued Community Dialogue Plan will describe details and manage logistics of the continued community engagement.</li> <li>• The State will include language requiring the selected contractor to provide a culturally focused training program prior to fieldwork. This would be in addition to any standard safety or project-related training in the procurement notice.</li> <li>• The State will include language requiring that the selected contractor provide a cultural monitoring program in the procurement notice.</li> <li>• Implement a construction monitoring plan that is compliant with HAR §13-279.</li> </ul>
<p><b>Visual and Scenic Character</b></p>	<ul style="list-style-type: none"> <li>• Minimize and avoid adverse effects through final design that integrates natural resource preservation and landscape design, shields lighting at intersections, and, if applicable, provide screening for residential and commercial viewers.</li> <li>• Project commitments during construction include preserving existing vegetation, minimizing clearing for laydown areas, and restoring vegetation; further, minimizing lighting effects by limiting construction to daylight hours whenever possible, and directing temporary lighting and signage away from residential areas.</li> <li>• Mitigation, if determined required in final design, could include revegetating disturbed areas (that is, loss of monkeypod trees) and providing screening resources.</li> </ul>
<p><b>Water Resources</b></p>	<ul style="list-style-type: none"> <li>• Comply with National Pollutant Discharge Elimination System permit program</li> <li>• HDOT BMPs</li> <li>• Obtain a Notice of General Permit Coverage from the State of Hawaiʻi Department of Health</li> <li>• Prepare a Stormwater Pollution Prevention Plan and obtain a Section 401 Water Quality Certification</li> <li>• Monitoring for construction work that may impact water resources important to traditional and customary practices</li> </ul>



TECHNICAL AREA	ENVIRONMENTAL COMMITMENTS
<b>Flora and Fauna</b>	<ul style="list-style-type: none"> <li>• Obtain a Notice to Prepare a construction lighting plan</li> <li>• Implement measures to protect against the transfer of invasive plants and animals</li> <li>• Implement fire prevention and safety measures</li> <li>• Implement commitments and best practices as agreed to with Resource Agencies as part of Endangered Species Act Section 7 Consultation and Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Conservation and Management Act</li> <li>• Monitoring for construction work that may impact flora and fauna resources important to traditional and customary practices</li> </ul>
<b>Traffic, Right-of-way, Pedestrians/Bicycles</b>	<ul style="list-style-type: none"> <li>• Maintain signs, lights, barricades, and other safety equipment for motorists and pedestrians</li> <li>• Inform the public of planned construction activities that may affect service on the existing roadways</li> </ul>
<b>Air Quality and Energy</b>	<p>Implement controls to limit fugitive dust, including watering (as appropriate), wind screens, and proper material transport and storage techniques</p>
<b>Noise</b>	<ul style="list-style-type: none"> <li>• Comply with HDOT Standard Specifications and local sound control and noise level rules, regulations, and ordinances</li> <li>• Obtain a Noise Permit from the State of Hawai'i Department of Health</li> </ul>
<b>Infrastructure and Utilities</b>	<ul style="list-style-type: none"> <li>• Coordinate with the affected utilities, and private water supply systems, as applicable for relocation</li> </ul>
<b>Hazardous Materials</b>	<ul style="list-style-type: none"> <li>• Develop a construction Health and Safety Plan</li> <li>• Comply with HAR §12-110 (Construction Standards – General Safety and Health Requirements)</li> <li>• Perform lead and asbestos surveys prior to construction, as applicable</li> <li>• Remove and transport contaminated materials in accordance with federal and State regulations, as applicable</li> </ul>