

Honoapi'ilani Highway Improvements Project,
West Maui: Ukumehame to Launiupoko

Scoping Report

Appendix 3: Environmental Impact Statement Technical Chapter Approach

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Prepared For
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Improvements**

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Acronyms

ACRONYM	DEFINITION
ALISH	Agricultural Lands of Importance to the State of Hawaiʻi
APE	Area of Potential Effect
DLNR	Department of Land and Natural Resources
Draft EIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
GHG	Greenhouse gases
HDOT	Hawaiʻi Department of Transportation
HRS	Hawaiʻi Revised Statutes
LCA	Land Commission Awards
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
SHPD	State Historic Preservation Division
SMA	Special Management Areas
TNM	Traffic Noise Model
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service



1. Environmental Analysis Approach and Methodology

The environmental review will assess potential direct, indirect, and cumulative effects of the Project. Federal Highway Administration (FHWA) and Hawaiʻi Department of Transportation (HDOT) will use established methodologies and approaches to the impact assessment for each technical impact assessment area. These are described in the following sections, including a determination of study areas, applicable regulatory requirements, and criteria for identifying potential environmental and cultural impacts in the Draft Environmental Impact Statement (Draft EIS). Methodologies will be further detailed and refined as appropriate in the corresponding assessments within the Draft EIS.

1.1 LAND USE AND CONSISTENCY WITH RELATED GOVERNMENTAL PLANS, POLICIES, AND REGULATIONS

1.1.1 Land Use and Zoning

The study area generally consists of agricultural, open space, rural residential, and state conservation land uses. The Honoapiʻilani Highway Improvements Project (the Project) could intersect with two residential subdivisions—Olowalu and Ukumehame, with 34 and 45 lots, respectively. In both locations, roads and infrastructure are partially completed and some lots have been developed. The Olowalu subdivision includes a greenway, archaeological buffer easements, and the creation of the Olowalu Cultural Reserve. The Ukumehame subdivision also includes an archaeological buffer easement.

The analysis will map and describe existing land uses and zoning within a study area where realigned roadways may be located (as well as areas immediately adjacent). Reasonably foreseeable changes in land use and zoning within the study area, overall consistency and potential adverse effects of the Project with land use and zoning will be assessed. This will include future access to uses and properties with the proposed realignment. Public scoping comments indicate a community concern for the potential of new development makai of a highway alignment. The assessment will evaluate the potential for future land use changes based on an alternative alignment.

1.1.2 Plans, Policies, and Regulations

The analysis will also assess consistency with the following related governmental plans, policies, and regulations:

- Maui County's 2005 Pali to Puamana Parkway Master Plan
- Maui County's 2022 West Maui Community Plan
- Maui Metropolitan Planning Organization's (MPO) Hele Mai Maui Long-Range Transportation Plan 2040 (2019)
- West Maui Greenway Plan (September 2022)



- Hawai'i State Coastal Zone Management Objectives (Chapter 205A of the Hawai'i Revised Statutes [HRS]).

1.1.3 Farmlands and Ranching

Agricultural Lands of Importance to the State of Hawai'i (ALISH) are located throughout the project area. "Prime" agricultural lands (defined by ALISH) are located in Ukumehame to the southeast and Launiupoko to the northwest, with a small portion located along the shoreline area in Olowalu. "Other" agricultural lands (defined by ALISH) are located in the Olowalu area and along the coastal areas between Ukumehame and Olowalu. Historically, Launiupoko, Olowalu, and Ukumehame contained large-scale sugar cane agricultural production from the late 1800s until 1998 and while sugar cane is no longer grown in these locations, there are many other small-scale operations throughout the region. In adjacent areas outside the project area, there are also several agricultural resources in Olowalu and Ukumehame located farther mauka, which would be expected to be largely unaffected by the Project. The EIS will identify these areas and describe their relationship to the Project's alternative alignments.

The analysis of farmland and ranching will involve field verification of the locations of active agricultural uses within the project area. Once the locations of active agricultural uses are identified, the analysis will determine where and how much agricultural area has the potential to be affected or displaced by the Project. As part of this analysis, the project team will coordinate with potentially affected facilities to understand the agricultural operations, strategize methods to minimize impacts, and identify mitigation measures as appropriate. The EIS assessment will also summarize the findings of the Project's potential effect or consistency with the Farmland Protection Policy Act, based on the U.S. Department of Agriculture's review of the information provided in its NRCS-CPA-106 form.

1.1.4 Key Assessment Measures

- Potential effects on existing land uses, including changes to accessibility
- Consistency with related plans and policies
- Effects on active agricultural uses by number of farms and total area affected and consistency with the Farmland Protection Policy Act

1.2 LAND ACQUISITION, DISPLACEMENT, AND RELOCATION

The project area contains both public and privately owned property. The County of Maui generally owns the land on the mauka side of the existing Honoapi'ilani Highway between Ukumehame and Launiupoko. The County of Maui owns the Ukumehame Firing Range and the State of Hawai'i (Hawai'i National Guard) owns the parcel just north of the facility. HDOT owns the sedimentation basin that abuts the existing highway and firing range property. State-owned lands are predominantly mauka of privately owned lands in the study area leading into the West Maui Natural Reserve. Privately owned land is located along either side of the existing highway in Olowalu and the areas of the existing Olowalu and Ukumehame subdivisions.



While the Project would use State of Hawaiʻi and County of Maui-owned lands to the maximum extent practicable, some permanent easements or acquisition of privately owned property is expected. The acquisition of privately owned property could result in displacement or relocation of residents and businesses. Each alternative analyzed in the Draft EIS will be evaluated for the number lots and overall land area and land use affected by acquisition requirements. The analysis of land acquisition, displacement, and relocation will comply with the Federal Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601) as well as Hawaiʻi's eminent domain requirements (HRS § 101-2).

The extent of acquisition required will be described for each affected tax parcel. The analysis will identify the current use of each property, the estimated number of residents or employees associated with each property, and its assessed value if available. GIS data will be used to the extent practicable, with confirmations obtained through field verifications and through correspondence with Maui County, as necessary.

1.2.1 Key Assessment Measures

- Number of required state, county, and private parcels affected
- Number of full takings or partial takings and easements
- Number of residents and employees potentially affected

1.3 PARKLANDS AND RECREATIONAL RESOURCES/BEACH ACCESS

Publicly accessible beaches are located along the shoreline within the project area with limited areas for parking along the existing Honoapiʻilani Highway. In addition, the County of Maui operates the Ukumehame Firing Range, which is in the project area. Regional plans, including the 2022 West Maui Community Plan and the 2022 West Maui Greenway Plan, identify objectives to improve recreational access to the shoreline within the project area.

The analysis of parklands and recreational resources will include the mapping and descriptions of the current shoreline beach and park resources as well as any short- and long-term planned changes to open space resources in the project area. The assessment will determine consistency of the Project's alternative alignment with existing and future recreational access. The analysis will also include the Project's potential to adversely affect access to or use of the identified existing and proposed open space resources within the project area. As suggested by several commenters, access to beaches will be described in the context of the future jurisdiction and use of the existing highway.

Potential impacts to parklands and recreational resources will be identified in the EIS and mitigation measures would be determined, as appropriate.

1.3.1 Key Assessment Measures

- Effects on access to existing beaches and recreational resources



1.4 ARCHAEOLOGICAL AND HISTORIC RESOURCES

The project area contains archaeological and historic resources, including mapped archaeological sites, the Olowalu Petroglyphs, and remnant plantation infrastructure and landforms. Several Land Commission Awards (LCA) properties are also located throughout Ukumehame and Olowalu; LCAs are indicators of pre-contact settlement and the potential to encounter archaeological resources located throughout Ukumehame and Olowalu.

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties. As defined in the Section 106 regulations, historic properties include “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places” (36 CFR §800.16(l)(1)). Similarly, effects on historic and archaeological resources need to be assessed for State of Hawai'i actions pursuant to HRS Chapter 6E-8.

The archaeological and historic resources assessment for the EIS will be conducted in accordance with the requirements of Section 106 and 6E-8 and will include consultation with the Hawai'i State Historic Preservation Division (SHPD), the Advisory Council on Historic Preservation, Native Hawaiian Organizations, and Consulting Parties. In coordination with the SHPD, Consulting Parties invited to participate will be provided opportunities to participate through meetings, review of documents, and written comments. This includes input on the identification of historic and cultural resources, the assessment of effects, the consideration of measures to avoid, minimize, or mitigate adverse effects, and the development of a Programmatic Agreement to define the areas of evaluation and the mitigation protocol to be followed.

The analysis will first establish an Area of Potential Effect (APE) for the assessment of potential direct and indirect effects on archaeological and historic resources (the APE will be presented to SHPD for concurrence). The APE establishes the area for the identification of historic properties. Areas that may be subject to direct in-ground disturbance are broadly defined as the areas within or adjacent to an alignment. Any area where historic and archaeological resources may be indirectly affected through changes in setting or changes that would diminish their historic integrity will also be accounted for.

The assessment of all project alternatives will be based on the completion of Archaeological Literature Review Study, Ethnographic Study, and a surface-level reconnaissance of the alternative alignments identifying and describing known or potential cultural resources and architectural historic resources. As required, the Chapter 6E project area will be defined, and subsurface Archaeological Investigation Studies will be undertaken, for the Preferred Alternative when it is identified (on publication of the Draft EIS). The assessment will identify potential direct (i.e., demolition, alteration, or potential damage from construction) or indirect (i.e., the introduction of visual, audible, or atmospheric elements) that may alter the characteristics of any identified historic property that is, or could, qualify for inclusion in the National Register of Historic Places.

1.4.1 Key Assessment Measures

- Potential direct and indirect adverse effects on archaeological and historic resources.



1.5 CULTURAL RESOURCES AND PRACTICES

The project area contains several LCAs along the coastal areas and within the mauka inland areas. Early coordination initiatives with Native Hawaiian Organizations and community leaders have identified these areas, and engagement will continue throughout the environmental review process. The Project will avoid the Awalua Cemetery located north and west of the Olowalu Stream. Based on early coordination, in addition to archaeological and historic resources, cultural resources and practices of significance were identified with respect to surface waters (Olowalu Stream and Ukumehame Streams), farmland, shorelines and water access, and wildlife resources (i.e., oʻopu migration). Building off these assessments, a Cultural Impact Assessment will be prepared for this assessment, which will use information from the Ethnographic Study and the broader Section 106 consultation as appropriate. Potential effects of the project alternatives will be evaluated and compared as part of the determination of a Preferred Alternative. Potential mitigation measures for cultural resources and practices will be identified and integrated into the Programmatic Agreement to complete the Section 106 review as well as any final agreement requirements generated by the HRS 6E process.

1.5.1 Key Assessment Measures

- Potential direct and indirect adverse effects on cultural resources and practices

1.6 VISUAL AND SCENIC CHARACTER

The project area is in a scenic corridor with coastal views toward Kahoolawe and Lanai Islands and views toward and into the West Maui mountains. The area along the coast is more vegetated while there is a more open and arid visual character as elevation increases mauka of the coastline.

With the Project, portions of the highway along the coast will be elevated or realigned within the project area, which will influence viewsheds to or from visual resources compared with the existing coastal alignment of the existing highway. The more makai alignments will be lower in elevation and in a more vegetated area. Mauka alignments are anticipated to be more visible from all areas at a similar or higher elevation and from longer viewpoints toward the project area, including from offshore. These distant viewpoints will be a consideration for many of the cultural sites located in the project area, including navigation/wayfinding cultural practices for voyaging canoes.

Visual and scenic character assessment will be based on U.S. Department of Transportation's *Guidelines for the Visual Impact Assessment of Highway Projects* (January 2015). The existing visual character and quality of the affected environment, as well as the viewer response to those resources, will provide the framework for assessing the change in visual character as a result of the Project. Major viewer groups and different levels of sensitivity will be evaluated, such as travelers using the highway as well as views from public places such as coastal beaches and public trails.

The identification of an appropriate study area will include the area within visual range of project elements, accounting for topography, vegetation, and obstructing structures. The analysis will describe the visual character of the project area and study area, aesthetic/visual resources and viewer groups,



key views for the visual assessment; and visible components for each of the project alternatives. Aesthetic design considerations and an assessment of the visual impacts of the project alternatives will also be described. Potential impacts to the visual and scenic character and mitigation measures will be determined, as appropriate. Visual simulations will be prepared to show the roadway alignment alternatives within the context and setting of the project area.

1.6.1 Key Assessment Measures

- Adverse effects on viewsheds from public use vantage points within the project area

1.7 WATER RESOURCES, WETLANDS, AND FLOODPLAINS

Three primary streams are located within the project area—Launiupoko, Olowalu, and Ukumehame streams—as well as other surface waterbodies. The Project’s alternative alignments will cross all three primary streams. In addition, according to the U.S. Fish and Wildlife Service Wetland Mapper, small, isolated wetlands may exist in the project area. These include human-made features such as the irrigation infrastructure and the HDOT retention basin adjacent to the Ukumehame Firing Range and Pāpalaua Wayside Park. Additional wetland areas may be found adjacent to the existing highway where it impedes stormwater flow. Portions of Honoapi'ilani Highway are located in flood-prone areas, as defined by the Federal Emergency Management Agency. Some flood zones extend inland along stream corridors or low elevation areas. The Project’s temporary construction effects and permanent stormwater management could have the potential to affect localized and project area drainage patterns.

The analysis of water resources, wetlands, and floodplains will identify, map, and describe primary streams and tributaries, ditch systems, wetlands and other “Waters of the U.S.” consistent with 33 CFR 328.3(b) that the Project could affect. The analysis will require fieldwork to be conducted to identify and delineate wetlands that may be affected, and delineation will be done in coordination with state and federal resource agencies. The analysis will also identify, map, and describe existing and future flood-prone areas. A new roadway could affect regional drainage patterns; therefore, the analysis will examine the potential impact of each of the alternative alignments on the project area’s hydrology, drainage, and flood conditions. The analysis will include an evaluation of project effects on existing stormwater management and sedimentation conditions as well as future conditions in terms of temporary construction effects and permanent operations, particularly stormwater management. This analysis will be coordinated with the analysis of the Coastal Zone Management Act and Hawai'i Special Management Areas (Section 4.3.20).

1.7.1 Key Assessment Measures

- Identified potential adverse effects on water resources, wetlands, and floodplains
- Identified potential adverse effects on hydrology, drainage, and flooding



1.8 FLORA AND FAUNA, ENDANGERED SPECIES

The project area contains a mix of habitats but is characterized primarily by its high level of historic disturbance by prior agricultural uses. Although the project area could contain both threatened and endangered plant and animal species, most of the flora and fauna are invasive. Stream crossings may require in-water disturbance during construction, which could affect habitat for aquatic species. Additionally, stakeholders have indicated that run-off sediment could affect coral reefs after storm events.

The analysis of flora and fauna and endangered species will include preparing technical reports on biological resources to characterize the ecology of the project area. The analysis will include an assessment of protected species (e.g., botanical resources, terrestrial animals, and birds) and the potential for the Project to result in an adverse effect on these resources. A botanical survey and wetland study will be prepared to identify vegetation types and plant communities within the project area. FHWA and HDOT will consult with the U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration will be coordinated with in accordance with Section 7 of the Endangered Species Act, as well as the State of Hawaiʻi Department of Land and Natural Resources (DLNR). If applicable, mitigation measures will be identified and coordinated with USFWS. As recommended by the DLNR as part of the agency coordination and outreach, the EIS assessment will also solicit the input of marine management stakeholder organizations, including Maui Nui Marine Resource Council, The Nature Conservancy of I Marine Program, and the Maui Nui Makai Network.

1.8.1 Key Assessment Measures

- Identified potential adverse effects on threatened and endangered species
- Identified potential adverse effects on ecological habitats

1.9 GEOLOGY AND SOILS

The project area contains a wide range of topography—from coastal areas with relatively flat terrain to steeply sloped hillsides with gulches and ravines. Prior agricultural uses within the surrounding area have resulted in extensive soil disturbance and grading, including the presence of large push-piles.

The analysis of geology and soils will summarize overall characteristics of the project area, including topography, geologic conditions and hazards, and soil mapping. The analysis will use information contained within other EIS sections, including natural hazards, flora/fauna/threatened and endangered species, and farmlands/ranching. The Project's alternative alignments will be assessed for potential adverse effects on the underlying geological characteristics or where geographic hazards affect roadway design or alignment feasibility.

1.9.1 Key Assessment Measures

- Identified potential adverse effects on underlying geological characteristics



1.10 NATURAL HAZARDS

All the Project's alternative alignments will be susceptible to earthquakes, while the most makai alignments will be more susceptible to tsunamis. The Project will relocate portions of the highway in new areas, potentially creating new wildfire hazards based on proximity of relocated roadway traffic (i.e., sparks and heat from vehicles, new trash and still burning cigarettes and matches), particularly where alignments are located in more arid environments compared to existing coastal highway alignment.

The analysis of natural hazards will identify and map flood zones and tsunami inundation areas and determine seismic zones within the project area. The alternative alignments of the Project will then be evaluated for their susceptibility to natural hazards. All alternative alignments of the Project would be designed consistent with applicable construction codes to increase resilience to natural hazards to the extent practicable. These design considerations will be described in the analysis of natural hazards.

1.10.1 Key Assessment Measures

- Alignment avoidance of natural hazard delineations
- Identified potential adverse effects on or adjacent to alignment alternatives

1.11 COASTAL ZONE MANAGEMENT ACT, HAWAI'I SPECIAL MANAGEMENT AREAS

Coastal Zone Management includes the consideration of recreational uses, historic resources, open space resources, coastal ecosystems, economic use, coastal hazards, managing development, coastal non-point pollution control, beach protection, marine resources, and public engagement. Hawai'i Special Management Areas are mapped throughout the project area coastline with some minor inland extensions across the existing highway. The Project's alternative alignments will relocate portions of the highway more inland, minimizing coastal exposure and potential adverse effects for Coastal Zone Management or Special Management Area reviews and approvals. Coastal erosion and sediment loading concerns identified by stakeholders and comments generated during scoping will also be addressed as part of these applicable reviews and approvals for the Project. The EIS will identify and describe the state and federal regulatory basis of Coastal Zone Management and Special Management Areas, including the procedural requirements associated with review and approval of the Project, such as a requirement for a certified coastal survey.

1.11.1 Key Assessment Measures

- Consistency with Coastal Zone Management policies
- Extent of Special Management Area permit requirements and potential impacts



1.12 CLIMATE CHANGE AND SEAL LEVEL RISE

The Project is designed to allow for a realigned roadway that improves resilience to anticipated 3.2 feet of average sea level rise within the Sea Level Rise Exposure Area (SLR-XA). The alternative alignments will be partially within the SLR-XA and will require design accommodations and assessment of resulting potential adverse environmental and community effects. As noted in comments during the public scoping period, the EIS will describe the SLR-XA in terms of the amount and mapping of inundation zones from sea level rise by the ranges established in the SLR-XA analyses and present the basis for using the 3.2 feet average sea level rise as the applicable standard for roadway design.

The analysis of climate change and sea level rise will establish background and basis for the overall project, including the documented vulnerability to coastal hazards from erosion and flooding. Technical documentation will be developed in coordination with resource agencies and HDOT to incorporate the current applicable data and regulatory guidance into the assessment. The alignments and design for alternatives will then be assessed for their ability to avoid and minimize risk from SLR-XA exposure zones based on the 3.2 feet average sea level rise. Effects of higher sea level rise scenarios will be qualitatively assessed.

The relationship of climate change and sea level rise with other coastal and natural resource evaluations will be identified and carried through all impact assessments presented in the EIS.

1.12.1 Key Assessment Measures

- Percentage of alignment out of SLR-XA 3.2 feet average seal level rise mapped area
- Potential effects on alignment with sea level rise greater than 3.2 feet assessed by creating a 6-foot SLR-XA sea level rise mapped area (based on other precedent recommendations)

1.13 TRAFFIC, RIGHT-OF-WAY, PEDESTRIANS/BICYCLES

The Project's alternative alignments will create a viable transportation route in light of SLR-XA estimated sea level rise. While starting with one moving lane in each direction, the Project will be designed to provide right-of-way for a future four-lane configuration. A future four-lane configuration would not in itself generate an increase of trips compared to the No-Build Alternative traffic volumes because regional travel demand would not change based on a new alignment. The Project will require new intersections (or roundabouts) with key cross streets and connections to existing homes and businesses. The location and provision of pedestrian and bicycle infrastructure would be developed in coordination with stakeholders.

The transportation analyses will consider the system of moving people and goods from place to place. It will include various modes of travel (i.e., cars, buses, trucks, bicycles, and walking) that work collectively to get people and goods to their destinations. The transportation analysis in the EIS will assess the individual modes of travel in the study area to determine whether project alternatives would hinder the safe or efficient movement of people and goods. The EIS will consider both the local and regional effects of project alternatives on transportation.



Regional travel patterns are important in understanding the need for the Project and are the basis for anticipating and designing for future travel demand as well as for projecting regional vehicle emissions and their resultant effects on air quality. Travel projections will be consistent with those provided by the Maui MPO and other sources that provide a common base for future projections throughout the island. No non-transportation actions are associated with the Project, which will limit the Project's effect on regional long-term travel demand.

Local travel patterns are important in understanding the effects of mobility in the immediate project area. The assessment of potential effects on local travel patterns will focus on individual intersections and their capacity to process a projected volume of vehicles (i.e., cars, buses, and trucks) as well as pedestrians and cyclists. Methods documented in the *Highway Capacity Manual*, developed by the Transportation Research Board, are typically used to evaluate existing and projected local traffic conditions.

The following steps will be undertaken to prepare the transportation analysis in the EIS:

- Establish the regional and local transportation study areas:
 - The regional study area will include areas under the jurisdiction of the Maui MPO to provide inputs pertinent to the air quality analysis (see Section 4.3.13).
 - The local traffic study area will include highway segments and local streets where modifications are proposed or where traffic patterns may change as result of a project alternative.
- Coordinate with Maui MPO and HDOT to project regional travel patterns and conditions for the 2045 analysis year based on the Maui MPO's Travel Demand Model.
- Collect traffic data (volumes, speeds, vehicle types, pedestrian and cyclist volumes, and highway geometric features) at key locations within the local study area.
- Collect traffic safety data and map high incidence locations (number and type vehicular and pedestrian accidents including, property damage, injuries and fatalities, and road closures).
- Identify planned improvements for transportation in the regional and local study areas that are expected to occur with or without the project.
- Assess traffic operations in the existing, future No-Build Alternative, and Build Alternatives conditions for the analysis years.
- Assess existing pedestrian and bicycle facilities in proximity to the Honoapi'ilani Highway.
- Identify any locations where traffic impacts may occur as a result of project alternatives and develop reasonable measures to mitigate these impacts, as applicable.
- Identify connectivity and mobility enhancements of the Build Alternatives and describe their potential to improve vehicular, pedestrian, and bicycle circulation.



1.13.1 Key Assessment Measures

- Disruptions to continuous access to existing properties and uses
- Changes in traffic flow and levels of service
- Ability to improve transportation safety

1.14 AIR QUALITY AND ENERGY

Air quality is characterized by levels of certain pollutant gases or microscopic particles. The U.S. Environmental Protection Agency (USEPA) has set National Ambient Air Quality Standards (NAAQS) for six air pollutants (i.e., carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide) of concern to our nation's air quality. In addition to NAAQS, emissions of other pollutants from vehicles (known as mobile source air toxics, or MSATs) are also often considered for large transportation projects. All of Maui is considered in attainment for key criteria pollutants, and this status will be confirmed as part of the EIS assessment.

On a regional basis, travel demand and overall number of vehicles or miles traveled would not change based on the Project, so air pollutant concentrations are not anticipated change as a result of the Project. Similarly, energy consumption is not anticipated to materially change as a result of the Project.

However, while the Project would not change regional travel demand, realignment of the highway could place vehicles farther or closer to existing or planned sensitive locations such as residencies. Therefore, realignment could change the level of traffic-related emissions at nearby sensitive receptors.

The air quality analysis for the EIS will identify whether implementation of project alternatives would result in any potential exceedances of NAAQS or any substantial increases or decreases in air pollutant emissions. If any potential exceedances of the NAAQS are identified in the analysis, further analysis will be conducted.

The air quality analysis will include a largely qualitative mesoscale emission analysis for the defined project area and may also include a microscale or local analysis if it is determined that the project may result in localized exceedances of the NAAQS based on changes in traffic volumes. The mesoscale analysis will evaluate the net change in emissions associated with the Project, stemming from the projected changes in speed, vehicle miles traveled, and roadway type and configuration, as applicable. Emission rates developed using EPA's MOVES model will be used for any quantitative emissions assessment conducted. If required, microscale analysis for carbon monoxide and particulate matter will be conducted according to the USEPA's *Guideline for Modeling Carbon Monoxide From Roadway Intersections* and *Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas*, respectively.

In addition, the air quality and energy analysis will include an assessment of greenhouse gases (GHG) performed in accordance with the Council on Environmental Quality's National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change. GHGs include a variety of chemical compounds in the earth's atmosphere that absorb and re-emit heat, which warm



the planet. However, an overabundance of these gases contributes to an over warming of the planet and to global climate change. The energy analysis prepared for the EIS will include an assessment of the Project's potential energy consumption and GHG emissions determined by the change in vehicle speeds and miles traveled due to each project alternative, although, as noted previously, there is no anticipated change in overall travel demand as a result of the Project. Additionally, the analysis will address direct and indirect energy consumption during construction (i.e., energy required to produce and transport construction materials).

1.14.1 Key Assessment Measures

- Qualitative assessment of mesoscale effects and GHG emissions
- Potential quantitative assessment of mesoscale or microscale effects

1.15 NOISE

The existing Honoapiʻilani Highway is immediately adjacent to beaches and recreational resources and close to several residential and commercial uses in Olowalu. While the Project would not independently increase traffic volumes, realignment of the highway could place vehicles farther or closer to existing or planned sensitive locations such as residences and cultural resource areas. Therefore, realignment could change the level of traffic-related noise at nearby sensitive receptors.

Noise, or unwanted sound, is an important consideration for highway projects. Per FHWA's implementing regulations (23 CFR Part 772), the Project is classified as a "Type I" noise project and thus requires an analysis of traffic noise.

The following steps will be used to assess noise in the EIS:

- Establish study area: The areas and associated activities (i.e., land uses) in proximity to the project area that could potentially be affected by realignment will be identified.
- Measure existing noise levels and perform simultaneous traffic counts at up to six representative sample of noise-sensitive receivers (up to three along the existing highway alignment and up to three locations where realignment may occur).
- Establish future traffic noise levels for the alternative alignments using FHWA's Traffic Noise Model (TNM).
- Identify any sites where a noise impact could occur based on the results of the TNM.
- Where traffic noise impacts would occur, evaluate abatement measures and determine whether they are reasonable and feasible.
- The anticipated need for Hawaii Community Noise Permits and Variances will be identified and described.



1.15.1 Key Assessment Measures

- Modeled and adverse changes in noise levels at receptor locations
- Amount of noise mitigation required

1.16 INFRASTRUCTURE AND UTILITIES

Generally, the project area contains limited infrastructure and utilities in terms of public water and sewer as well as other utilities such as gas, energy, and telecommunications. Local electrical distribution and regional transmission lines traverse the project area. Possible relocation of utilities and infrastructure as part of the new roadway are anticipated and will be described in the EIS. The analysis of infrastructure and utilities will inventory existing and planned infrastructure within the project area. For each alternative, the EIS will evaluate and determine potential effects including requirements for relocation or substantial changes to existing or planned infrastructure.

1.16.1 Key Assessment Measures

- Extent of type of utility relocation required
- Disruption of planned infrastructure and utility improvements

1.17 HAZARDOUS MATERIALS AND TOXIC SUBSTANCES

The realignment alternatives identified for the Project have some level of potential to disturb or expose hazardous materials present within the project area from prior agricultural uses as current and historic uses. The alternative alignments will have a similar alignment outside the active shooting area of the Ukumehame Firing Range, thereby minimizing potential risk of disturbing contaminated soils from the firing range. Additionally, the alternative alignments will have the same or similar alignment in the area of the former landfill and existing recycling center.

As defined by the Resource Conservation and Recovery Act of 1976 (42 USC § 1609 et seq.), a hazardous waste or contaminated material is a solid, liquid, or gas that—because of quantity, concentration, or physical, chemical, or infectious characteristics—may cause or significantly contribute to an increase in mortality or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Potential exposure to hazardous and contaminated materials is typically greatest during construction when in-ground disturbance and disturbance to structural materials are occurring. While the analysis of hazardous wastes and toxic substances will consider potential exposure during the future operation of the Project, the analysis will overlap with the construction analysis provided in the construction effects chapter (described in Section 4.3.21).



The hazardous materials and toxic substances analysis will include the following:

- Undertake a corridor and project area hazardous materials assessment based on database searches of historic and active spill and contaminated sites to identify known areas of potential concern.
- Summarize the regulatory protocol that will be part of the construction plan to minimize and avoid adverse effects of disturbing or disposing of potential hazardous materials.

1.17.1 Key Assessment Measures

- Identified potential areas of disturbance and exposure to hazardous materials

1.18 CONSTRUCTION EFFECTS

The assessment of construction effects will summarize construction techniques (i.e., pile, micro-pile, fill) as established in the description of alternative alignments for construction-period effects. The assessment will include descriptions of construction staging areas and phasing by key activities (clearing, grading, infrastructure installment, roadway construction, landscaping, and finishing).

Construction effects, though temporary, can result in a nuisance or disruption within the project area. The primary adverse effects related to construction activities typically involve traffic, noise, air quality, and hazardous materials. The EIS will identify appropriate measures to be implemented during construction to avoid or minimize potential temporary adverse effects associated with construction activities and will take into consideration the unique characteristics of some of the sensitive receptors within the project area.

The construction analysis will evaluate the potential construction effects on relevant subject areas analyzed in the EIS, as applicable, including the following:

- **Archaeological and Historic Resources.** The Section 106 process will document potential impacts to archaeological and historic resources during construction and any adverse effects will be resolved by developing appropriate measures to avoid or minimize inadvertent impacts to historic resources during construction.
- **Cultural Resources and Practices.** This section will describe any adverse effects and measures developed to avoid or minimize inadvertent impacts to cultural resources during construction.
- **Traffic, Right-of-Way, Pedestrians/Bicycles.** This assessment will consider traffic generated by construction workers and deliveries, taking into account the time of day that construction-generated traffic will be greatest. The assessment will also consider how construction activities may disrupt pedestrian and bicycle routes within the project area.
- **Air Quality and Energy.** The potential for air quality impacts caused by construction activities—including construction traffic (mobile sources) on local roadways—will be evaluated. Air pollutant sources include combustion exhaust associated with non-road engines (e.g., machinery) and on-road engines operating on-site (e.g., delivery trucks), as well as on-site activities that generate



fugitive dust (e.g., excavation and demolition). The pollutants of concern include carbon monoxide, particulate matter, and nitrogen dioxide. The analysis will assess potential impacts on up to two air quality at sensitive receptors in the project area. This section will also include an evaluation of energy consumed for construction and anticipated GHG production.

- **Noise.** Noise generated from construction activities on up to six sensitive receptors within the project area will be determined using FHWA's Roadway Construction Noise Model. In addition, the EIS will review the requirements of the Hawai'i Community Noise Permit/Noise Variance requirements.
- **Hazardous Materials and Toxic Substances.** In coordination with the work performed for hazardous materials, actions to be taken during construction activities (including any areas of the change or decommissioning of the existing Honoapi'ilani Highway within the project area) to limit exposure of construction workers and the general public to potential contaminants will be summarized.
- **Natural Hazards.** This assessment will consider potential construction-related effects to sensitive ecological resources identified within the project area.

1.18.1 Key Assessment Measures

- Number and extent of potential adverse effects from construction, including historic and archaeological resources, cultural resources and practices, air quality, noise, hazardous materials, and natural resources

1.19 ENVIRONMENTAL JUSTICE AND SOCIOECONOMIC CONDITIONS

Environmental justice populations are within the project area, and the Project is intended to avoid direct impact or takings in areas where environmental justice populations are present. Generally, the Project would provide a large regional benefit to all environmental justice residents by improving reliability and access to east-west mobility. Pursuant to Executive Order 12898, an environmental justice analysis will be prepared to identify any disproportionately high and adverse impacts on minority or low-income populations. As applicable, the analysis will follow methodologies and guidance established by the Council on Environmental Quality, U.S. Department of Transportation Order 5610.2(a), and FHWA Order 6640.23A.

Outreach to environmental justice populations has already included discussions with community leaders early-on in the development of the Project's purpose and need and identification of alternatives, and these groups were specifically invited to participate in the public scoping meetings. Additionally, Native Hawaiian Organizations, lineal descendants, cultural advisers, and other local leaders are being asked to participate in the evaluation of cultural resources through the Section 106 consultation process.

The analysis will examine the potential effects for the full range of environmental topic areas addressed in the EIS and then determine whether the Project would result in disproportionately high and adverse (direct or indirect) impacts on minority and low-income populations. If potential disproportionately high and adverse impacts are identified, the Draft EIS will assess whether there are



any practicable alternatives to avoid and reduce the adverse effect. Potential measures to mitigate adverse effects on environmental justice populations will be described.

In addition, the Draft EIS will assess the Project's potential effects on socioeconomic conditions, such as population, housing, and business sectors following guidance from FHWA's Technical Advisory T6640.8A. As part of the analysis, the EIS will establish an appropriate study area and summarize socioeconomic setting and context for the defined area. The analysis will also summarize regional setting and context—including regional economic and workforce characteristics—and present short- and long-term population and labor forecasts available from the County of Maui, the U.S. Census Bureau, and the Maui MPO. The analysis will identify potential adverse or beneficial social and economic impacts and describe any measures that would be implemented to mitigate adverse impacts, as appropriate.

1.19.1 Key Assessment Measures

- Disproportionate high and adverse effects on low-income or minority and Native Hawaiian populations
- Effects on existing residential and worker populations

1.20 SECTION 4(f)

As described previously, the project area contains the County of Maui-owned Ukumehame Firing Range, which is designated as a county recreational facility. The alignments of the Project will traverse the County of Maui property and will be analyzed for the potential of displacing the existing recreational resource (although it is noted that the project sponsors are seeking an alternative that preserves use and access to the firing range).

Section 4(f) prohibits U.S. Department of Transportation (including FHWA) from approving any project that “uses” or has a constructive use of public parks, wildlife refuges, or historic resources unless there is no feasible and prudent alternative to that use and all measures to minimize harm have been implemented. If an alternative has the potential to use a Section 4(f) resource(s), FHWA technical guidance will be used to determine the level of documentation that will be conducted (i.e., *de minimis* impact determination, individual evaluation, or programmatic evaluation). The Section 4(f) evaluation will incorporate information from the EIS as appropriate.

1.21 INDIRECT AND CUMULATIVE IMPACTS

As described previously, the Honoapi'ilani Highway is a vital transportation link to West Maui for residents, visitors, and goods. The Project is not anticipated to change regional travel demand, and there are no non-transportation development elements associated with the Project. Council on Environmental Quality regulations (40 CFR Parts 1500 through 1508) define indirect impacts as those that are “caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable.” Generally, these impacts are induced by a project. Indirect effects can occur within the full range of impact areas, such as changes in land use, socioeconomic conditions, traffic,



air quality, noise, and natural resources. The EIS will include an evaluation of indirect effects, both adverse and beneficial, that would have the potential to occur as a result of the Project.

NEPA and HEPA also require consideration of cumulative effects of a project. Cumulative impacts may result from the incremental consequences of an action when added to other past and reasonably foreseeable future actions (40 CFR 1508.8). The analysis will address cumulative impacts to both environmental resources and socioeconomic conditions accounting for independent projects identified in Maui or West Maui.

1.22 SHORT-TERM USES OF THE ENVIRONMENT VERSUS LONG-TERM PRODUCTIVITY AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The relationship between short-term uses versus long-term productivity considers the potential short-term effects of a project necessary to realize its long-term public benefits. The EIS will summarize and present these findings.

The assessment of irreversible and irretrievable commitment of resources considers materials and resources—such as land, building materials, energy, human labor, and fiscal resources— that will be committed to the Project, and therefore unavailable either during the lifetime of the Project (e.g., irreversible use of land) or in perpetuity (e.g., irretrievable commitment of human labor). The EIS will summarize and present these findings.