Contents

TABLES

FIGURES

3.15 AIR QUALITY AND ENERGY

This section assesses the potential adverse effects of the Honoapiʻilani Highway Improvements Project (the Project) on air quality. Additionally, the section evaluates the energy demand associated with construction and operation of the Project.

"Air pollution" generally refers to one or more chemical substances that degrade the quality of the atmosphere. Air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, and reducing human or animal health. "Air quality" describes the degree to which the ambient air is pollution-free, which is assessed by the measured or calculated amount of air pollution the public is exposed to in the environment.

Energy consumed during the construction and operation of transportation projects is closely tied to air quality because it generates emissions. Energy is used during construction to manufacture materials, transport materials, and operate machinery. Energy used during a project includes fuel consumed by vehicles in a project area and energy for signals, lighting, and maintenance. Operational energy consumption depends on the number of vehicle-miles traveled (VMT) and travel conditions such as vehicle type, speed of travel, roadway grade, and pavement type (including the intent to use carbon injected concrete pavement).

3.15.1 Regulatory Context

Air quality in the United States is governed by the federal Clean Air Act, as amended, 42 U.S.C. §7401-7671q, and is administered by the United States Environmental Protection Agency (USEPA). The Clean Air Act directs the USEPA to implement environmental policies and regulations that will ensure acceptable levels of air quality. Air quality within Hawaiʻi is further regulated by the State of Hawaiʻi Department of Health (HDOH).

3.15.1.1 Criteria Pollutant Ambient Air Quality Standards

To protect public health and welfare, the USEPA and HDOH developed National and State Ambient Air Quality Standards (NAAQS, SAAQS) for the following criteria pollutants:

- Ozone
- Nitrogen dioxide
- Carbon monoxide
- Particulate matter less than 10 microns and 2.5 microns in aerodynamic diameter (PM_{10} and $PM_{2.5}$, respectively)[1]
- Sulfur dioxide
- Lead

[1] National standard only

- Hydrogen sulfide[2]

TABLE 3.15-1 presents the ambient air quality standards. These are the maximum pollutant concentration levels the USEPA and HDOH deemed to be protective of human health and the environment.

TABLE 3.15-1. **State and National Ambient Air Quality Standards**

AIR POLLUTANT	AVERAGING TIME	AMBIENT AIR QUALITY STANDARDS		
		HAWAIʻI STATE STANDARD	NATIONAL PRIMARY STANDARD[A]	NATIONAL SECONDARY STANDARD[B]
Carbon Monoxide	1-hour	9 ppm	35 ppm	None
	8-hour	4.4 ppm	9 ppm	
Nitrogen Dioxide	1-hour	—	100 ppb	—
	Annual	0.04 ppm	53 ppb	0.053 ppm
PM_{10}	24-hour	150 µg/m³	150 µg/m³	150 µg/m³
	Annual[c]	50 µg/m³	—	—
$PM_{2.5}$	24-hour	—	35 µg/m³	35 µg/m³
	Annual		12 µg/m³	15 µg/m³
Ozone	8-hour	0,.08 ppm	0.070 ppm	0.070 ppm
Sulfur Dioxide	1-hour	—	75 ppb	—
	3-hour	0.5 ppm	—	0.5 ppm
	24-hour	0.14 ppm	—	—
	Annual	0.03 ppm	—	—
Lead	Rolling 3-month	1.5 µg/m³ [d]	0.15 µg/m³	0.15 µg/m³
Hydrogen Sulfide	1-hour	25 ppb	None	None

Source: State of Hawaiʻi Department of Health. 2022. *State of Hawaii Annual Summary: 2021 Air Quality Data*. December. https://health.hawaii.gov/cab/files/2022/12/aqbook_2021.pdf.

[a] Federal Primary Standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.

[b] Federal Secondary Standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

[c] Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the USEPA revoked the annual PM_{10} standard effective December 17, 2006. However, the State of Hawaiʻi still has an annual standard.

[d] The State of Hawaiʻi standard is based on calendar quarter.

ppb = parts per billion

ppm = parts per million

The Clean Air Act, Section 107, requires the USEPA to publish a list of geographic areas that are not in compliance with the NAAQS. These are called nonattainment areas. Unclassified areas have insufficient data for a determination and are treated as attainment areas (areas that are compliant with the NAAQS) until proven otherwise. An area's designation is pollutant-specific.

[2] State standard only

The HDOH also regulates emissions of fugitive dust. Per Hawaiʻi Administrative Rules (HAR) Chapter 11-60.1-33(a) and (b), Fugitive Dust, "no person shall cause or permit visible fugitive dust to become airborne without taking reasonable precautions," and "no person shall cause or permit the discharge of visible fugitive dust beyond the property lot line on which the fugitive dust originates."

3.15.1.2 Greenhouse Gases

In addition to criteria pollutants, emissions of greenhouse gases (GHGs) are regulated to protect public health and welfare. GHGs trap heat in the earth's atmosphere and can occur naturally or be caused by human activity. Scientific evidence indicates a trend of increasing global temperatures over the past century due to an accumulation of GHG emissions in the atmosphere. Quantitatively, global climate change is the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types). Each source of emissions makes a relatively small addition to global atmospheric GHG concentrations.

The USEPA signed the Final Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act on December 7, 2009. The endangerment finding states that "current and projected concentrations of the six key well-mixed GHGs—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations." And the cause or contribute finding states that "the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare."

The USEPA subsequently implemented GHG standards for vehicles to reduce future GHG emissions from mobile sources.

In January 2023, the Council on Environmental Quality (CEQ) issued interim guidance to assist agencies in analyzing GHGs and the climate change effects of their proposed actions under the National Environmental Policy Act (NEPA).[3] CEQ issued interim guidance so that agencies could use it immediately (while CEQ seeks public comment on the guidance). Until CEQ issues new guidance, the interim guidance is used to analyze GHGs and climate change effects.

The State of Hawaiʻi has also set the following goals to bring vehicle emissions down:

- 100% zero-emission vehicle new light-duty sales by 2035
- 100% zero-emission light-duty public fleets by 2035
- 100% zero-emission public/government-owned transit bus fleets by 2030
- 100% zero-emission med- and heavy-duty public fleets by 2040 (where technically feasible)[4]

[3] Council on Environmental Quality. January 2023. *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*. https://ceq.doe.gov/guidance/ceq_guidance_nepa-ghg.html.

[4] State of Hawaiʻi. Hawaiʻi's High Impact Actions to Address the Climate Emergency. Accessed December 2023. https://climate.hawaii.gov/hi-mitigation/goals-and-progress/.

3.15.1.3 Mobile Source Air Toxics

The USEPA also regulates the following mobile source air toxics (MSATs), which are compounds known or suspected of causing cancer or other serious health effects:

- 1,3-butadiene
- Acetaldehyde
- Acrolein
- Benzene
- Diesel particulate matter
- Ethylbenzene
- Formaldehyde
- Naphthalene
- Polycyclic organic matter

Most air toxics originate from the following human-made sources:

- On-road mobile sources
- Nonroad mobile sources (for example, airplanes)
- Area sources (for example, dry cleaners)
- Stationary sources (for example, factories or refineries)

The USEPA set standards on fuel composition, vehicle exhaust emissions, and evaporative losses from portable containers with the aim of reducing MSAT emissions.

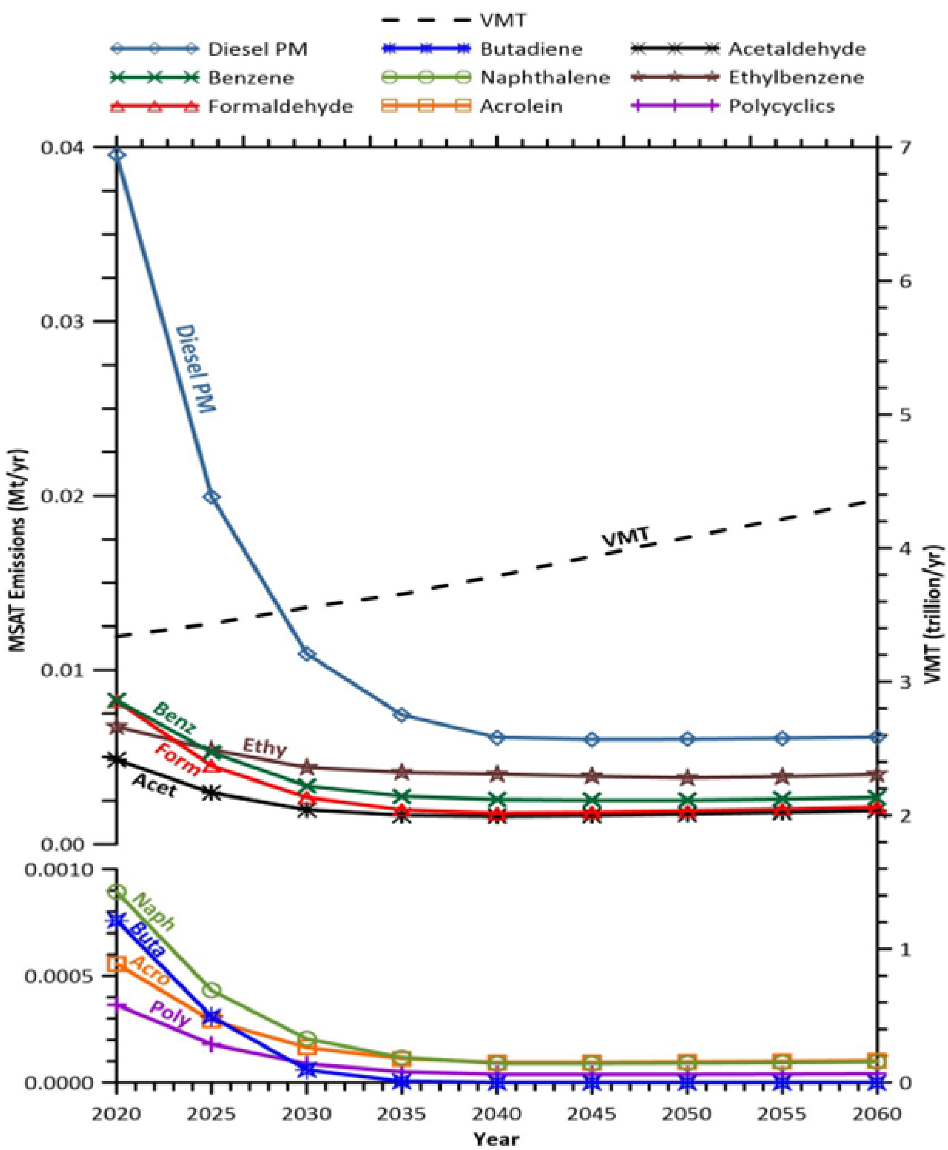
The Federal Highway Administration (FHWA) released its *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* in January 2023.[5] Using the USEPA MOVES3 model (FIGURE 3.15-1), the FHWA estimates that even if national VMT increases by 31% from 2020 to 2060 as forecast, a combined reduction of 76% in the total annual emissions for the priority MSAT is projected for the same period.

---

5 Federal Highway Administration. January 2023. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/fhwa_nepa_msat_memorandum_2023.pdf.

The National Highway Traffic Safety Administration (NHTSA) Corporate Average Fuel Economy (CAFE) standards regulate how far vehicles must travel on a gallon of fuel. The NHTSA sets CAFE standards for passenger cars and for light trucks (collectively, light-duty vehicles), and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines. CAFE standards were finalized in 2022 and require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026. This will be accomplished by increasing fuel efficiency 8% annually for model years 2024 and 2025, and 10% annually for model year 2026.[6]

FIGURE 3.15-1. **FHWA-Projected National MSAT Emission Trends for Vehicles Operating on Roadways (2020 to 2060)**



Source: EPA MOVES3 model runs conducted by the FHWA, March 2021. See footnote 4.

Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles

6 National Highway Traffic Safety Administration. 2023. Corporate Average Fuel Economy. Accessed June 2023. https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy.

traveled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.

In 2022, revised fuel economy standards for passenger cars and light trucks were adopted by the NHTSA as directed by President Biden's January 20, 2021, Executive Order 13990, Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis.[7]

3.15.2 Methodology

3.15.2.1 Operations

Long-term impacts on air quality associated with the Project could result from future vehicle operation on the roadway. Motorized vehicles require energy to operate and affect air quality by emitting airborne criteria pollutants, GHGs, and MSATs. Changes in traffic volumes, travel patterns, vehicle mix, and roadway locations affect air quality and energy consumption by changing the number of vehicles and the congestion levels in a given area.

Regional criteria pollutant emissions and energy use associated with the Project were assessed qualitatively. In addition to potentially affecting regional criteria pollutant concentrations and energy use, realignment of the highway could place vehicles farther from or closer to existing or planned sensitive receptors. Sensitive receptors in the project area are limited to individual residences but more broadly can also include hospitals, schools, day care facilities, elderly housing, and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Extra care must be taken when dealing with contaminants and pollutants in proximity to sensitive receptors. Potential localized impacts to sensitive receptors were also assessed qualitatively.

The MSAT analysis was conducted according to the FHWA's latest guidance, *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*.[8] The Project was analyzed qualitatively as a Tier 2 project, based on the FHWA's recommended tiering approach for projects with low potential for MSAT effects. This category includes projects that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions.

A qualitative GHG analysis was conducted according to CEQ's recent guidance, *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*.[9] As discussed in this guidance, agencies conducting climate change analyses in NEPA reviews should consider the following:

---

7 87 Federal Register (FR) 25710. Accessed February 2024. https://www.federalregister.gov/documents/2022/05/02/2022-07200/corporate-average-fuel-economy-standards-for-model-years-2024-2026-passenger-cars-and-light-trucks.

8 Federal Highway Administration. January 2023. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/fhwa_nepa_msat_memorandum_2023.pdf.

9 Council on Environmental Quality. January 2023. *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*. https://ceq.doe.gov/guidance/ceq_guidance_nepa-ghg.html.

- The potential effects of a proposed action on climate change, including by assessing both GHG emissions and reductions from the proposed action
- The effects of climate change on a proposed action and its environmental impacts

An assessment of GHG emissions and the effects of the Project on climate change is included below. Resilience and the effects of climate change on the Project are addressed in Section 3.13, Climate Change and Sea Level Rise.

3.15.2.2 Construction

Air quality effects during roadway construction generally consist of short-term increases in fugitive dust and mobile source exhaust emissions from construction equipment. Additionally, construction requires short-term increases in energy consumption to power construction equipment, produce materials, and transport materials to a project site.

Fugitive dust is airborne particulate matter, generally of a relatively large particulate size. Haul trucks, concrete trucks, delivery trucks, and earth-moving vehicles operating around construction sites generate construction-related fugitive dust. Particulate matter that is resuspended by vehicle movement over paved and unpaved roads, dirt tracked onto paved surfaces from unpaved areas at access points, and material blown from uncovered haul trucks generate fugitive dust.

3.15.3 Affected Environment

The regional and local climate, as well as human activity and emission sources in the area, influence the air quality in a given location. Abundant sunshine, regular northeast trade winds, relatively constant temperatures, and moderate humidity characterize leeward Maui's mild tropical climate. Severe storms are infrequent in this downwind region of Maui. Mean monthly temperatures range from mid-80 degrees Fahrenheit in the summer months to low-70 degrees Fahrenheit during the winter. Annual average rainfall is less than 30 inches with most of the rainfall occurring between October and March.

The HDOH monitors the ambient air in Hawaiʻi to confirm that the NAAQS and SAAQS are met and then publishes an annual report. The HDOH operates two air monitoring stations on Maui, in Kīhei and Kahului, which measure the air quality impacts from commercial, industrial, transportation, and agricultural activities. The latest year of available data is 2021, and Hawaiʻi was in attainment of all NAAQS and SAAQS. This includes the project area.[10]

However, as the project area is prone to wildfires and the effects of statewide volcanic activity, localized conditions can create air quality concerns associated with temporarily elevated concentrations of particulates and other pollutants resulting from natural events. When pollutant concentrations are elevated, the State of Hawaiʻi and the USEPA issue air quality alerts as appropriate.[11] The USEPA may exclude these types of natural events from attainment determinations.

[10] State of Hawaiʻi Department of Health. 2022. *State of Hawaii Annual Summary: 2021 Air Quality Data*. Accessed June 2023. https://health.hawaii.gov/cab/files/2022/12/aqbook_2021.pdf.

[11] Hawai`i Short Term SO2 Advisory (hiso2index.info) and http://www.airnow.gov/.

Therefore, as specific occurrences, they are not expected to alter the overall attainment status for the project area or Hawaiʻi.

$PM_{2.5}$ is the only pollutant monitored at the air monitoring stations on Maui. Monitored concentrations of $PM_{2.5}$ near the project area are well below the NAAQS (TABLE 3.15-2). As summarized in Appendix 3.15, the FHWA provides a methodology to complete air quality evaluations when there is incomplete or unavailable data given that overall air quality in the project area is affected primarily by emissions from vehicles, which generate criteria pollutant, GHG, and MSAT emissions.

TABLE 3.15-2. **Maui Ambient Air Monitoring Data**

POLLUTANT	AVERAGING TIME	FORM	2019	2020	2021	SAAQS	NAAQS
KĪHEI (KH) [a]							
$PM_{2.5}$ [µg/m³]	24-hour	98th percentile	16.9	7.2	5.7	N/A	35
		3-year average		9.9			
	Annual	Annual average	4.1	2.9	2.5	N/A	12
		3-year average		3.2			
KAHULUI (KL) [b]							
$PM_{2.5}$ [µg/m³]	24-hour	98th percentile	7.6 [c]	7.1	7.3	N/A	35
		3-year average		N/A			
	Annual	Annual average	3.4 [c]	3.9	3.9	N/A	12
		3-year average		N/A			

Sources: State of Hawaiʻi Department of Health. 2022. State of Hawaii Annual Summary: 2021/2020/2019 Air Quality Data. https://health.hawaii.gov/cab/files/2022/12/aqbook_2021.pdf
https://health.hawaii.gov/cab/files/2022/02/aqbook_2020_.pdf
https://health.hawaii.gov/cab/files/2021/07/aqbook_2019.pdf

[a] Monitoring data from the Kīhei station is used to make the annual attainment determination.

[b] The Kahului station is a Special Purpose Monitoring Station not used for attainment determination. Three-year average values are not available.

[c] Does not meet summary criteria, less than 75% data recovery in the first quarter, substitution test valid.

The HDOH publishes updated GHG emissions inventories and reports showing progress toward achieving statewide GHG reduction goals. GHG emissions data for 2019, the most recent year available, shows that the transportation sector accounted for 49% of statewide GHG emissions. Ground transportation specifically accounted for 18% of statewide GHG emissions.[12]

12 State of Hawaiʻi Department of Health. 2023. *Hawaiʻi Greenhouse Gas Emissions Report for 2005, 2018, and 2019.* April. https://health.hawaii.gov/cab/files/2023/05/2005-2018-2019-Inventory_Final-Report_rev2.pdf.

The United States Energy Information Administration publishes annual comprehensive state energy statistics via its State Energy Data System, which lists Hawaiʻi as having the fourth-lowest total energy use among the states and the third-lowest per capita energy consumption.[13] In 2021, the transportation sector accounted for 53% of the energy consumed in Hawaiʻi, mostly in the form of jet fuel and motor gasoline.

3.15.4 Environmental Consequences

3.15.4.1 No Build Alternative

Under the No Build Alternative, no changes to the existing roadway would occur. Overall annual average daily traffic (AADT) is projected to increase as a result of regional growth; however, emissions of criteria pollutants, GHGs, and MSATs are expected to decrease as a result of increased fuel economy and improved vehicle technology.

3.15.4.2 Build Alternatives

Common to All Build Alternatives for both Olowalu and Ukumehame

On a regional basis, the Project would not change travel demand, vehicle mix, and AADT. With total new roadway lengths of 5.1 to 5.9 miles, there is little variation among the Build Alternatives and they would be either the same length or shorter than the 5.9-mile No Build Alternative. Thus, while local trip length may vary slightly between the No Build Alternative and each of the Build Alternatives, this results in negligible differences in total VMT and emissions.[14] Additionally, the Project would include exclusive left-turn lanes, which would increase vehicle speeds, reduce congestion, and decrease criteria pollutant and GHG emissions when compared to the No Build Alternative. The effects of these differences would be minor, and compared to the No Build Alternative, the Project would not result in a material change in regional criteria air pollutant or GHG burdens.

Based on this information, and accounting for Hawaiʻi's overall attainment status, the Project would not result in an adverse impact to regional air quality or climate change. Similarly, the Project would not materially change energy consumption.

While the Project alone would not change regional travel demand, realignment of the highway could place vehicles farther from or closer to existing or planned sensitive locations such as residences. Therefore, realignment could change the level of traffic-related emissions at nearby sensitive receptors. Effects at individual sensitive receptors would vary because realignment would move the roadway closer to some receptors and farther from others. FIGURE 3.15-2 and FIGURE 3.15-3 map the receptor sites for Olowalu and Ukumehame, respectively.

As shown in TABLE 3.15-3, the distance between the highway and the closest sensitive receptor or receptors in either Olowalu or Ukumehame would increase with all the Build Alternatives when compared to the closest residences to the existing highway, which are located in Olowalu. Given the

13 U.S. Energy Information Administration. 2023. State Energy Data System: Hawaiʻi State Profile and Energy Estimates. https://www.eia.gov/state/?sid=HI.

14 As calculated in EPA's MOVES emissions model used for regional analysis, criteria air pollutant and GHG emissions are a function of traffic volume, vehicle type, population mix, and speed.

state's attainment status, there are no expected air quality effects and the purpose of this data is to show that no individual receptor would be any closer to high traffic volumes then already exists for the closest receptors. Thus, relative air quality would not be worse and localized concentrations of traffic-related emissions at sensitive receptors are expected to be lower for the Build Alternatives when compared to the closest residences in the No Build Alternative.

FIGURE 3.15-2. **Comparison of Distance to Residences in Olowalu**

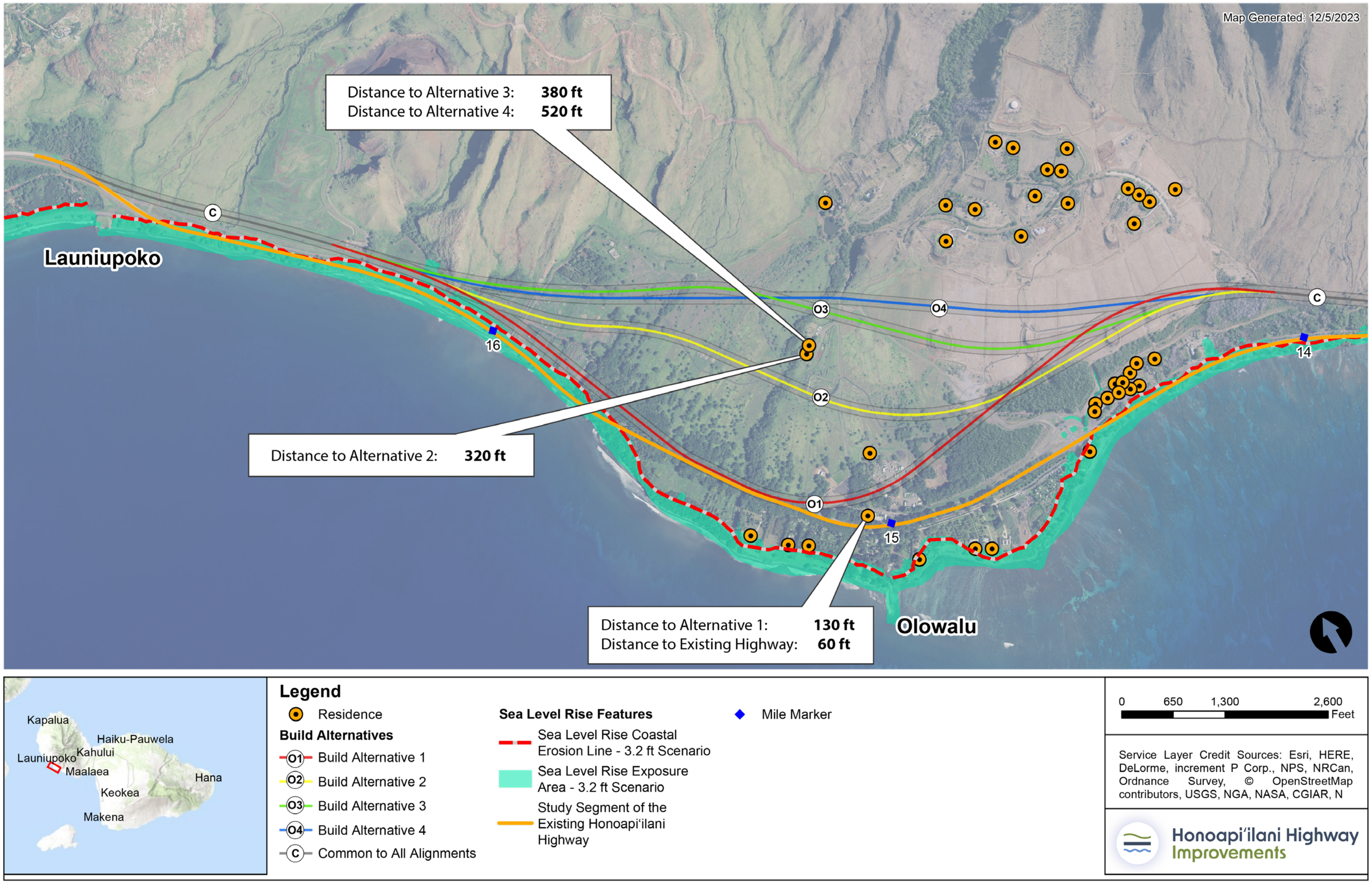


FIGURE 3.15-3. **Comparison of Distance to Residences in Ukumehame**

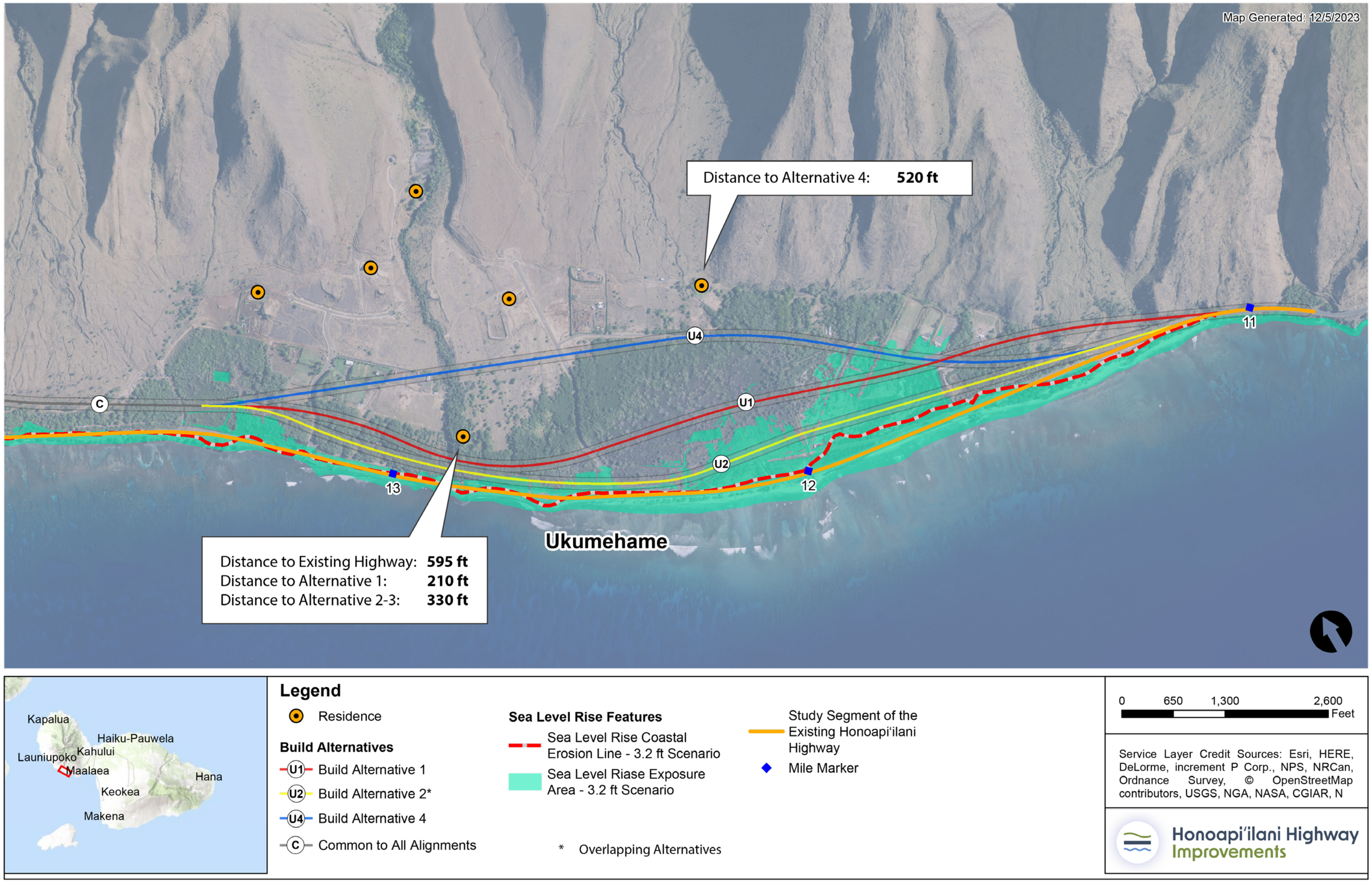


TABLE 3.15-3. **Distance to the Closest Sensitive Receptor**

ALTERNATIVE	RECEPTOR TYPE	APPROXIMATE DISTANCE (FEET)
OLOWALU		
No Build Alternative	Residence	60
Build Alternative 1	Residence	130
Build Alternative 2	Residence	320
Build Alternative 3	Residence	380
Build Alternative 4	Residence	520
UKUMEHAME		
No Build Alternative	Residence	595
Build Alternative 1	Residence	210
Build Alternatives 2 and 3	Residence	330
Build Alternative 4	Residence	520

Source: ESRI GIS Data

USEPA regulations for vehicle engines and fuels are anticipated to reduce overall emissions of criteria pollutants significantly over the next several decades, further reducing regional vehicle emissions and expected concentrations at nearby sensitive receptors. Hawaiʻi's zero-emission vehicle goals are also expected to contribute to vehicle emission reductions.

For each alternative, the quantity of MSATs emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. As described above, vehicle mix would be the same for all alternatives and differences in VMT would be minor. Therefore, no appreciable difference in overall MSAT emissions among the various alternatives is expected. Additionally, MSAT emission rates would be lower for the Build Alternatives due to small increases in vehicle speeds resulting from reduced congestion; according to the USEPA's MOVES3 model, emissions of all of the priority MSATs decrease as speed increases. Appendix 3.15 presents information on the assessment of MSAT impacts, including information regarding the health impacts.

Regardless of the alternative chosen, the FHWA's *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents* indicates that emissions will likely be lower than present levels in future years as a result of USEPA national control programs. These programs are projected to reduce annual MSAT emissions by over 76% between 2020 and 2060, based on USEPA MOVES3 modeling.[15] Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so significant (even after accounting for VMT growth) that MSAT emissions are anticipated to be lower in nearly all locations.[16]

15 Federal Highway Administration. January 2023. *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*. https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/fhwa_nepa_msat_memorandum_2023.pdf.

16 Ibid.

Under each alternative, there may be localized areas where VMT would increase and others where VMT would decrease. Accordingly, it is possible that localized increases and decreases in MSAT emissions may occur. But even if these increases do occur, they would be substantially reduced by USEPA vehicle and fuel regulations. Therefore, the Project would not result in adverse long-term air quality, GHG, or energy impacts.

3.15.5 Construction Effects

Project construction would result in short-term increases in fugitive dust and mobile source exhaust emissions from construction vehicles and equipment. Additionally, construction would require short-term increases in energy consumption to power construction equipment, produce materials, and transport materials to the project site. Construction duration, methods, and activities would be similar for all of the Build Alternatives, resulting in similar emissions.

Airborne, visible fugitive dust during construction would be controlled at the project site by the contractor in accordance with the provisions of HAR Chapter 11-60.1-33, Fugitive Dust, HDOT's Standard Specifications, and HDOT's *Construction Best Management Practices Field Manual* (BMP SM-19).[17]

Exhaust emissions and energy consumption from construction vehicles and equipment would be reduced through the following control measures:

- Keeping construction equipment and vehicles properly tuned and maintained
- Avoiding idling of diesel equipment, particularly near the air intake of any building heating, ventilation, and air conditioning systems
- Avoiding the use and routing of construction equipment near residential areas and clusters of sensitive receptors like hospitals, schools, day care facilities, elderly housing, and convalescent facilities
- Timing the assembly of construction crews, equipment, and work to minimize conflicts with typical commuting hours

Increased truck traffic associated with the Lāhainā wildfire cleanup and recovery may coincide with construction. Due to uncertainty in the timing, duration, and magnitude of additional truck travel associated with cleanup and recovery, traffic volumes have not been estimated at this time. Truck traffic associated with the Lāhainā wildfire cleanup and recovery would remain on the existing highway—largely separated from project construction areas—and therefore would not result in additional localized air quality effects. Section 3.20, Cumulative Effects, includes more information.

Air quality, GHG, and energy impacts from construction of the Project would be minor because the construction period would be limited, and impacts would be minimized by implementing the control measures described above. Additionally, Maui is in attainment for all criteria pollutants, and maximum pollutant concentrations measured at HDOH air monitoring stations are well below the SAAQS and NAAQS. As such, additional pollutants temporarily generated by construction would not cause an

17 Hawaiʻi Department of Transportation. 2021. *Construction Best Management Practices Field Manual*. October.

exceedance of these standards. Therefore, construction of the Project would not result in adverse short-term air quality, GHG, or energy impacts.

3.15.6 Indirect Effects

Air quality effects and energy demand from construction or future operation of the Project would not result in indirect effects that would create new or different air quality and energy impacts associated with future activities that could be generated over time. The Project would not create changes in regional travel demand or create new development opportunities tied to the highway project.

3.15.7 Mitigation

No mitigation measures are proposed for any of the Build Alternatives because no violations of the NAAQS or SAAQS are anticipated, and the Project would not require substantial energy consumption or emit substantial GHGs. Air quality and energy mitigation measures for long-term, traffic-related impacts would be unnecessary and unwarranted because no significant variation of VMT, vehicle hours of travel, and vehicle mix would occur between the Build Alternatives. As described above, fugitive dust generated during construction of the Project would be controlled at the site of construction activity by the contractor and in accordance with the provisions of HAR Chapter 11-60.1-33, Fugitive Dust, HDOT's Standard Specifications, and HDOT's *Construction Best Management Practices Field Manual* (BMP SM-19). Exhaust emissions and energy consumption from construction vehicles and equipment would be reduced through implementation of the control measures listed in Section 3.15.5.

3.15.8 Build Alternatives Comparative Assessment

The No Build Alternative and the Build Alternatives would not cause or exacerbate a violation of the SAAQS or NAAQS, require substantial energy consumption, or emit substantial GHGs.

Air quality and energy impacts from construction activities associated with the Project would be similar for all of the Build Alternatives and would be minor because the construction period would be limited, and standard emission control measures would be implemented.

When compared to the No Build Alternative, the Build Alternatives would not result in any significant changes in traffic volumes, travel patterns, vehicle mix, or any other factor that would cause an increase in long-term regional emissions or energy consumption. The Build Alternatives would locate the roadway farther from sensitive receptors and would reduce concentrations of traffic-related criteria pollutant, GHG, and MSAT emissions when compared to the No Build Alternative. Air quality and energy impacts from operation would be similar for all of the Build Alternatives.

As described above, the Build Alternatives would improve the overall Level of Service and would not result in an adverse impact to air quality, emit substantial GHGs, or result in a material change in energy consumption compared to the No Build Alternative.