3.8 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable regulations, and an analysis of potential construction and operational air quality impacts caused by proposed development of the proposed Meeks Bay Restoration Project alternatives.

3.8.1 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy making, education, and a variety of programs. These agencies include, but are not limited to, at the federal level, the U.S. Environmental Protection Agency (EPA); at the state level, California Air Resources Board (CARB); and at the local level, the El Dorado Air Quality Management District (EDCAQMD).

FEDERAL

U.S. Environmental Protection Agency

EPA has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress in 1990.

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS) for six common air pollutants found all over the U.S. referred to as criteria air pollutants (i.e., ozone, nitrogen dioxide [NO_2], sulfur dioxide, respirable particulate matter with an aerodynamic diameter of 10 microns or less [PM_{10}], fine particulate matter with an aerodynamic diameter of 2.5 or less [$PM_{2.5}$], and lead). The NAAQS are periodically updated; the most recent update occurred in 2015 to the 8-hour ozone standard of 0.70 parts per million (ppm), which superseded the previous 2008 standard of 0.75 ppm average over an 8-hour period. The most recent iteration of the NAAQS is shown in Table 3.8-1.

The CAA requires each state to prepare a State implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. California's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

In October 2012, EPA and the National Highway Traffic Safety Administration, on behalf of the U.S. Department of Transportation, issued final rules to reduce air pollution and improve corporate average fuel economy (CAFE) standards for light-duty vehicles for model years 2017 and beyond (77 Federal Register [FR] 62624). These rules would increase fuel economy to the equivalent of 53.8 miles per gallon (mpg) for the fleet of cars and light-duty trucks by model year 2025 (77 FR 62630).

Table 3.8-1 National, TRPA, and California Ambient Air Quality Standards

Pollutant	Averaging Time	TRPA Thresholds	California (CAAQS)[a,b]	National (NAAQS)[c] Primary[b,d]	National (NAAQS)[c] Secondary[b,e]
Ozone	1-hour	0.08 ppm	0.09 ppm (180 µg/m^3)	—	Same as primary standard
	8-hour	—	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	
Carbon monoxide (CO)	1-hour	—	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	6 ppm	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	—	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)	Same as primary standard
	1-hour	—	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	—	0.04 ppm (105 µg/m^3)	—	—
	3-hour	—	—	—	0.5 ppm (1300 µg/m^3)
	1-hour	—	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3 in CA, 50 µg/m^3 in NV	20 µg/m^3	—	Same as primary standard
	24-hour	50 µg/m^3 in CA, 150 µg/m^3 in NV	50 µg/m^3	150 µg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3 in CA, 15 µg/m^3 in NV	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
	24-hour	35 µg/m^3	—	35 µg/m^3	Same as primary standard
Lead[f]	Calendar quarter	—	—	1.5 µg/m^3	Same as primary standard
	30-Day average	—	1.5 µg/m^3	—	—
	Rolling 3-Month Average	—	—	0.15 µg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	—	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	—	25 µg/m^3		
Vinyl chloride[f]	24-hour	—	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	Regional: Extinction coefficient of 25 Mm-1 (157 km, 97 miles) 50 percent of the year, 34 Mm-1 (115 km, 71 miles) 90 percent of the year. Subregional: 50 Mm-1 (48 miles) 50 percent of the year, 125 Mm-1 (19 miles) 90 percent of the year.	Extinction of 0.23 per km		

Notes: µg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million

[a] California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[e] National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2016.

On April 2, 2018, however, the EPA administrator announced a final determination that the current standards should be revised. On that date, the U.S. Department of Transportation and EPA proposed the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE Rule), which would amend existing CAFE standards for passenger cars and light-duty trucks by increasing the stringency of the standards by 1.5 percent per year from models 2021 through 2026. With a change in federal administrations in early 2021, the SAFE Rule is now being reconsidered. On April 26, 2021, as directed in Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis," EPA announced plans to reconsider Part One of the SAFE Rule. At the time of preparing this Draft EIR, EPA is seeking public input on its reconsideration of the action. Public comments to the Notice of Reconsideration closed on June 6, 2021 and a public hearing was held on June 2, 2021 (EPA 2021a). Nevertheless, at the time this Draft EIR was prepared, the SAFE Rule Part One is in place and it is unclear whether the SAFE Rule Part One will be revoked by EPA.

SAFE Rule Part Two was finalized on March 31, 2020 and went into effect on June 29, 2020. Part Two of the SAFE Rule sets the CAFE standards to increase in stringency by 1.5 percent per year above Model Year (MYs) 2020 levels for MYs 2021–2026. These standards are lower than the previous CAFE standards, which required that MYs 2021–2026 increase in stringency by 5 percent per year.

The CAA grants California the ability to enact and enforce more strict fuel economy standards through the acquisition of an EPA-issued waiver. Each time California adopts a new vehicle emission standard, the state applies to EPA for a preemption waiver for those standards. However, Part One of the SAFE Rule, which became effective on November 26, 2019, revokes California's existing waiver to implement its own vehicle emission standard and also established a standard to be adopted and enforced nationwide (84 FR 51310). At the time of preparing this Draft EIR, the implications of the SAFE Rule on California's future emissions are contingent upon a variety of unknown factors, including legal challenges by California and other states to the revocation of California's waiver, direction provided by federal leadership, and future cabinet and administration appointments. However, the impact analysis included in this chapter assumes that the SAFE Rule would continue to be implemented, and uses emissions factors developed by CARB that account for the potential for a less fuel-efficient future vehicle fleet as a result of the SAFE Rule (CARB 2020a).

Hazardous Air Pollutants and Toxic Air Contaminants

Toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute affects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the NAAQS and California ambient air quality standards (CAAQS) have been established (Table 3.8-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

TAHOE REGIONAL PLANNING AGENCY

Thresholds

TRPA has adopted environmental threshold carrying capacities (environmental thresholds) related to air quality and other resources for the Tahoe region. Every 4 years, TRPA evaluates the environmental thresholds to determine whether each threshold standard is being achieved and/or maintained, makes specific recommendations to address problem areas, and directs general planning efforts for the next 4-year period.

TRPA threshold standards address CO, ozone, regional and subregional visibility, respirable (PM_{10}) and fine ($PM_{2.5}$) particulate matter, and nitrate deposition. Numerical standards have been established for each of these parameters, and management standards have been developed that are intended to assist in attaining the threshold standards. Environmental thresholds for air quality are listed below. As of the 2019 Threshold Evaluation, air quality-related threshold standards are in attainment (Lake Tahoe Info 2022).

In addition, the TRPA compact between California and Nevada states that the Regional Plan shall provide for attaining and maintaining federal, state, or local air quality standards, whichever are strictest, in the respective portions of the Tahoe region for which the standards are applicable.

Carbon Monoxide

Numerical Standard:

- Maintain CO concentrations at or below 6 ppm averaged over 8 hours.

Management Standard:

- Reduce traffic volumes on the U.S. 50 Corridor by 7 percent during the winter from the 1981 base year between 4:00 p.m. and 12:00 midnight, provided that those traffic volumes shall be amended as necessary to meet the respective state standards.

Ozone

Numerical Standards:

- Maintain ozone concentration below 0.08 ppm averaged over 1 hour.
- Maintain oxides of nitrogen (NO_X) emissions at or below the 1981 level.

Regional Visibility and Subregional Visibility

Numerical Standards:

- Achieve an extinction coefficient of 25 inverse mega meters (Mm^{-1}) at least 50 percent of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (visual range of 97 miles). Calculations will be made during 3-year running periods using the existing monitoring data as the performance standards to be met or exceeded 156 kilometers (97 miles) at least 50 percent of the year as measured by aerosol concentrations measured at the Bliss State Park monitoring site.
- Achieve an extinction coefficient of 34 Mm^{-1} at least 90 percent of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (visual range of 71 miles).
- Achieve an extinction coefficient of 34 Mm^{-1} at least 50 percent of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 48 miles).
- Achieve an extinction coefficient of 125 Mm^{-1} at least 90 percent of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 19 miles).

Subregional Visibility

Numerical Standards:

- Achieve 78 kilometers (48 miles) at least 50 percent of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.

- Achieve 31 kilometers (19 miles) at least 90 percent of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.

Management Standards:

- Reduce suspended soil particles by 30 percent of the 1981 base values through technology, management practices, and educational programs.
- Reduce wood smoke emissions by 15 percent of the 1981 base values through technology, management practices, and educational programs.
- Reduce vehicle miles of travel by 10 percent of the 1981 base values.

Respirable and Fine Particulate Matter

Numerical Standards:

- Maintain PM_{10} at or below 50 micrograms per cubic meter ($\mu g/m^3$) measured over a 24-hour period in the portion of the Tahoe region within California, and maintain PM_{10} at or below 150 $\mu g/m^3$ measured over a 24-hour period in the portion of the region within Nevada.
- Maintain PM_{10} at or below annual arithmetic average of 20 $\mu g/m^3$ in the portion of the Tahoe region within California, and maintain PM_{10} at or below annual arithmetic average of 50 $\mu g/m^3$ in the portion of the region within Nevada.
- Maintain $PM_{2.5}$ at or below 35 $\mu g/m^3$ measured over a 24-hour period using gravimetric or beta attenuation methods or any equivalent procedure that can be shown to provide equivalent results at or near the level of air quality standard.
- Maintain $PM_{2.5}$ at or below annual arithmetic average of 12 $\mu g/m^3$ in the portion of the Tahoe region within California, and maintain $PM_{2.5}$ at or below annual arithmetic average of 15 $\mu g/m^3$ in the portion of the region within Nevada.

Nitrate Deposition

Management Standards:

- Reduce the transport of nitrates into the [Tahoe] Basin, and reduce NO_X produced in the [Tahoe] Basin consistent with the water quality thresholds.

Tahoe Regional Plan

The goals and policies of the Tahoe Regional Plan are designed to achieve and maintain adopted environmental thresholds and are implemented through the TRPA Code of Ordinances (TRPA Code), the Environmental Improvement Program, and the Transportation Improvement Plan (with the Tahoe Metropolitan Planning Organization). The Land Use Element of the goals and policies document consists of seven subelements, including the air quality subelement. The air quality subelement includes the following two goals:

GOAL AQ-1: Attain and maintain air quality in the region at levels that are healthy for humans and the ecosystem, achieve and maintain environmental thresholds and do not interfere with residents' and visitors' visual experience.

GOAL AQ-2: Maintain an effective air quality mitigation program for the region.

Code of Ordinances

Applicable provisions of Chapter 33, "Grading and Construction," and Chapter 65, "Air Quality and Transportation," of the TRPA Code are described below.

Chapter 33.3.1—Grading and Construction

Chapter 33 includes requirements about grading and construction activity, which include limiting grading and earth disturbance activity to the portion of the calendar year between May 1 and October 15 unless approval is granted by TRPA and TRPA-approved dust control measures are implemented.

Chapter 65.1—Air Quality Control

The provisions of Chapter 65.1 apply to direct sources of air pollution in the Tahoe region, including certain on-road motor vehicles registered in the region, combustion heaters installed in the region, open burning and stationary sources of air pollution, and idling combustion engines. The following provisions are potentially applicable to the proposed project and alternatives:

- Section 65.1.3, "Vehicle Inspection and Maintenance Program," states that to avoid duplication of effort in implementation of an inspection/maintenance program for certain vehicles registered in the CO nonattainment area, TRPA shall work with the affected state agencies to plan for applying state inspection/maintenance programs to the Tahoe region.
- Section 65.1.8, "Idling Restrictions," states that no person shall cause a combustion engine in a parked auto, truck, bus, or boat to idle for more than 30 consecutive minutes in the designated plan areas (with limited exemptions). It also states that no person shall cause a diesel engine in a vehicle exceeding 10,000 pounds gross vehicle weight or a diesel engine in off-road self-propelled equipment exceeding 25 horsepower to idle more than 15 minutes within the portions of the region in Nevada, or to idle longer than 5 minutes within the portions of the region in California.

Chapter 60.1—Water Quality Control

Chapter 60 includes the following requirements related to the attainment and maintenance of water quality standards:

- Section 60.1.3.E, "Prohibition of Certain Watercraft," prohibits the launching, mooring, or operation of all two-stroke engine–powered watercraft within the Tahoe region is prohibited, except as follows:
    1. Any two-stroke engine–powered watercraft whose fuel is directly injected into the cylinder shall be exempt from the prohibition.
    2. Any two-stroke engine–powered watercraft whose fuel is directly injected into the crankcase prior to entering the cylinder and the fuel injection engine and that was purchased before January 27, 1999, shall be prohibited commencing October 1, 2001.
    3. Any watercraft powered by a two-stroke engine whose engine is certified as meeting the EPA 2006 standard or the CARB 2001 standard shall be exempt from the prohibition.
    4. Sailboats utilizing two-stroke engines as auxiliary power shall be prohibited commencing October 1, 2001.
    5. Any watercraft powered by a two-stroke engine rated at 10 horsepower or less shall be prohibited commencing October 1, 1999.
    6. Any watercraft powered by an engine that has been certified as meeting EPA's 2001–2005 emission standard shall be prohibited commencing October 1, 2001.

TRPA Standard Conditions of Approval

TRPA is committed to continue to monitor and adaptively manage construction emissions through existing permit compliance programs. Pregrade inspections occur for every permitted project prior to any ground-disturbing activities. These inspections verify that all required permit conditions, such as the location of staging areas and the use of approved power sources, are in place prior to intensive construction activities. In addition, compliance inspections occur throughout the period of construction activity to verify compliance with all permit requirements. These compliance inspections are a core function of TRPA and local jurisdiction building departments. If an inspection determines that a project is not in compliance with permit conditions, then enforcement actions are taken, which can include stopping activity at the construction site and monetary fines.

In addition to existing permit limits, TRPA's Standard Conditions of Approval for Shorezone and for Grading Projects (TRPA Permit Attachments S and Q) include the following air quality-related measures:

- All existing disturbed areas and areas disturbed as a result of construction activity authorized by the permit, or otherwise occurring on the subject project during the time period when the permit is valid, shall be revegetated using only those species contained on TRPA's list of acceptable species. All required vegetation shall be completed by completion of the project.
- All material obtained from excavation work shall be contained within the foundations, retaining walls, or by a similar means approved by TRPA, or the excavated material shall be disposed of at a site approved by TRPA.
- Soil and construction materials shall not be tracked off-site. Grading operations shall cease in the event a danger of violating this condition exists. The site shall be cleaned and the road right-of-way shall be swept clean when necessary.
- The length of open trenches (excluding foundations) shall not exceed 50 feet at the end of each working day, unless approved by TRPA.
- Loose soil mounds or surfaces shall be protected from wind and water erosions by being appropriately covered or contained when active construction is not occurring.
- Replanting of all exposed surfaces, as shown on the revegetation and slope stabilization plans, shall be completed within 1 year following the commencement of construction, unless the approved construction schedule establishes otherwise.
- At all times during construction, environmental protection and erosion control devices shall be maintained in a functioning state. Such devices include, but are not limited to, sediment barriers, dust control devices, and vegetative protection.

STATE

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish the CAAQS (Table 3.8-1).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources. The CCA also provides air districts with the authority to regulate indirect sources.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter (PM) exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan and other regulatory programs, it is estimated that emissions of diesel PM will be less than half of those in 2010 by 2035 (CARB No Date). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL

El Dorado Air Quality Management District

Criteria Air Pollutants

EDCAQMD is the primary agency responsible for planning to meet NAAQS and CAAQS in the portion of the Lake Tahoe Air Basin (LTAB), in which the project area is located. EDCAQMD works with CARB and EPA to maintain the region's portion of the SIP for PM_{10}. The SIP is a compilation of plans and regulations that govern how the region and state will comply with the federal CAA requirements to attain and maintain the NAAQS for PM_{10}. The LTAB has been designated as nonattainment with respect to the NAAQS and CAAQS for PM_{10} (Table 3.8-1) (CARB 2020b). Notably, EDCAQMD also regulates air quality in the portion of El Dorado County that exists within the Sacramento Valley Air Basin, which is in nonattainment for several of the NAAQS and CAAQS.

All projects are subject to adopted EDCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the project may include but are not limited to the following:

- Rule 205 – Nuisance. This rule prohibits the discharge from any source such as quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property.
- Rule 223 – Fugitive Dust. This rule governs the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. It applies to any construction or construction related activities including but not limited to, land clearing, grubbing, scraping, travel on site, and travel on access roads.
- Rule 223-1 – Fugitive Dust – Construction. This rule requires a Fugitive Dust Control Plan be submitted to the Air Pollution Control Officer prior to the start of any construction activity for which a grading permit was issued by El Dorado County.
- Rule 224 – Cutback and Emulsified Asphalt Paving Materials. This rule governs the use of asphalt and limits the VOC content in asphalt.

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures. Under EDCAQMD Rule 501, ("General Permit Requirements"), Rule 523, ("New Source Review"), and Rule 526 ("Toxics New Source Review: Federal Clean Air Act"), all sources that possess the potential to emit TACs are required to obtain permits from EDCAQMD. EDCAQMD may issue permits to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. EDCAQMD limits emissions and public exposure to TACs through multiple programs. EDCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., residences, schools, hospitals), that may experience adverse effects from unhealthful concentrations of air pollutants.

Odors

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and EDCAQMD. EDCAQMD Rule 205 ("Nuisance") regulates odorous emissions.

3.8.2 Environmental Setting

The proposed project is located within the LTAB in El Dorado County, California. The ambient concentrations of air pollutant emissions are determined by the amount of criteria air pollutants and precursors emitted by the sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the LTAB are determined by such natural factors as topography, meteorology, and climate.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The LTAB comprises portions of Placer and El Dorado counties in California, and Washoe and Douglas counties and the Carson City Rural District in Nevada. Lake Tahoe lies in a depression between the crests of the Sierra Nevada and Carson ranges at a surface elevation of 6,260 feet above sea level. The mountains surrounding Lake Tahoe are approximately 8,000 to 9,000 feet high, with some reaching beyond 10,000 feet. The bowl shape of the LTAB has significant air quality implications. There are two meteorological regimes that affect air quality in the basin.

First, thermal inversions occur when a warm layer of air traps a cold layer of air at the surface of the land and lake. Locally generated air pollutants are often trapped in the "bowl" by frequent inversions that limit the amount of air mixing, which allows pollutants to accumulate. Inversions most frequently occur during the winter in the LTAB, however are common throughout the year. Often, wintertime inversions result in a layer of wood smoke, mostly from residential heating, which can be seen over the Lake.

The second meteorological regime affecting air quality in the LTAB is the atmospheric transportation of pollutants from the Sacramento Valley and San Francisco Bay Area. Lake Tahoe's location directly to the east of the crest of the Sierra Nevada mountain range allows prevailing easterly winds, combined with local mountain upslope winds, to bring air from populated regions west of the Sierra to the LTAB. The strength of this pattern depends on the amount of heat, usually strongest in summer beginning in April and ending in late October.

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the LTAB is provided below and summarized effects associated with in Table 3.8-2. Table 3.8-3 shows the portion of El Dorado County located within the LTAB's attainment status for the CAAQS and the NAAQS.

Table 3.8-2 Sources and Health Effects of Criteria Air Pollutants

Pollutant	Sources	Acute[1] Health Effects	Chronic[2] Health Effects
Ozone	Secondary pollutant resulting from reaction of reactive organic gases (ROG) and oxides of nitrogen (NO_X) in presence of sunlight. ROG emissions result from incomplete combustion and evaporation of chemical solvents and fuels; NO_X results from the combustion of fuels	Increased respiration and pulmonary resistance; cough, pain, shortness of breath, lung inflammation	Permeability of respiratory epithelia, possibility of permanent lung impairment
Carbon monoxide (CO)	Incomplete combustion of fuels; motor vehicle exhaust	Headache, dizziness, fatigue, nausea, vomiting, death	Permanent heart and brain damage
Nitrogen dioxide (NO_2)	Combustion devices (e.g., boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines)	Coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis or pulmonary edema; breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, death	Chronic bronchitis, decreased lung function
Sulfur dioxide (SO_2)	Coal and oil combustion, steel mills, refineries, and pulp and paper mills	Irritation of upper respiratory tract, increased asthma symptoms	Insufficient evidence linking SO_2 exposure to chronic health impacts
Respirable particulate matter (PM_{10}), Fine particulate matter ($PM_{2.5}$)	Fugitive dust, soot, smoke, mobile and stationary sources, construction, fires and natural windblown dust, and formation in the atmosphere by condensation and/or transformation of SO_2 and ROG	Breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, premature death	Alterations to the immune system, carcinogenesis
Lead	Metal processing	Reproductive/developmental effects (fetuses and children)	Numerous effects including neurological, endocrine, and cardiovascular effects

[1] Acute health effects refer to immediate illnesses caused by short-term exposures to criteria air pollutants at fairly high concentrations. An example of an acute health effect includes fatality resulting from short-term exposure to carbon monoxide levels in excess of 1,200 parts per million.

[2] Chronic health effects refer to cumulative effects of long-term exposures to criteria air pollutants, usually at lower, ambient concentrations. An example of a chronic health effect includes the development of cancer from prolonged exposure to particulate matter at concentrations above the national ambient air quality standards.

Source: EPA 2021b.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2021b). Emissions of the ozone precursors ROG and NO_X have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

Table 3.8-3 Attainment Status Designations for El Dorado County[1]

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	—	Attainment (1-hour)[2]
	Unclassified/Attainment (8-hour)[3]	Attainment (8-hour)
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
	—	Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Unclassified/Attainment (24-hour)	—
	Unclassified/Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[4]	Unclassified/Attainment (1-Hour)	Attainment (1-hour)
	Unclassified/Attainment (1-Hour)	Attainment (24-hour)
Lead (Particulate)	Unclassified/Attainment (3-month rolling average)	Attainment (30-day average)
Hydrogen Sulfide	No Federal Standard	Hydrogen Sulfide
Sulfates	No Federal Standard	Sulfates
Visibly Reducing Particles	No Federal Standard	Visibly Reducing Particles
Vinyl Chloride	No Federal Standard	Vinyl Chloride

[1] El Dorado County is located within three air basins (i.e., Mountain Counties Air Basin, Sacramento Valley Air Basin, and Lake Tahoe Air Basin). This table summarizes the attainment status for the portion of El Dorado County that exists within the Lake Tahoe Air Basin.

[2] Per Health and Safety Code (HSC) Section 40921.5(c), the classification is based on 1989–1991 data, and therefore does not change.

[3] 2015 Standard.

[4] 2010 Standard.

Sources: CARB 2020b.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is most present in urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit, primarily, nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2021b).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2021b).

Particulate Matter

Respirable particulate matter (PM_{10}) consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). Respirable particulate matter includes a subgroup of smaller particles, fine particulate matter ($PM_{2.5}$). PM_{10} emissions in the SJVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Emissions of $PM_{2.5}$ in the SJVAB are dominated by the same sources as emissions of PM_{10} (CARB 2013).

Acute health effects of exposure to PM_{10} include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases including asthma and chronic obstructive pulmonary disease, and premature death. Chronic health effects include alternations to the immune system and carcinogenesis (EPA 2021b). For $PM_{2.5}$, short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. Long-term (months to years) exposure to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children (EPA 2021b).

TOXIC AIR CONTAMINANTS

According to the 2013 Edition of the California Almanac of Emissions and Air Quality, health risks from TACs can largely be attributed to relatively few compounds, the most important being diesel PM (CARB 2013). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel-fueled internal combustion engines emit diesel PM by, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, CARB estimated the average cancer risk associated with diesel PM concentrations in the SVAB to be 360 excess cancer cases per million people in the year 2000. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Typical odor sources of concern include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, food packaging plants, and cannabis (OPR 2017). EDCAQMD lists common types of facilities known to produce odors in their CEQA guidance (EDCAQMD 2002). Based on this list, none of these odorous land uses are within proximity to the project area.

SENSITIVE RECEPTORS

Sensitive receptors generally include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants. Residences south of the project area comprise nearby sensitive receptors.

3.8.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

The following resources were used for this analysis:

- The California Emissions Estimator Model (CalEEMod) 2020.4.0 Computer Program (CAPCOA 2021), and
- EDCAQMD's *Guide to Air Quality Assessment* (EDCAQMD 2002).

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, and odors were assessed in accordance with EDCAQMD-recommended methodologies and then evaluated against EDCAQMD-adopted thresholds.

Construction emissions of criteria air pollutants and precursors associated with the project were calculated using CalEEMod, as recommended by EDCAQMD. Modeling was based on project-specific information (e.g., construction activity, estimated hauling trips, worker trips) where available; assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. Construction for the project was assumed to occur over an approximately 5-year period commencing in 2024 and ending in 2028 with construction emissions presented in daily mass emissions.

For the reasons listed below under the heading, "Thresholds of Significance," operational modeling of ROG, NO_X, and PM_{10} was not conducted, rather, operational emissions were evaluated qualitatively using screening criteria established by EDCAQMD (EDCAQMD 2002).

Specific model assumptions and inputs for these calculations can be found in Appendix C.

The level of health risk from exposure to construction-related TAC emissions was assessed qualitatively. This assessment was based on the proximity of TAC-generating construction activity to off-site sensitive receptors, the number and types of diesel-powered construction equipment being used, and the duration of potential TAC exposure.

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance were developed in consideration of the State CEQA Guidelines, TRPA Thresholds, TRPA Initial Environmental Checklist, LTBMU Forest Plan, and other applicable policies and regulations. Under NEPA the significance of an effect must consider the context and intensity of the environmental effect. The factors that are taken into account under NEPA to determine the context and intensity of its effects are encompassed by the thresholds of significance. An alternative would have a significant effect on air quality if it would:

- conflict with or obstruct implementation of an applicable air quality plan;
- violate any air quality standard, including the NAAQS, CAAQS, and TRPA's numeric thresholds or contribute substantially to an existing or projected exceedance of these standards;
- result in a cumulatively considerable net increase of any criteria pollutant for which the LTAB is nonattainment with respect to the applicable NAAQS, CAAQS, or TRPA numeric threshold standard;
- expose sensitive receptors to substantial pollutant concentrations; or

- cause a substantial increase in pollutant emissions or a deterioration of ambient air quality; or create substantial, objectionable odors.

As stated in Appendix G of the State CEQA Guidelines, the significance criteria established by the applicable air district may be relied on to make the above determinations. In 2002, EDCAQMD adopted a fuel-based screening threshold for criteria pollutant emissions where projects with equipment (1996 engine year or newer) that consume less than 402 gallons of fuel per day are considered to have a less-than-significant impact with respect to construction emissions (Resolution 079-2002). Modeling indicates that the proposed project would exceed this screening threshold. Accordingly, the EDCAQMD's quantitative threshold of 82 pounds per day (lb/day) is used to evaluate ROG and NO_X emissions. This threshold is combined to obtain a total ozone threshold of 164 lb/day. With the combined threshold, emissions of one pollutant may be in excess of 82 lb/day; however, if the combined total is below 164 lb/day, the EDCAQMD considers the impact to be less than significant. For example, a project with NO_X emissions of 100 lb/day and ROG emissions of 20 lb/day would be considered to have a less-than-significant impact because the combined total would be 120 lb/day, which is below the combined threshold of 164 lb/day.

According to the EDCAQMD CEQA Guidelines, emissions of fugitive dust PM_{10} need not be quantified and may be assumed to be not significant if the proposed project includes mitigation measures that will prevent visible dust beyond the property lines (EDCAQMD 2002). This is because mitigation measures that control fugitive dust emissions can reduce fugitive dust emissions by approximately 50–75 percent. However, without mitigation, uncontrolled construction dust could contribute to exceedances of the CAAQS and would be considered a significant impact. Use of the PM_{10} standard as a surrogate for the assessment of $PM_{2.5}$ impacts is considered appropriate because $PM_{2.5}$ is a substituent of PM_{10}.

EDCAQMD has adopted size thresholds for various land uses to identify projects that would result in operational emissions in excess of the EDCAQMD's threshold of 82 lb/day for ROG and NO_X (EDCAQMD 2002). EDCAQMD recommends that a detailed operational analysis be performed for projects that are within 10 percent of the sizes identified in Table 5.2 of EDCAQMD's CEQA Guide. The closest land use resembling the project would be motel as the project would provide transient lodging with electrical hookups. According to modeling conducted by EDCAQMD, a motel with fewer than 480 rooms would not generate a significant volume of ROG and NO_X. The project would be smaller in size by comparison. While the project would result in ROG and NO_X emissions from increase vehicular activity (as described in Section 3.12, "Transportation and Circulation"), the level of project-generated vehicle miles traveled (VMT) would not be comparable to the VMT that would be generated by a project listed in Table 5.2 of the EDCAQMD CEQA Guide (EDCAQMD 2002). As such, consistent with EDCAQMD guidance and based on the project's size, operational emissions of ROG and NO_X would not exceed EDCAQMD's 82 lb/day significance criteria.

EDCAQMD has adopted a fuel-based screening threshold for DPM in which projects that consume less than 37,000 gallons of fuel over the construction period are considered to have a less-than-significant impact (Resolution 079-2002). Modeling indicates that the proposed project would exceed this screening threshold.

EDCAQMD considers health risks from projects that exceed this screening level to be significant if the lifetime probability of contracting cancer is greater than ten in one million or if ground-level concentration of non-carcinogenic toxic air contaminants would result in a hazard index (HI) of greater than 1.

Thus, as identified by EDCAQMD, an air quality impact also is considered significant if implementation of the project would result in:

- construction-generated criteria air pollutants that would exceed the EDCAQMD-recommended threshold of 82 lb/day (lb/day) for ROG and NO_X, or a combined threshold of 164 lb/day for both pollutants if either ROG or NO_X exceed 82 lb/day;
- operation-generated criteria air pollutants that would exceed EDCAQMD-recommended threshold of 82 lb/day for ROG and NO_X for projects larger than the size defined in Table 5.2 of EDCAQMD's CEQA Guide; and
- exposure of sensitive receptors to TAC emissions would exceed 10 in 1 million for the carcinogenic risk (i.e., the risk of contracting cancer) or a noncarcinogenic Hazard Index of 1 for the maximally exposed individual.

ISSUES NOT DISCUSSED FURTHER

Carbon Monoxide Emissions

EDCAQMD considers CO emissions significant if they would cause or contribute to violations of the CAAQS or NAAQS (EDCAQMD 2002). EDCAQMD does have a recommended screening criteria for evaluating mobile-source CO emissions, other air districts, such as the Sacramento Metropolitan Air Quality Management District, have performed mobile-source CO dispersion modeling using the California Line Source Dispersion Model that may be used to screen CO impacts. Based on their modeling, a CO hotspot could occur at intersections that support 31,600 vehicles per hour. As discussed in greater detail in Section 3.12, "Transportation and Circulation," the maximum number of trips generated by the project would occur under Alternative 3 totaling 23 new trips per day. This level of vehicle activity is substantially less than 31,600 vehicles per hour at one intersection. Additionally, mobile-source CO emissions have historically decreased since the advent of catalytic converters, which decrease mobile-source exhaust emissions, and there have been improvements in fuel economy since 2006 through regulatory compliance implemented by EPA and CARB (e.g., the Corporate Average Fuel Economy standards and Advanced Clean Cars program). Thus, mobile-source carbon monoxide emissions are not discussed further.

Odors

EDCAQMD recommends that, for projects locating near a source of odors where there is currently no nearby development and for odor sources locating near existing receptors, the determination of significance should be based on the distance and frequency of odor complaints from the public regarding a similar facility. The project is not located within the vicinity of a stationary source of odors. Moreover, operation of the project would entail similar activities that are a component of existing conditions in the project area (e.g., campfires, cook stoves). Thus, operation of the project would not introduce new activities that would produce odors and odors are dismissed from consideration.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Impact 3.8-1: Short-Term Impacts From Construction-Generated Emissions of Criteria Air Pollutants and Precursors

Alternatives 1 through 4 would result in construction-related emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ from use of off-road heavy-duty construction equipment; however, these emissions would not exceed the applicable daily significance thresholds for construction. This would be a less-than-significant impact for Alternatives 1, 2, 3, and 4. Under the No Action Alternative, no construction activity would occur. This would result in no impact.

No Action Alternative

Under the No Action Alternative, no physical improvements or changes to the project area or any substantial changes in management approaches. Existing operation and maintenance of the existing facilities in the project area would continue. As such, no construction-related activities would occur in the project area as a result of implementation of Alternative 1. There would be no short-term, construction-generated emissions of ROG, NO_X, and PM_{10} associated with Alternative 1. There would be no impact.

Alternative 1: Restoration with Boat Pier

Construction activity would result in emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ from use of off-road heavy-duty construction equipment for various stages of construction. Specifically, construction-related emissions would result from the use of off-road equipment during site preparation (e.g., excavation, clearing); trenching; restoration efforts; replacement of the SR 89 bridge; demolition and reconstruction of cabins; reconfiguration of day-use areas, circulation, and campgrounds; and construction of a new boat pier. Fugitive dust (e.g., PM_{10} and $PM_{2.5}$) emissions would be generated primarily during the demolition and site preparation phases of project construction. Ozone precursor emissions of ROG and NO_X are associated primarily with construction equipment and on-road mobile

exhaust. Alternative 1 would also result in criteria air pollutant emissions from construction worker commute trips during various phases of project construction as well as vendor trips carrying materials to the project area.

Table 3.8-4 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 1 construction activity. See Appendix C for full details and information regarding emissions modeling.

Table 3.8-4 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 1[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	3	33	24	20	11
2025	3	30	27	8	4
2026	3	30	27	8	4
2027	3	20	27	8	4
2028	1	9	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

[1] Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

As shown above, construction emissions from Alternative 1 would not exceed EDCAQMD's daily mass emissions thresholds of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be significant.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would entail similar construction activity to Alternative 1; however, Alternative 2 would include a pedestrian pier instead of a boating pier, and it would not involve demotion and reconstruction of cabins. Table 3.8-5 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 2 construction activity. See Appendix C for full details and information regarding emissions modeling.

Table 3.8-5 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 2[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	3	31	22	20	11
2025	3	30	28	8	4
2026	3	30	27	8	4
2027	3	29	27	8	4
2028	1	7	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

[1] Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

Similar to Alternative 1, construction of Alternative 2 would not generate construction emissions in exceedance of EDCAQMD's daily mass emissions thresholds of significance of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be significant.

Alternative 3: Restoration with No Pier

Alternative 3 would entail similar construction activity to Alternative 2; however, Alternative 3 would include the relocation and expansion of a parking area, and the expansion of the campgrounds. Alternative 3 would not include construction of a pier, but instead would involve the construction of a nonmotorized paddlecraft launch. Table 3.8-6 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 3 construction activity. See Appendix C for full details and information regarding emissions modeling.

Similar to Alternative 1, construction of Alternative 3 would not generate construction emissions in exceedance of EDCAQMD's daily mass emissions thresholds of significance of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be significant.

Table 3.8-6 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 3[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	2	29	19	20	11
2025	3	30	27	8	5
2026	3	29	27	8	4
2027	3	29	27	8	4
2028	1	8	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

[1] Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

Alternative 4: Preferred Alternative

Alternative 4 would entail similar construction activity as Alternative 1; however, Alternative 4 would include construction of a nonmotorized launch platform instead of a boating pier. Alternative 4 would also include expansion of a parking area in its current location. Table 3.8-7 provides a summary of criteria air pollutant emissions that would be generated as a result of Alternative 4 construction activity. See Appendix C for full details and information regarding emissions modeling.

Similar to Alternative 1, construction of Alternative 4 would not generate construction emissions in exceedance of EDCAQMD's daily mass emissions thresholds of significance of 82 lb/day for ROG and NO_X. However, as discussed under the heading, "Thresholds of Significance," EDCAQMD considers PM_{10} and $PM_{2.5}$ emissions to be significant unless BMPs to reduce fugitive dust are implemented. These emissions could conflict with an applicable air quality plan or contribute to the violation of an ambient air quality standard. Therefore, construction-generated PM_{10} and $PM_{2.5}$ emissions would be significant.

Table 3.8-7 Summary of Modeled Emissions of Criteria Air Pollutants and Precursors from Alternative 4[1]

Construction Year	ROG (lb/day)	NO_X (lb/day)	CO (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
2024	3	29	19	20	11
2025	3	30	27	8	5
2026	3	29	27	8	4
2027	3	29	27	8	4
2028	1	8	15	1	<1
EDCAQMD Daily Thresholds (lb/day)	82	82	None	BMPs	BMPs
Exceeds Thresholds?	No	No	–	–	–

Notes: lb/day = pounds per day; EDCAQMD = El Dorado County Air Quality Management District; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; PM_{10} = particulate matter with aerodynamic diameter of 10 micrometers or less; $PM_{2.5}$ = particulate matter with aerodynamic diameter of 2.5 micrometers or less; BMPs = best management practices.

[1] Consistent with TRPA requirements, earth moving activities would only occur from May 1 through October 15.

Source: Modeled by Ascent Environmental in 2021.

Mitigation Measures

Mitigation Measure 3.8-1: Implement an El Dorado County Air Quality Management District-Approved Fugitive Dust Control Plan During Construction

This mitigation measure will apply to Alternatives 1, 2, 3, and 4.

As required by EDCAQMD Rule 223-1, USDA Forest Service shall implement all feasible and practicable fugitive dust control measures during construction. Emission reduction measures will include the EDCAQMD Rule 223-1 Best Management Practices as well as any additional measures deemed appropriate. These include, but are not limited to, the following:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, non-toxic chemical or organic stabilizer/suppressant, or vegetative ground cover.
- All onsite unpaved construction roads and offsite unpaved construction access roads shall be effectively stabilized of dust emissions using water or non-toxic chemical or organic stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- During demolition of buildings all exterior surfaces of the building shall be wetted.
- Keep bulk materials sufficiently wet when handling and storing.
- When materials are transported offsite, all material shall be covered, effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.
- All construction operations shall limit or expeditiously remove the accumulation of mud or dirt from SR 89 and roadways within the project area at least once every 24 hours when operations are occurring. (Rotary brushes may be used to remove mud or dirt when it is preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surfaces of outdoor storage piles, piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Onsite vehicle speeds on unpaved roads shall be limited to 15 mph.

- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from adjacent project areas with a slope greater than 1 percent.
- Wheel washers shall be installed for all exiting trucks and equipment, or wheels shall be washed to remove accumulated dirt before leaving the site.
- Shaker racks (also referred to as rumble strips) shall be installed on the perimeter of the construction site to remove material from vehicle tire prior to entering a paved roadway.
- Excavation and grading activities shall be suspended when winds exceed 20 mph, or when visible emissions exceed 20 percent opacity at point-of-origin or if visible emissions extend more than 50 feet from point-of-origin, whichever is less.
- The overall area subject to excavation and grading at any one time shall be limited to the fullest extent possible.
- Onsite equipment shall be maintained and properly tuned in accordance with manufacturers' specifications.
- When not in use, onsite equipment shall not be left idling for more than 5 minutes.
- Use existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators and use electrified equipment when feasible.
- Idling of construction-related equipment and construction-related vehicles is not permitted within 1,000 feet of any sensitive receptor (i.e., house, hospital, or school).
- Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors.
- Plant vegetative ground cover in disturbed areas as soon as feasible. Water appropriately until vegetation is established.

Additional measures may be identified by USDA Forest Service, TRPA, EDCAQMD, Lahontan RWQCB, or a contractor as appropriate. All measures shall be incorporated into a Fugitive Dust Control Plan.

Significance after Mitigation

Implementation of Mitigation Measure 3.8-1 would reduce emissions of fugitive dust PM_{10} and $PM_{2.5}$ through the application of recognized fugitive dust control measures through the prepared of a Fugitive Dust Control Plan. EDCAQMD's guidance states that projects that implement a Fugitive Dust Control Plan would have less-than-significant PM impacts. Thus, application of Mitigation Measure 3.8-1 would be sufficient to reduce this impact to a less-than-significant level.

Impact 3.8-2: Long-Term Impacts From Operational-Related Emissions of Regional Criteria Air Pollutants and Precursors

Removal of the marina and implementation of other project area changes (e.g., change in number of campsites and parking spaces) associated with Alternatives 1 through 4 would result in a decrease in average daily trips and average daily vehicle miles traveled. Based on EDCAQMD guidance, the alternatives would generate vehicle activity well below the amount of VMT that would be generated by any development project listed in EDCAQMD's screening table (EDCAQMD 2002). Implementation of Alternatives 1 through 4 would include the removal of the existing Meeks Bay Marina, which would also result in less emissions from boat activity than under existing conditions. Emissions of criteria air pollutants generated by operation of Alternatives 1, 2, 3, and 4 would result in a less-than-significant impact. Under the No Action Alternative, the project area would continue to operate as it does currently, and no new emissions would be generated above baseline conditions. This would result in no impact.

No Action Alternative

The No Action Alternative would involve no physical improvements or changes to the project area or any substantial changes in management approaches. Existing operation and maintenance of the existing facilities on the project area would continue. As such, the operational-related emissions that would occur in the project area as a result of

implementation of the No Action Alternative would be the same as those currently occurring. There would be no additional long-term operational-generated emissions of ROG, NO_X, and PM_{10} associated with the No Action Alternative, above those which occur today. This impact would be less than significant.

Alternative 1: Restoration with Boat Pier

Operation of Alternative 1 would not generate additional vehicle trips to the project area (see Impact 3.12-2 in Section 3.12, "Transportation and Circulation"), and would therefore not increase vehicle emissions. The existing motel-style cabins would be removed and reconstructed farther inland; however, the visitor capacity and, thus, electrical demand would not increase. The supportive infrastructure of Meeks Bay Marina including the marina office would be removed, eliminating any electrical demand generated by its operation. This would result in an overall decrease in the project area's total electrical demand as compared to existing conditions.

While Alternative 1 would, similar to Alternatives 2, 3, and 4, result in the removal of the existing Meeks Bay Marina, Alternative 1 would also include the construction and operation of a centrally located pier to accommodate recreational boaters and an emergency services boat. As described under Impact 3.10-3 in Section 3.10, "Public Safety and Hazards," Alternative 1 would result in approximately 2,000 boat trips per year, which is 1,940 fewer trips than under baseline conditions with the operation of the marina. This level of boating activity would result in less emissions than under existing conditions.

For these reasons, operation of Alternative 1 would generate a less-than-significant level of criteria air pollutants.

Alternative 2: Restoration with Pedestrian Pier

Like Alternative 1, Alternative 2 would not increase vehicle trips or electrical demand on site. However, unlike Alternative 1, Alternative 2 would not replace the existing Meeks Bay Marina with a pier that could support boat activity. Rather, Alternative 2 would include a pedestrian pier, which would not generate operational emissions of criteria air pollutants. Operation of Alternative 2 would decrease overall operational emissions from the project area by removing boating activity and vehicle trips associated with the marina that would generate exhaust emissions. As described in Table 3.1-3 in Section 3.1, "Recreation," approximately 1,970 boats are launched from the Meeks Bay Marina per year, which equates to approximately 3,940 boat trips through Meeks Bay per year, assuming two trips per launch (i.e., one trip leaving the marina and one returning). Thus, emissions from approximately 3,940 boat trips would be avoided in the project area under Alternative 2. For these reasons, operation of Alternative 2 would generate a less-than-significant level of criteria air pollutants.

Alternative 3: Restoration with No Pier

Alternative 3 would result in expansion and reconfiguration of the Meeks Bay Resort and Meeks Bay campgrounds for a total increase of 7-22 campsites in the project area. This increase in campsites may generate indirect emissions from electrical combustion from the nonrenewable portion of Liberty Utilities' energy portfolio; however, as described under Alternative 2, the removal of the marina would eliminate the emissions from approximately 3,940 boat trips per year, which would greatly outweigh any increase in emissions from increased energy usage. Additionally, by 2029 (the assumed first full year of operation), Liberty Utilities would be required to meet the standards of the Renewable Portfolio Standard for that year, which would be nearly 60 percent and would be on a trajectory to become even more renewable as the state progresses to meet its emissions reduction targets. Thus, emissions from the indirect combustion of natural gas and other nonrenewable energy sources would progressively go down into the future.

Alternative 3 would increase the capacity for day visitors (i.e., add up to 14 parking spaces) and increase campsites by 7-22 campsites. Like Alternative 2, Alternative 3 would not replace the existing Meeks Bay Marina with a pier that could support boat activity. As discussed in Impact 3.12-2 in Section 3.12, "Transportation and Circulation," the reduction in average daily VMT associated with removal of the marina and boat ramp would be greater than the increase in VMT associated with the capacity for day visitors and maximum additional campsites such that there would be an overall net decrease in average daily VMT. Based on EDCAQMD guidance, with removal of the marina and boat launch and addition of campsites and day visitor capacity, Alternative 3 would generate vehicle activity well below the amount of VMT that would be generated by any development project listed in EDCAQMD's screening table (EDCAQMD 2002).

This would result in an overall decrease in operational emissions from the operation of the project area by eliminating the operation of boats that would generate exhaust emissions. For these reasons, operation of Alternative 3 would generate a less-than-significant level of criteria air pollutants.

Alternative 4: Preferred Alternative

Alternative 4 would involve similar facilities as Alternative 1, except that it would include a paddlecraft launch instead of a pier. Similar to Alternative 3, this alternative would expand capacity for day visitors (i.e., adding 14 parking spaces). Because Alternative 4 would not support any motorized boating, unlike the boating pier proposed for Alternative 1, this alternative would result in fewer additional VMT than Alternative 1. Thus, this alternative would result in VMT well below the amount of VMT that would be generated by any development project listed in EDCAQMD's screening table (EDCAQMD 2002).

Like Alternatives 2 and 3, Alternative 4 would not replace the existing Meeks Bay Marina with a pier that could support boat activity. This would result in an overall decrease in operational emissions from the project area by eliminating an estimated 3,940 boat trips per year that would generate exhaust emissions. For these reasons, operation of Alternative 4 would generate a less-than-significant level of criteria air pollutants.

Mitigation Measures

No mitigation measures are required.

Impact 3.8-3: Expose Sensitive Receptors to Emissions of Toxic Air Contaminants

Construction-related emissions of TACs associated with the implementation of the alternatives would not result an incremental increase in cancer risk greater than 10 in one million or a hazard index greater than 1.0 at existing or future sensitive receptors. Therefore, this impact would be less than significant for Alternatives 1, 2, 3, and 4. Under the No Action Alternative, no construction would occur and therefore no diesel PM would be generated. Under the No Action Alternative, there would be no impact.

No Action Alternative

The No Action Alternative would involve no physical improvements or changes to the project area or any substantial changes in management approaches. Existing operation and maintenance of the existing facilities in the project area would continue. There would be no increase in TAC emissions associated with Alternative 1 as compared to baseline conditions. There would be no impact.

Alternative 1: Restoration with Boat Pier

Existing sensitive receptors are located within 1,000 feet south of the project area. Operation of Alternative 1 would not introduce any new stationary sources of TACs; therefore, construction-generated TACs comprise the bulk of this analysis.

Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) were identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of diesel PM outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003:K-1). With regard to exposure of diesel PM, the dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher level of health risk for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period. According to the Office of Environmental Health Hazard Assessment, when a Health Risk Assessment is prepared to project the results of exposure of sensitive receptors to selected compounds, exposure of sensitive receptors to TAC emissions should be based on a 70- or 30-year exposure period; however, such assessments should be limited to the duration of activities associated with the proposed project if emissions occur for shorter periods (OEHHA 2015:5-23, 5-24).

Construction-related activities that would result in temporary, intermittent emissions of diesel PM would be from the exhaust of off-road equipment used during site preparation and construction and on-road heavy-duty trucks. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods of time such that they would expose a single receptor to excessive diesel PM emissions.

Based on the construction-related emissions modeling conducted (see Appendix C), maximum daily emissions of exhaust PM_{10} would be less than 2 lb/day during construction. A portion of these emissions would be due to haul trucks traveling to and from the site and would not occur in the project area. In addition, all construction activities would occur during daytime hours, which is when many residents who are employed or are students typically would not be at home, thus limiting exposure from construction-related emissions to these receptors.

Construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0. The low exposure level reflects the (i) relatively low mass of diesel PM emissions that would be generated by construction activity in the project area; (ii) the relatively short duration of diesel PM-emitting construction activity at the project area; and (iii) the highly dispersive properties of diesel PM. This impact would be less than significant.

Alternative 2: Restoration with Pedestrian Pier

Alternative 2 would include similar restoration and construction efforts as Alternative 1, which would produce similar levels of diesel PM during the construction period. For the reasons discussed above under Alternative 1, Alternative 2 would not expose any sensitive receptors to harmful levels of diesel PM. This impact would be less than significant.

Alternative 3: Restoration with No Pier

Alternative 3 would include similar restoration and construction efforts as Alternative 1, which would produce similar levels of diesel PM during the construction period. For the reasons discussed above under Alternative 1, Alternative 3 would not expose any sensitive receptors to harmful levels of diesel PM. This impact would be less than significant.

Alternative 4: Preferred Alternative

Alternative 4 would include similar restoration and construction efforts as Alternative 1, which would produce similar levels of diesel PM during the construction period. For the reasons discussed above under Alternative 1, Alternative 4 would not expose any sensitive receptors to harmful levels of diesel PM. This impact would be less than significant.

Mitigation Measures

No mitigation measures are required.

3.8.4 Cumulative Impacts

The LTAB is currently in nonattainment for the 1-hour and 8-hour CAAQS for ozone and PM_{10}; unclassified for the CAAQS for hydrogen sulfide and visibility-reducing PM; and listed as unclassified for the NAAQS for ozone, CO, NO_2, PM_{10}, fine PM ($PM_{2.5}$), and lead. Construction-generated and operational-generated emissions of criteria air pollutants from related projects could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations. However, many of the cumulative projects generating emissions (see Table 3-2) are forest fuel management projects intended to reduce the risk of catastrophic wildfire and associated emissions, which would have long-term beneficial effects on air quality. Additionally, because the LTAB is currently designated as nonattainment for the CAAQS for ozone, construction- and operation-generated emissions of ROG and NO_X could contribute on a cumulative basis to pollutant concentrations that exceed the ambient air quality standards because of growth in the area. That is, the results of past, present, and reasonably foreseeable projects, including the Meeks Bay Restoration Project, could combine to result in a significant cumulative air quality impact. However, construction-related emissions of ROG and NO_X from project implementation were determined to be less than significant because project emissions would not exceed the applicable mass emissions thresholds set by EDCAQMD of 82 lb/day. Also, as discussed under Impact 3.8-2, the alternatives would generate a less-than-significant level of operational criteria air pollutants.

Generally, thresholds of significance are tied to long-term air quality planning in consideration of the construction and operation of multiple past, present, and future projects to accommodate growth within an air basin. Because the alternatives would not produce emissions substantial enough to exceed these thresholds of significance, construction- and operation-related emissions of ROG and NO_X, and other criteria air pollutants, would not make a considerable contribution to a significant cumulative impact with respect to ozone, PM_{10}, and $PM_{2.5}$.

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