Section 3.2
Air Quality

This section describes the regulatory and environmental setting for air quality, the effects on air quality that would result from the Project, and the mitigation measures that would reduce these effects. **Table 3.2-1** presents a summary of Project impacts on air quality.

The following sources provide key sources of data and information used in the preparation of this section.

- California ambient air quality standards (CAAQS) (California Air Resources Board 2013a).
- Air Designation Maps/State and National (California Air Resources Board 2013b).
- iADAM air quality data statistics (California Air Resources Board 2014).
- CEQA Air Quality Guidelines (Monterey Bay Unified Air Pollution Control District 2008a).
- 2012 Triennial Update to the Air Quality Management Plan for the Monterey Bay Region (Monterey Bay Unified Air Pollution Control District 2013)
- 2008 Air Quality Management Plan for the Monterey Bay Region (Monterey Bay Unified Air Pollution Control District 2008b).
- The California Emissions Estimator Model (CalEEMod) (South Coast Air Quality Management District 2013).

Table 3.2-1. Summary of Project Impacts on Air Quality

Impact	Significance Before Mitigation	Mitigation	Significance After Mitigation
A. Air Quality Plan Consistency			
AQ-A1. The Project would be consistent with the 2008 Air Quality Management Plan.	Less than Significant	None required	--
B. Long-Term Emissions			
AQ-B1. The Project would result in a long-term increase in ROG, NOx, CO, and PM10 emissions from vehicular traffic.	Less than Significant	None required	--
C. Construction Emissions			
AQ-C1. The Project would result in a short-term increase in PM10 emissions due to grading and construction.	Less than Significant	None required	--
D. Sensitive Receptors			
AQ-D1. The Project would result in the emission of toxic air contaminants from diesel truck and equipment use during construction.	Less than Significant	None required	--
AQ-D2. The Project would not expose sensitive receptors to substantial CO concentrations from project-related traffic.	Less than Significant	None required	--
E. Odors			
AQ-E1. The Project could expose new sensitive receptors to objectionable odors.	Less than Significant	None required	--

-- = Not Applicable

Regulatory Setting

The Project site and surrounding areas are subject to air quality regulations developed and implemented at the federal, state, and local levels. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for implementation of the Clean Air Act (CAA). Some portions of the CAA (e.g., certain mobile-source and other requirements) are implemented directly by EPA. Other portions of the CAA (e.g., stationary-source requirements) are implemented by state and local agencies.

Responsibility for attaining and maintaining air quality in California is divided between the California Air Resources Board (ARB) and regional air quality districts. Areas of control for the regional districts are set by ARB, which divides the state into air basins. These air basins are defined by topography that limits air flow access, or by county boundaries. The regional air quality district is the Monterey Bay Unified Air Pollution Control District (MBUAPCD). Plans, policies, and regulations relevant to the proposed project are discussed below.

Federal

The following federal regulations related to air quality are likely to apply to the Project.

Clean Air Act and National Ambient Air Quality Standards

The CAA, promulgated in 1963 and amended several times thereafter, including the 1990 Clean Air Act amendments, establishes the framework for modern air pollution control. The act directs EPA to establish national ambient air quality standards (NAAQS) for six criteria pollutants: ozone, carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter (PM), which consists of PM 10 microns or less in diameter (PM10) and PM 2.5 microns or less in diameter (PM2.5). The NAAQS are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety, and the latter are set to protect valued environmental resources, such as plant and animal life. **Table 3.2-2** summarizes the NAAQS.

The CAA requires states to submit a state implementation plan (SIP) for areas in nonattainment for federal standards. The SIP, which is reviewed and approved by EPA, must demonstrate how the federal standards would be achieved. Failing to submit a plan or secure approval could lead to denial of federal funding and permits. In cases where the SIP is submitted by the state, but fails to demonstrate achievement of the standards, EPA is directed to prepare a federal implementation plan.

Federal Tailpipe Emission Standards

To reduce emissions from off-road diesel equipment, on-road diesel trucks, and harbor craft, EPA established a series of increasingly strict emission standards for new engines. New construction equipment used for the Project, including heavy-duty trucks and off-road construction equipment, would be required to comply with the emission standards.

State

The following state regulations related to air quality apply to the Project.

California Clean Air Act and California Ambient Air Quality Standards

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CAAQS do not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. The CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The CAAQS and NAAQS are listed together in **Table 3.2-2**.

ARB and local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans that would be incorporated into the state implementation plan. In California, EPA has delegated authority to prepare state implementation plans to ARB, which, in turn, has delegated that authority to individual air districts. ARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving state implementation plans.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

Toxic Air Contaminant Regulations

California regulates toxic air contaminants (TACs) primarily through the Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). AB 1807 created California's program to reduce exposure to air toxics. AB 2588 supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. In August 1998, ARB identified particulate emissions from diesel-fueled engines as TACs. In September 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. As an ongoing process, ARB reviews air contaminants and identifies those that are classified as TACs. ARB also continues to establish new programs and regulations for the control of TACs, including diesel particulate matter.

Table 3.2-2. National and California Ambient Air Quality Standards

Pollutant	Symbol	Average Time	Standard (parts per million [ppm])		Standard (micrograms per cubic meter [µg/m³])		Violation Criteria	
			California	National	California	National	California	National
Ozone[a]	O_3	1 hour	0.09	–	180	–	If exceeded	–
		8 hours	0.070	0.075	137	147	If exceeded	If fourth-highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor in an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	–
Sulfur dioxide	SO_2	24 hours	0.04	–	105	–	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	0.075	655	196	If exceeded	–
		3 hour	–	0.50[a]	–	1300[a]–		
Hydrogen sulfide	H_2S	1 hour	0.03	–	42	–	If equaled or exceeded	–
Vinyl chloride	C_2H_3Cl	24 hours	0.01	–	26	–	If equaled or exceeded	–
Inhalable particulate matter	PM10	Annual arithmetic mean	–	–	20	–	–	–
		24 hours	–	–	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	–	–	12	12.0	–	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	–	–	–	35	–	If 3-year average of 98th percentile at each population-oriented monitor in an area is exceeded
Sulfate particles	SO_4	24 hours	–	–	25	–	If equaled or exceeded	–
Lead Particles	Pb	Calendar quarter	–	–	–	1.5	–	If exceeded no more than 1 day per year
		30-day average	–	–	1.5	–	If equaled or exceeded	–
		Rolling 3-month average	–	–	–	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

Source: California Air Resources Board 2013a.

Notes:

[a] Secondary standard.

Local

At the local level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that NAAQS and CAAQS are met.

The following local policies related to air quality may apply to implementation of the Project.

Monterey Bay Unified Air Pollution Control District

In Monterey County, the MBUAPCD has local air quality jurisdiction. Under the California CAA, the MBUAPCD is required to develop an air quality plan for nonattainment criteria pollutants in the air district. The most recent air quality plan adopted by the MBUAPCD is the 2012 Triennial Plan Revision, which updates the 2008 Air Quality Management Plan (AQMP) for the Monterey Bay Region and documents progress towards attaining the ozone CAAQS.

MBUAPCD has adopted CEQA emission thresholds, identified in their *CEQA Air Quality Guidelines* (Monterey Bay Unified Air Pollution Control District 2008a), to determine the level of significance of project-related emissions. Emissions that exceed the designated threshold levels are considered potentially significant impacts that should be mitigated.

Through the attainment planning process, MBUAPCD has developed rules and regulations for sources of air pollution. All projects located in Monterey County are subject to the MBUAPCD regulations in effect at the time of construction. Specific regulations applicable to the Project may involve diesel construction equipment emissions, fugitive dust, on-road haul truck emissions, and general permit requirements. Listed below are the MBUAPCD rules that would be applicable to the Project.

- Rule 400, Visible Emissions.
- Rule 402, Nuisances.
- Rule 403, Particulate Matter.
- Rule 424, National Emission Standards for Hazardous Air Pollutants.
- Rule 425, Use of Cutback Asphalt.
- Rule 426, Architectural Coatings.
- Rule 1003, Air Toxics Emissions Inventory and Risk Assessments.

Monterey County General Plan

The 2010 Monterey County General Plan, adopted in October 2010, applies to the inland area of Monterey County, including the Project site. The 2010 Monterey County General Plan presents goals and policies that guide the general distribution and intensity of land uses, including residential, agricultural, commercial and industrial, public facilities, and open space uses, in the County.

Conservation and Open Space Element

The following air quality goals and policies from the Conservation and Open Space Element are relevant to the Project.

> **Goal OS-10.** Provide for the protection and enhancement of Monterey County's air quality without constraining routine and ongoing agricultural activities.
>
> **Policy OS-10.3.** Monterey County shall promote conservation of naturally vegetated and forested areas for their air purifying functions.
>
> **Policy OS-10.9.** The County of Monterey shall require that future development implement applicable MBUAPCD control measures…The County will require that future construction operate and implement MBUPACD control measures to ensure that construction-related PM10 and NO_x emissions do not exceed the MBUAPCD's daily thresholds.

Other policies require the County to support regional air quality plans, air pollution control strategies of the MBUAPCD, and air quality monitoring, and to develop a greenhouse gas reduction plan.

Environmental Setting

Regional Conditions

The North Central Coast Air Basin (NCCAB) comprises Monterey, Santa Cruz, and San Benito Counties. The basin lies along the central coast of California and covers an area of 5,159 square miles. The northwest sector of the basin is dominated by the Santa Cruz Mountains. The Diablo Range marks the northeastern boundary and, together with the southern extent of the Santa Cruz Mountains, forms the Santa Clara Valley, which extends into the northeastern tip of the basin. Farther south, the Santa Clara Valley evolves into the San Benito Valley, which runs northwest-southeast and has the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley, which extends from Salinas at its northwestern end to south of King City at its southeastern end. The western side of the Salinas Valley is formed by the Sierra de Salinas, which also forms the eastern side of the smaller Carmel Valley. The coastal Santa Lucia Range defines the western side of the Carmel Valley (Monterey Bay Unified Air Pollution Control District 2008a).

The semi-permanent high-pressure cell in the eastern Pacific, known as the Pacific High, is the basic controlling factor in the climate of the air basin. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High, forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air above acts as a lid to inhibit vertical air movement. The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure that intensifies the onshore air flow during the afternoon and evening (Monterey Bay Unified Air Pollution Control District 2008a).

In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, and the relatively stationary air mass is held in place by the Pacific High, which allows pollutants to build up over a period of a few days. It is most often during this season that north or east winds develop and

transport pollutants from either the San Francisco Bay Area or the Central Valley into the NCCAB. During the winter, the Pacific High migrates southward and has less influence on the air basin. Air frequently flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours. Northwest winds are nevertheless still dominant in winter, but easterly flow is more frequent. The general absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the basin as a whole in winter and early spring (Monterey Bay Unified Air Pollution Control District 2008a).

According to data recorded by the Monterey station (COOP ID 045795), the Project site experiences moderate temperatures and humidity. Temperatures average 57° Fahrenheit (F) annually. Summer afternoon high temperatures average 68° F, decreasing to an average 52° F overnight. Winter temperatures average 61° F during the day and 44° F at night. Temperature extremes, above 90° F or below 32° F, occur only in unusual weather conditions (Western Regional Climate Center 2014). Because of the moderating marine influence, which decreases with distance from the ocean, monthly and annual spreads between temperatures are greatest inland and smallest at the coast. Temperature has an important influence on basin wind flow, dispersion along mountain ridges, vertical mixing, and photochemistry.

According to data recorded from the Monterey station (COOP ID 045795), precipitation is highly variable seasonally. Rainfall at the Monterey station area averages 19.73 inches annually, ranging from 8.63 inches during the driest year on record (2014) to 41.01 inches during the wettest year on record (1998) (Western Regional Climate Center 2014). Summers are often completely dry, with frequent periods of no rain through the early fall. Annual rainfall is lowest in the coastal plain and inland valleys, higher in the foothills, and highest in the mountains.

Criteria Air Pollutants

Air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants, which are known as "criteria air pollutants," are categorized as primary and secondary pollutants. Air quality studies generally focus on the five pollutants of greatest concern as directed by the local air quality management district. These criteria air pollutants are ozone, CO, inhalable PM (PM10 and PM2.5), NO_2, and SO_2. Because ozone, a photochemical oxidant, is not emitted into the air directly from sources, emissions of ozone precursors, specifically, nitrogen oxides (NO_X) and volatile organic compounds (VOC)[1], are regulated with the aim of reducing ozone formation in the lowermost region of the troposphere.

Ozone and NO_2 are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. NO_2 reacts photochemically with ROG to form ozone, and this reaction occurs at some distance downwind of the source of pollutants. Pollutants such as CO, PM10, and PM2.5 are considered to be local pollutants because they tend to disperse rapidly with distance from the source.

The principal characteristics surrounding these pollutants are discussed below. TACs are also discussed below, although no air quality standards exist for TACs.

[1] There are several subsets of organic gases, including reactive organic gases (ROGs) and VOCs. Generally speaking, the terms ROGs and VOCs are used interchangeably.

Ozone

Ozone is an oxidant that attacks synthetic rubber, textiles, and other materials and causes extensive damage to plants by leaf discoloration and cell damage. It is also a severe eye, nose, and throat irritant and increases susceptibility to respiratory infections. Ozone is not emitted directly into the air, but rather it forms from a photochemical reaction in the atmosphere. Ozone precursors, including ROG and NO_X, are emitted by mobile sources and stationary combustion equipment and react in the presence of sunlight to form ozone. Because reaction rates depend on the intensity of ultraviolet light and air temperature, ozone conversion occurs primarily in the summertime.

Carbon Monoxide

CO is essentially inert to most materials and to plants, but it can significantly affect human health because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when periods of light wind combine with the formation of ground-level temperature inversions—typically from evening through early morning. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Particulate Matter

Particulate matter suspended in the atmosphere can reduce visibility, retard plant growth, corrode materials, and affect human health. Health concerns focus on particles small enough to reach the lungs when inhaled (inhalable PM). NAAQS and CAAQS for PM apply to two classes of inhalable particulates: PM10 and PM2.5. Those less than 10 micrometers in diameter (PM10) are so small that they can get into the lungs, potentially causing serious health problems. Ten micrometers is smaller than the width of a single human hair. Those less than 2.5 micrometers in diameter (PM2.5) are called “fine” fine particles (PM2.5).

Nitrogen Dioxide

NO_2 is a brownish gas that contributes to the formation of ground-level ozone pollution. NO_2 increases respiratory disease and irritation and may reduce resistance to certain infections. The majority of ambient NO_2 is not directly emitted, but rather it is formed rather quickly from the reaction of nitric oxide (NO) and oxygen (O_2) in the atmosphere. NO and NO_2 are the primary pollutants that make up the group of pollutants referred to as NO_X. In the presence of sunlight, complex reactions of NO_X with ozone and other air pollutants produce the majority of NO_2 in the atmosphere. NO_2 is one of the NO_X emitted from high-temperature combustion processes, such as those occurring in trucks, cars, and power plants. Indoors, home heaters and gas stoves also produce substantial amounts of NO_2.

Sulfur Dioxide

SO_2 is a colorless, irritating gas with a rotten-egg smell formed primarily by the combustion of sulfur-containing fossil fuels. SO_2 is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives and off-road diesel equipment. SO_2 also is emitted from several industrial processes, such as petroleum refining and metal processing.

Toxic Air Contaminants

TACs are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, ARB identified PM from diesel-fueled engines—commonly called diesel particulate matter (DPM)—as a TAC. Compared to other air toxics ARB has identified, DPM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk (California Air Resources Board 2000).

Site-Specific Conditions

The existing air quality conditions in the vicinity of a project site are typically characterized by the monitoring data collected in the region. The nearest monitoring stations in Monterey County are selected to present air quality of the project vicinity. The nearest monitoring stations to the Project site are the Carmel Valley-Ford Road Station, located approximately 14 miles southeast of the Project site, which monitors ozone; the Salinas station, located approximately 18 miles east of the Project site, which monitors CO and PM2.5; and King City, located approximately 53 miles southeast of the Project site, which monitors ozone, PM10, and PM2.5.

Table 3.2-3 summarizes air quality monitoring data from the Carmel Valley, Salinas, and King City monitoring stations for the last 3 years for which complete data are available (2011–2013). The monitoring stations have not recently experienced violations of the NAAQS and CAAQS for any pollutants. Data from these monitoring stations are used because they are the closest monitoring stations to the Project site. However, they are in the Carmel Valley and other inland portions of Monterey County near transit corridors. The Project site is on the coast and would likely have better air quality conditions because of the dominance of onshore breezes and because the Project site is not downwind of urban or agricultural areas.

Table 3.2-3. Ambient Air Quality Monitoring Data from the Carmel Valley-Ford Road, King City, and Salinas Stations (2011–2013)

	Monitoring Data		
Pollutant Standards	2011	2012	2013
1-Hour Ozone (ppm) (Carmel Valley)			
Maximum concentration	0.068	0.072	0.072
Number of days standard exceeded [a]			
CAAQS 1-hour (>0.09 ppm)	*0*	*0*	*0*
8-Hour Ozone (ppm) (Carmel Valley)			
National maximum concentration	0.063	0.060	0.068
National 4th-highest concentration	0.056	0.054	0.059
State maximum 8-hour concentration	0.064	0.060	0.068
Number of days standard exceeded [a]			
NAAQS 8-hour (>0.075 ppm)	*0*	*0*	*0*
CAAQS 8-hour (>0.070 ppm)	*0*	*0*	*0*
Carbon Monoxide (ppm) (Salinas)			
Maximum 8-hour concentration	0.89	0.90	0.76

Pollutant Standards	Monitoring Data 2011	2012	2013
Maximum 1-hour concentration	0.80	0.85	0.76
Number of days standard exceeded [a]			
NAAQS 8-hour (≥9 ppm)	*0*	*0*	*0*
CAAQS 8-hour (≥9.0 ppm)	*0*	*0*	*0*
NAAQS 1-hour (≥35 ppm)	*0*	*0*	*0*
CAAQS 1-hour (≥20 ppm)	*0*	*0*	*0*
Particulate Matter (PM10) (μg/m³) (King City)			
National maximum 24-hour concentration	76.8	97.4	78.2
State maximum 24-hour concentration	19.0	--	--
Annual average concentration (CAAQS = 20 μg/m³)	23.9	24.3	27.7
Number of days standard exceeded [a]			
NAAQS 24-hour (>150 μg/m³) (expected)	--	*0.0*	*0.0*
CAAQS 24-hour (>50 μg/m³)	*0*	--	--
Particulate Matter (PM2.5) (μg/m³) (King City)			
National maximum 24-hour concentration	19.7	16.2	19.7
24-hour Standard 98th Percentile	13.6	13.2	15.8
National annual average concentration	6.4	5.6	6.7
State annual average concentration	6.4	5.6	6.7
Number of days standard exceeded [a]			
NAAQS 24-hour (>35 μg/m³)	*0*	*0*	*0*

Sources: California Air Resources Board 2014; U.S. Environmental Protection Agency 2014.
Notes:
[a] An exceedance is not necessarily a violation.
-- = Insufficient data available to determine the value.
CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
ppm = parts per million.
μg/m³ = micrograms per cubic meter.

Air Quality Attainment Status

Local monitoring data (**Table 3.2-3**) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS. The four designations are further defined as follows:

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past, but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.

- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 3.2-4 summarizes the attainment status of Monterey County with regard to the NAAQS and CAAQS.

Table 3.2-4. Federal and State Attainment Status for the Monterey County Portion of the North Central Coast Air Basin

	Monterey County	
Pollutant	NAAQS	CAAQS
O_3	Unclassified/Attainment	Nonattainment
CO	Unclassified/Attainment	Attainment
PM2.5	Unclassified/Attainment	Attainment
PM10	Unclassified	Nonattainment
NO_2	Unclassified/Attainment	Attainment
SO_2	Unclassified	Attainment
Pb	Unclassified/Attainment	Attainment

Source: California Air Resources Board 2013b.
Notes:
– = no applicable standard.
CAAQS = California ambient air quality standards.
CO = carbon monoxide.
NAAQS = national ambient air quality standards.
NO_2 = nitrogen dioxide.
O_3 = ozone.
PM10 = particulate matter less than 10 microns in diameter.
PM2.5 = particulate matter less than 2.5 microns in diameter.
Pb = lead
SO_2 = sulfur dioxide

Sensitive Receptors

MBUAPCD generally defines sensitive receptors as residences including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade 12 (K-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor also includes long-term care hospitals, hospices, prisons, and dormitories or similar live-in housing (Monterey Bay Unified Air Pollution Control District 2008a).

There are sensitive receptors on three sides of the Project site. The Del Monte Park residential neighborhood is adjacent to the east. Pebble Beach residential areas are to the north and west, and undeveloped open space is to the south. The closest sensitive receptors to the proposed development site are the residences of Miles Avenue approximately 50 feet away from the development site. Refer to **Figures 2-3** in Chapter 2, *Project Description*.

Impact Analysis

Methodology

The methodology for identifying construction- and operations-related emissions is presented below.

Construction-Related Emissions

Anticipated construction-related emissions that could affect ambient air quality in the area include ROG, NO_X, CO, PM2.5, and PM10. The primary emissions sources include mobile and stationary construction equipment exhaust, employee vehicle exhaust, dust from clearing the land, exposed soil eroded by wind, and ROG from architectural coatings and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Construction emissions of PM10 were estimated with the CalEEMod emissions model (version 2013.2.2), developed by Environ International Corp. in collaboration with the South Coast Air Quality Management District and other California air districts. A detailed inventory of construction phasing, equipment, and vehicle trips was obtained from the Project applicant, in addition to an estimate of daily disturbance and cut-and-fill amounts. PM10 emissions estimates assume that the 3,325 cubic yards of each cut and fill and 2.7 acres of site grading would take place during the site excavation phase (August 1, 2016, through October 28, 2016) and foundations/site grading phase (October 31, 2016, through January 13, 2017). A detailed inventory of data used to estimate construction-related emissions is shown in **Table 3.2-5**.

A screening-level assessment of potential health risks from exposure of existing sensitive receptors to DPM emissions from construction exhaust was performed using methodology developed by ICF, consistent with Office of Environmental Health Hazard Assessment (OEHHA) methodology and MBUAPCD guidance. The screening-level analysis was based on direct (onsite) PM10 exhaust outputs from CalEEMod, and emission concentrations at nearby sensitive receptors were calculated with the AERCREEN dispersion model. For purposes of analysis, DPM emissions are assumed to be equal to PM10 exhaust emissions. The screening-level analysis of pollutant concentrations and associated health risks was conducted for the residences immediately east of the Project site, as it represents a worst-case scenario for potential health risks from construction-related exhaust emissions because of the proximity of nearby sensitive receptors within 50 feet of construction activities.

Table 3.2-5. Construction Quantities used in Emissions Modeling

Phase	Start Date	End Date	Average workers per day	Average weekly haul/ delivery trucks	Equipment Numbers and Types	Grading/earthwork/paving volumes
Site excavation, rough grading, tree removal, site utilities	8/01/2016	10/28/2016	15	10	1 dozer 1 grader 1 trencher 2 pieces paving equipment 1 roller 2 paver	3,325 cubic yards cut/ 3,325 cubic yards fill (balance onsite) 2.7 acres of grading 33,160 square feet of roadway paving
Foundations, finish grading	10/31/2016	1/13/2017	15	10	1 grader 2 forklift 2 off-highway trucks	2.7 acres of grading
Rough framing electrical, plumbing, sheetmetal, roof trusses	1/16/2017	4/28/2017	15	10	2 forklifts 2 aerial lifts	--
Finishes: sheetrock, closing walls, painting, plumbing, electrical, cabinetry, roofing.	4/03/2017	7/28/2017	25	15	2 forklifts	--
Finish sitework: driveways, exterior lighting, patios, landscaping	7/31/2017	10/27/2017	15	10	1 off-highway truck 1 grader 2 forklifts 1 auger ("other construction equip")	6,414 square feet of walkway surfaces 2,712 square feet of patios

Operation-Related Emissions

Anticipated operation-related emissions that could affect ambient air quality in the area are ROG, NO_X, CO, PM2.5, and PM10. The primary emissions sources include residential motor vehicle travel, natural gas combustion for space heating, area sources associated with consumer products (e.g., cleaning supplies, kitchen aerosols, cosmetics, toiletries), architectural coatings, and landscaping.

Criteria pollutant emissions associated with the Project operations were estimated using the CalEEMod model, based on motor vehicle trip generation data from **Appendix C**, *Traffic Impact Report*, and on the CalEEMod defaults for natural gas consumption and area sources for the proposed residential uses. It was assumed that the Project would be fully constructed and operational by year 2017. Note that the construction is expected to be completed at the end of 2017. Assuming a 2017 operational year represents a conservative assumption in that emissions per rate of activity (e.g., per vehicle mile traveled) reduce over time through fleet turnover and modernization. Thus, emissions from 2017 would be slightly higher than assuming a 2018 operational year. Emissions are presented at the daily time scale and are compared with the MBUAPCD thresholds discussed below.

With respects to CO hotspots, MBUAPCD recommends conducting CO dispersion modeling when one or more of the following conditions exist: level of service (LOS) at affected intersections or road segments degrades from D or better to E or F; volume-to-capacity (V/C) ratio at intersections or road segments at LOS E or F increases by 0.05 or more; delay at intersection at LOS E or F increases by 10 seconds or more; or reserve capacity at unsignalized intersection at LOS E or F decreases by 50 vehicles or more (Monterey Bay Unified Air Pollution Control District 2008a). In the event any of these conditions are not met, CO dispersion modeling is not required, and the project is not presumed to result in elevated CO concentrations in excess of ambient air quality standards. Intersection data from the traffic analysis was screened based on the above criteria. As explained under the discussion for Impact AQ-D2, the Project does not warrant quantitative CO hotspot modeling.

Refer to **Appendix D** for modeling results.

Criteria for Determining Significance

In accordance with CEQA, the State CEQA Guidelines, Monterey County plans and policies, and agency and professional standards, an impact would be considered significant if the Project would result if any of the following conditions.

A. Air Quality Plan Consistency

- Conflict with or obstruct implementation of the AQMP.

B. Long-Term Emissions

- Result in generation of emissions of or in excess of (Monterey Bay Unified Air Pollution Control District 2008a):
  - 137 pounds per day for volatile organic compounds (VOC) (direct and indirect[2]).
  - 137 pounds per day for NO_X (direct and indirect).
  - 550 pounds per day of CO (direct).
  - CAAQS violation for CO.
  - 82 pounds per day of PM10.

C. Construction Emissions

- Result in generation of emissions of 82 pounds or more per day of PM10 due to construction (direct).
- Result in a short-term increase in TACs.

D. Sensitive Receptors

- Expose sensitive receptors (e.g., residents, schools, hospitals) to substantial pollutant concentrations (i.e. CO levels in excess of the CAAQS or NAAQS or cancer risks in excess of 10 in one million).

[2] Indirect emissions come from mobile sources that access the Project site but generally emit offsite; direct emissions are emitted onsite (e.g., stationary sources, onsite mobile equipment) (MBUAPCD 2008a).

- Result in a non-cancer (i.e., chronic or acute) hazard index greater than 1.0.

E. Odors

- Create objectionable odors in substantial concentrations, which could result in injury, nuisance, or annoyance to a considerable number of persons or could endanger the comfort, health, or safety of the public.

Project Impacts and Mitigation Measures

A. Air Quality Plan Consistency

Impact AQ-A1. The Project would be consistent with the 2008 Air Quality Management Plan. (Less than significant)

A review of Project consistency with the AQMP was conducted by MBUAPCD, who compared the Monterey Bay Area 2014 Regional Forecast (AMBAG 2014) prepared by AMBAG with the Department of Finance's (DOF) Dwelling Unit Estimates Report for Monterey County (Monterey Bay Unified Air Pollution Control District 2011; Clymo pers. comm.).

MBUAPCD's most recent air quality plan is the Triennial Plan Revision (MBUAPCD 2013), which was based on the AMBAG and DOF forecast of 45,406 dwelling units for unincorporated Monterey County in 2020 (AMBAG 2008). Based on the MBUAPCD's consistency analysis and conversation with MBUAPCD staff (Clymo pers. comm.), the Project is not anticipated to result in exceedance of AMBAG's 2020 forecast, as described below.

The estimated current housing stock within unincorporated Monterey County is 38,971 dwelling units (AMBAG 2014). Planned housing that is approved but not yet constructed is an estimated 2,700 dwelling units. These units include up to 100 single-family residential lots in Pebble Beach (as part of the Pebble Beach Company Project) and up to 2,600 dwelling units in two large development projects outside of Pebble Beach (Sidor pers. comm.)[3]. When combined with the Project's estimated increase of 24 dwelling units, there would be a total of 41,695[4] dwelling units in 2020, which is 3,711 dwelling units less than AMBAG's previous 2020 forecast of 45,406 (Clymo pers. comm.). Therefore, this impact would be less than significant.

B. Long-Term Emissions

Impact AQ-B1. The Project would result in a long-term increase in ROG, NO_X, CO, and PM10 emissions from vehicular traffic. (Less than significant)

The primary operational emissions associated with the Project would be ozone precursors (ROG and NO_X), CO, and PM10 emitted as area sources (i.e., consumer products, coatings, natural gas, fireplace use, and landscaping) and vehicle exhaust.

[3] The two approved large development projects are East Garrison with 1,300-1,350 units and Rancho San Juan (Butterfly Village) with 1,240 units, for a total of 2,590 total units (rounded to 2,600 units).

[4] 38,971 existing dwelling units (AMBAG 2014) + 2,700 approved but not built dwelling units + 24 Project dwelling units = 41,695 units. 45,406 units (AMBAG 2008) – 41,695 units = 3,711 units less than the 2020 air quality plan forecast.

Table 3.2-6 presents area, energy, and mobile source emissions associated with project operations in opening year 2017. As shown in **Table 3.2-6**, operation of the Project would not exceed MBUAPCD's air quality standards of daily emissions thresholds for project operations. Therefore, this impact would be less than significant.

Table 3.2-6. Operational Emissions (pounds per day)

Category	ROG	NO_X	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	38.4	0.5	47.2	-	6.4	6.4	-	6.4	6.4
Energy	0.0	0.1	0.0	-	0.0	0.0		0.0	0.0
Mobile	0.9	2.2	10.3	1.1	0.0	1.1	0.3	0.0	0.3
Maximum Daily	**39.2**	**2.9**	**57.6**	**1.1**	**6.4**	**7.5**	**0.3**	**6.4**	**6.7**
MBUAPCD threshold	137	137	550	-	-	82	-	-	-
Above MBUAPCD threshold?	No	No	No	NA	NA	No	NA	NA	NA

Notes:
NA = not applicable.
CO = carbon monoxide.
NO_x = nitrogen oxides.
ROG = reactive organic gases.
PM10 = particulate matter less than 10 microns in diameter.
PM2.5 = particulate matter less than 2.5 microns in diameter.

C. Construction Emissions

Impact AQ-C1. The Project would result in a short-term increase in PM10 emissions due to grading and construction. (Less than significant)

Construction of the Project could result in the temporary generation of PM10 emissions associated with earthmoving and site grading, construction worker commute trips, and mobile and stationary construction equipment exhaust. According to the MBUAPCD CEQA guidelines, construction projects that temporarily emit precursors of ozone (i.e., ROG or NO_X) are accommodated in the emission inventories of state and federally required air plans and would not have a significant impact on the attainment and maintenance of state or federal ozone AAQS (Monterey Bay Unified Air Pollution Control District 2008a). The MBUAPCD guidelines have an exception if a project uses "non-typical equipment, e.g., grinders, and portable equipment." The Project would use standard construction equipment for residential construction.

Sources of construction-related PM10 emissions include construction equipment and vehicle exhaust, fugitive dust from site grading and trenching, and re-entrained paved road dust from vehicle travel on streets. The Project would involve grading and up to approximately 3,325 cubic yards of cut and fill onsite.

The analysis of the construction-related PM10 emissions for the Project is based on CalEEMod modeling and construction data provided by the project applicant (**Table 3.2-5**). As shown in **Table 3.2-7**, all phases are expected to occur sequentially except for phase 3 (Rough framing electrical, plumbing, sheetmetal, roof trusses) and phase 4 (Finishes: sheetrock, closing walls, painting,

plumbing, electrical, cabinetry, roofing), which are expected to overlap for an approximately three week period. However, maximum daily PM10 emissions are expected to occur during the first phase, when site excavation would occur. As shown in **Table 3.2-7**, direct PM10 emissions are not expected to exceed MBUAPCD's PM10 significance threshold of 82 pounds/day during construction. Therefore, this impact would be less than significant.

Table 3.2-7. Direct Construction PM10 Emissions (pounds per day)

Category	Fugitive PM10	Exhaust PM10	Total PM10
1. Site excavation, rough grading, tree removal, site utilities	5.3	2.5	7.8
2. Foundations, finish grading	0.0	1.6	1.6
3. Rough framing electrical, plumbing, sheetmetal, roof trusses	0.0	0.3	0.3
4. Finishes: sheetrock, closing walls, painting, plumbing, electrical, cabinetry, roofing	0.0	0.3	0.3
5. Finish site work: driveways, exterior lighting, patios, landscaping	0.0	1.6	1.6
Maximum Daily	**5.3**	**2.5**	**7.8**
MBUAPCD threshold	--	--	*82*
Above MBUAPCD threshold?	NA	NA	No

Notes:
NA = not applicable.
PM10 = particulate matter less than 10 microns in diameter.

D. Sensitive Receptors

Impact AQ-D1. The Project would result in the emission of toxic air contaminants from diesel truck and equipment use during construction. (Less than significant)

Construction of some project elements would require diesel truck and equipment use. DPM in exhaust is considered a TAC and could pose a risk to human health. Construction projects typically involve the use of diesel-powered equipment such as trucks, dozers, graders, scrapers, rollers, and tractors. Construction of the Project would require the use of construction trucks and equipment onsite that would result in localized concentrations of exhaust and possible exposure of sensitive receptors to that exhaust. MBUAPCD does not have a specific threshold of significance for diesel exhaust, so a risk threshold of 10 cancer cases per million is used to determine if the proposed project would result in a significant risk to human health. Further, MBUAPCD's Rule 1003, which establishes air toxics and health risk assessment criteria, states that a Hazard Index score greater than one would constitute a significant risk to human health.

A screening-level (worst-case) analysis of potential health risks developed by ICF consistent with OEHHA was evaluated for construction activities associated with project construction. The results of the screening-level health risk assessment are summarized in **Table 3.2-8**. The screening-level assessment assumes worst-case meteorology and, as a result, often overstates the actual likely level of exposure for sensitive receptors.

The results of the screening-level health risk assessment indicate that the worst-case construction activities are expected to result in a maximum risk of 0.18 cases of cancer per million at 71 meters

offsite and a chronic Health Index score of 0.005. This level is of exposure and risk is far below MBUAPCD's cancer risk and hazard thresholds. Therefore, this impact would be less than significant.

Table 3.2-8. Potential Health Risks to Air Quality Sensitive Receptors Near the Project Site

	Distance from Project Fence Line (meters)	Cancer Risk (risk per million)	Chronic Non-Cancer Health Index Score
Nearest Residence	15	0.13	0.003
Maximum Concentration	71	0.18	0.005
MBUAPCD Threshold	--	*10*	*1.0*
Above MBUAPCD Threshold?	--	No	No

Note: Nearest residences are approximately 50 feet (15 meters) from the closest edge of construction activities.

Impact AQ-D2. The Project would not expose sensitive receptors to substantial CO concentrations from project-related traffic. (Less than significant)

The traffic analysis (**Appendix C**) analyzed peak hour intersection operations at nearby intersections under both existing (2014), near-term (2017), and cumulative year (2030) conditions. Results from the traffic analysis indicate that all of the nearby study intersections are expected to operate at LOS C or better during existing, near-term, and cumulative year with-project conditions. For some more distant intersections (like SR68/Skyline Forest Drive), there are failing (LOS F) conditions, but the Project would only make minor traffic contributions (see traffic analysis in Section 3.11, *Transportation and Circulation*) and would not exceed any of the MBUAPCD screening criteria for intersections at LOS E or F. Thus, the Project would not exceed any of the MBUAPCD screening criteria for quantitative modeling, discussed under *Operation-Related Emissions* in the *Methodology* section, and quantitative CO hotspot modeling is not warranted. Therefore, the project is not expected to contribute to any localized violations of the 1- or 8-hour ambient standards. This impact would be less than significant.[5]

E. Odors

Impact AQ-E1. The Project could expose new sensitive receptors to objectionable odors. (Less than significant)

According to the MBUAPCD, typical sources of odors include landfills, rendering plants, chemical plants, agricultural uses, wastewater treatment plants, and refineries. Odor impacts on residential areas and other sensitive receptors, such as hospitals, daycare centers, and schools, warrant the closest scrutiny. Consideration should also be given to other land uses where people may congregate, such as recreational facilities, work sites, and commercial areas.

[5] As further supporting evidence, the prior EIR for the Pebble Beach Company buildout (Monterey County 2011/2012), modeled 2030 cumulative impacts with the buildout at worst-case locations and found that no locations exceeded the CO ambient standards (see EIR Table 3.2-11). The ambient CO levels near the worst-case locations was shown as less under 2030 cumulative conditions compared to 2015 no project conditions and 2011 conditions (due to improvements in vehicle emissions technology). The minor traffic contributions from this inclusionary housing project would not change those cumulative conditions in any meaningful way.

Potential sources of odor during construction activities include diesel exhaust, asphalt paving, and the use of architectural coatings and solvents. These construction activities would be temporary in nature, and the existing forested buffer between the development site and the closest existing sensitive receptors to the east would diffuse odors. Construction activities would not be likely to result in nuisance odors that would violate MBUAPCD's Nuisance Rule, Rule 402.

Once constructed, the Project would not involve odor-generating land uses. Any odors emitting from residential use would be limited to periodic trash pick-up and the use of architectural coatings and solvents during routine maintenance. However, these sources would be minimal and limited to travel routes and the area immediately adjacent to homes within the development site.

Therefore, this impact would be less than significant.