Chapter 3.8
Air Quality

Introduction

This chapter provides a discussion of the air quality issues related to the Proposed Project and the 130-Unit Alternative in Carmel Valley. This chapter provides a review of existing conditions based on available literature; a summary of applicable federal, state, and local policies and regulations related to air quality; and an analysis of direct and indirect environmental impacts that could result from the Proposed Project and the 130-Unit Alternative. Where feasible, mitigation measures are recommended to reduce the level of impacts.

Impact Summary

Table 3.8-1 provides a summary of the potential air quality impacts of the Proposed Project and the 130-Unit Alternative. As shown in **Table 3.8-1**, the Proposed Project and the 130-Unit Alternative would result in potentially significant impacts related to air quality within the project area. However, implementation of mitigation measures described in this Recirculated Draft EIR, would reduce the impacts to less-than-significant levels.

Table 3.8-1. Air Quality Impact Summary

Impact	Proposed Project Level of Significance Before Mitigation	130-Unit Alternative Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
A. Air Quality Plan Consistency				
AIR-1: Conflict with the 2012 Air Quality Management Plan	LTS	LTS	None Required	–
B. Long-Term Emissions				
AIR-2: Result in a Long-Term Increase in ROG, NO_X, CO, and PM10 Emissions from Vehicular Traffic and Area Sources	Potentially Significant	Potentially Significant	AIR-1: Prohibit Wood-Burning Fireplaces	LTS
C. Construction Emissions				
AIR-3: Result in a Short-Term Increase in PM10 Emissions due to Grading and Construction	LTS	LTS	None Required	–

Impact	Proposed Project Level of Significance Before Mitigation	130-Unit Alternative Level of Significance Before Mitigation	Mitigation Measure	Level of Significance After Mitigation
D. Sensitive Receptors				
AIR-4: Result in the Emission of Toxic Air Contaminants from Diesel Truck and Equipment Use during Construction	LTS	LTS	None Required	–
AIR-5: Expose Sensitive Receptors to Substantial CO Concentrations from Project-Related Traffic	LTS	LTS	None Required	–
E. Odors				
AIR-6: Expose New Sensitive Receptors to Objectionable Odors	LTS	LTS	None Required	–

LTS = Less than Significant, – = not applicable.

Environmental Setting

Research Methods

The following literature was reviewed to assess air quality conditions in the project area.

- 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 2012).
- 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).
- The California Emissions Estimator Model (CalEEMod) (South Coast Air Quality Management District 2013).
- Central Coast Transportation Consulting. 2015. *Rancho Cañada Draft Transportation Impact Study*. September.

Existing Conditions

Regional Setting

Topography

The project area is located within the North Central Coast Air Basin (NCCAB), which comprises Monterey, Santa Cruz, and San Benito Counties. The regional air quality district is the Monterey Bay Unified Air Pollution Control District (MBUAPCD), which has jurisdiction over air quality issues throughout the three-county NCCAB. The NCCAB 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 reaches into the northeastern tip of the basin. Farther south, the Santa Clara Valley extends 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 Carmel Valley (Monterey Bay Unified Air Pollution Control District 2008a).

Climate

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 NCCAB. 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 airflow 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 airflow 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).

Weather

According to data recorded by the Monterey station (COOP ID 045795), the project area experiences moderate temperatures and humidity. Temperatures average 57 °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 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, 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, carbon monoxide (CO), inhalable particulate matter (PM) (PM10 and PM2.5), NO_2, and sulfur dioxide (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 reactive organic gases (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 local pollutants because they tend to disperse rapidly with distance from the source.

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

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

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

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). National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (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 particles.

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, California Air Resources Board (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 percent 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 Proposed Project and 130-Unit Alternative sites are the Carmel Valley-Ford Road Station, which monitors ozone and is located approximately 10 miles southeast of the project site; the Salinas station, which monitors CO and PM2.5 and is located approximately 18 miles northeast of the project site; and King City, which monitors ozone, PM10, and PM2.5 and is located approximately 49 miles southeast of the project site.

Table 3.8-2 summarizes air quality monitoring data from the Carmel Valley, Salinas, and King City monitoring stations for the most recent 3 years for which complete data are available (2012–2014). The monitoring stations have not recently experienced violations of the NAAQS and CAAQS for any pollutants (refer to **Table 3.8-4**). Data from these monitoring stations are used because the stations are the closest monitoring stations to the project site. However, they are in Carmel Valley and other inland portions of Monterey County near transit corridors. The Proposed Project and the 130-Unit Alternative sites are 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 large urban or agricultural areas.

Air Quality Attainment Status

Local monitoring data (**Table 3.8-2**) 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.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 3.8-3 summarizes the attainment status of Monterey County with regard to the NAAQS and CAAQS.

Table 3.8-2. Ambient Air Quality Monitoring Data from the Carmel Valley-Ford Road, King City, and Salinas Stations (2012–2014)

	Monitoring Data		
Pollutant Standards	2012	2013	2014
1-Hour Ozone (ppm) (Carmel Valley)			
Maximum concentration	0.072	0.072	0.078
Number of days standard exceeded [a]			
CAAQS 1-hour (>0.09 ppm)	*0*	*0*	*0*
8-Hour Ozone (ppm) (Carmel Valley)			
National maximum concentration	0.060	0.068	0.070
National 4th-highest concentration	0.054	0.059	0.063
State maximum 8-hour concentration	0.060	0.068	0.070
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	1.39	--	--
Maximum 1-hour concentration	--	--	--
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	97.4	78.2	99.2
State maximum 24-hour concentration	--	--	--
Annual average concentration (CAAQS = 20 µg/m³)	24.3	27.7	25.9
Number of days standard exceeded [a]			
NAAQS 24-hour (>150 µg/m³) (expected)	*0.0*	*0.0*	*0.0*
CAAQS 24-hour (>50 µg/m³)	--	--	--
Particulate Matter (PM2.5) (µg/m³) (King City)			
National maximum 24-hour concentration	16.5	18.3	20.9
24-hour Standard 98th Percentile	14.3	14.0	11.1
National annual average concentration	6.0	6.7	3.6
State annual average concentration	--	6.7	3.6
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.

Table 3.8-3. 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. Sensitive receptors also include residents of 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 located in the vicinity of the project site. Sensitive receptors in the project area that could be affected include those listed below.

- Single-family residences located along Carmel Valley Road and connecting roadways.
- Multi-family residences and condominiums located along Carmel Valley Road and Rio Road.
- The Community Church of the Monterey Peninsula and the Carmel Middle School located to the north of the project site.
- Rural residential housing development located to the west of the project site.
- Single-family residences located along Via Mallorca.

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 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 airflow access or by county boundaries. The regional air quality district is the MBUAPCD.

This section discusses the federal, state, and local policies and regulations that are relevant to the analysis of air quality impacts of the Proposed Project and 130-Unit Alternative.

Federal Policies and Regulations

Clean Air Act and National Ambient Air Quality Standards

The CAA, promulgated in 1963 and amended several times thereafter, including the 1990 amendments, establishes the framework for modern air pollution control. The act directs EPA to establish NAAQS for six criteria pollutants: ozone, CO, lead (Pb), NO_2, SO_2, and PM (PM10 and 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 3.8-4** 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.

Table 3.8-4. 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.

– = [not applicable].

State Policies and Regulations

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 NAAQS under the federal CAA, the CAAQS under the CCAA 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 3.8-4**.

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 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 DPM.

Title 13 California Code of Regulations Section 2485

This section applies to diesel-fueled commercial motor vehicles that operate in the State of California with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. This section requires that after February 1, 2005, the driver of any vehicle subject to this section: (1) shall not idle the vehicle's primary diesel engine for greater

than 5 minutes at any location and (2) shall not operate a diesel-fueled auxiliary power system (APS) to power a heater, air conditioner, or any ancillary equipment on that vehicle during sleeping or resting in a sleeper berth for greater than 5 minutes at any location when within 100 feet of a restricted area.

Local Policies and Regulations

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.

Monterey Bay Unified Air Pollution Control District

In Monterey County, the MBUAPCD has local air quality jurisdiction. Under the CCAA, 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 *Triennial Update to the Air Quality Management Plan for the Monterey Bay Region* (2012 Triennial Plan Revision), which updates the 2008 Air Quality Management Plan (AQMP) for the Monterey Bay Region and documents progress toward 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 Proposed Project and 130-Unit Alternative.

- 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 439, Building Removals.
- Rule 1003, Air Toxics Emissions Inventory and Risk Assessments.

Current County Plans and Policies

2010 Monterey County General Plan

The 2010 Monterey County General Plan applies to the inland area of Monterey County, including the project site. The 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. Policies in the 2010 General Plan open space element included under Goal OS-10 provide for the protection and enhancement of air quality without constraining agricultural activities. The policies include the integration of land use and development policies; encouraging the use of transit, bicycles, and pedestrian alternatives to automobile travel; concentrating commercial development in designated centers that can be better served by transit; and the promotion of mixed land uses.

> *Policy OS-10.7.* The Monterey Bay Unified Air Pollution Control District's air pollution control strategies, air quality monitoring and enforcement activities shall be supported.

> *Policy OS-10.9.* The County of Monterey shall require that future development implement applicable Monterey Bay Unified air Pollution Control District control measures. Applicants for discretionary projects shall work with the Monterey Bay Unified air Pollution Control District to incorporate feasible measures that assure that health-based standards for diesel particulate emissions are met. The County of Monterey will require that future construction operate and implement MBUAPCD PM10 control measures to ensure that construction-related PM10 emissions do not exceed the MBUAPCD's daily threshold for PM10. The County shall implement MBUAPCD measures as conditions of approval for future development to ensure that construction-related NOx emissions from non-typical construction equipment do not exceed the MBUAPCD's daily threshold for NO_X.

2013 Carmel Valley Master Plan

The 2013 CVMP presents supplemental policies that guide development in Carmel Valley in addition to the goals and policies within the 2010 Monterey County General Plan. Relevant policies include

> *Policy CV-2.1*: Public transit should be explored as an alternative to the use of private automobiles and to help preserve air quality. Wherever feasible all new development shall include a road system adequate not only for its internally generated automobile traffic but also for bus (both transit and school), pedestrian, and bicycle traffic, which should logically pass through or be generated by the development.

> *Policy CV-3.14*: Wherever possible a network of shortcut trails and bike paths should interconnect neighborhoods, developments, and roads. These should be closed to motor vehicles and their intent is to facilitate movement within the Valley without the use of automobiles.

Monterey County Standard Conditions of Approval

The Proposed Project and 130-Unit Alternative would be required to comply with Monterey County's Standard Conditions of Approval PD047: Demolition/Deconstruction of Structures (MBUAPCD Rule 439) and other Standard Conditions of Approval. Refer to Chapter 2, *Project Description*, for the full text of the Standard Conditions of Approval.

Prior County Plans and Policies

As stated in Chapter 1, *Introduction*, discussion pertaining to the 1982 Monterey County General Plan is provided for informational purposes only.

1982 Monterey County General Plan

The 1982 Monterey County General Plan (1982 General Plan) includes a goal of providing for the protection and enhancement of Monterey County's air quality. The following local policies are relevant to the Proposed Project and 130-Unit Alternative, but not applicable.

Policy 20.1.1: The County's land use and development policies shall be integrated and consistent with the natural limitations of the County's air basins.

Policy 20.1.2: The County should encourage the use of mass transit, bicycles and pedestrian modes of transportation as an alternative to automobiles in its land use plans.

Policy 38.1.4: The County shall encourage transportation alternatives such as bicycles, car, pools, transit and compact vehicles.

Policy 20.1.3: The County should develop and implement, where appropriate, a roadside tree program and should encourage and maintain vegetated/forested areas to the maximum extent feasible, for their air purifying functions.

Policy 20.2.2: The County shall adopt and support, as a minimum, the Air Quality Plan for the Monterey Bay Region as prepared by AMBAG.

Policy 20.2.5: The County shall encourage the use of the best available control technology as defined in the most current Monterey Bay Unified Air Pollution Control District rules and

Policy 38.1.1: The County shall support the implementation of measures for reducing air pollution from transportation sources.

Policy 41.1.2: Developers of major traffic generating activities shall provide fixed transit facilities such as bus shelters and pullouts, consistent with anticipated demand.

1986 Carmel Valley Master Plan

The 1986 Carmel Valley Master Plan (1986 CVMP) is a component of the 1982 General Plan. The major function of the 1986 CVMP is to guide the future development of the valley using goals and policies that reflect an understanding of the physical, cultural, and environmental setting of the area.

Policy 3.1.5: The amount of land cleared at any one time shall be limited to the area that can be developed during one construction season. This prevents unnecessary exposure of large areas of soil during the rainy season. [This also prevents additional exposure of PM10 to the sensitive receptors at the Carmel Valley Middle School.]

Policy 20.2.7.1: At least one station to monitor air quality shall be maintained in Carmel Valley. Whenever records for August, September and October of a given year include 15 hours (or more) of 0.1 ppm (or more) of oxidants (ozone), the County shall immediately hold public hearings to consider limitation of further development in the Master Plan area.

Policy 37.4.1: The County shall encourage overall land use patterns which reduce the need to travel.

Policy 38.1.4.1: Public transit should be explored as an alternative to the use of private automobiles and to help preserve air quality. (Whenever feasible all new development shall include a road system adequate not only for its internally generated automobile traffic but also for bus - both transit and school - pedestrian and bicycle traffic which should logically pass through or be generated by the development.)

Impact Analysis

Methods of Analysis

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 using a combination of emission factors within the CalEEMod emissions model (version 2013.2.2), emission factors from EMFAC 2014, a detailed inventory of construction phasing information for the Proposed Project from the Project Applicant, and default assumptions for building construction and fugitive dust within CalEEMod. While construction emissions are assumed to start in 2015 in the air quality analysis, construction may not actually start until 2016 or later. Because the CalEEMod emission factors improve every year with the fleet turnover to newer equipment and vehicles due to state and federal equipment and vehicle regulations, the use of a 2015 construction start date is a conservative approach that, if anything, would slightly overstate construction period emissions.

Proposed Project

Construction of the Proposed Project and 130-Unit Alternative would occur in four phases, and construction of each phase would depend on market conditions. Thus, all four plan phases could be developed concurrently. This analysis assumes all construction associated with the Proposed Project and the 130-Unit Alternative would occur concurrently for the most conservative construction scenario.

In addition, for the Proposed Project, PM10 emissions estimates are based on 220,000 cubic yards (CY) of cut, 100,000 CY of soil import, and 76.7 acres disturbed during the grading phase. It was assumed that activity associated with the removal of the existing golf course, including any structures, is included in the material removal and equipment activity accounted for within the grading and site preparation phases for the Proposed Project. A detailed inventory of data used to estimate construction-related emissions for the Proposed Project is shown in **Appendix F**.

130-Unit Alternative

Similar to the Proposed Project, the 130-Unit Alternative residential element would occur in four phases and construction of each phase would depend on market conditions. Thus, all four plan phases could be developed concurrently. This analysis assumes all construction associated with the 130-Unit Alternative would occur concurrently for the most conservative construction scenario.

With respect to the 130-Unit Alternative residential element, PM10 emissions estimates are based on 168,000 CY of onsite cut and 83 acres disturbed during the grading phase; no soil importation is expected. It was assumed that activity associated with the removal of the existing golf course,

including any structures, included the material removal and equipment activity accounted for within the grading and site preparation phases for the 130-Unit Alternative. A detailed inventory of data used to estimate construction-related emissions for the 130-Unit Alternative is shown in **Appendix F**.

Health Risk Assessment

ICF performed a human health risk assessment (HRA) for the Rancho Cañada Village Project (former Rancho Cañada Village Specific Plan) in 2011, which analyzed exposure to toxic air contaminants, including DPM, associated with construction-related off-road construction equipment and on-road haul trucks. The HRA assumed a 2011 construction start date, whereas the analysis herein assumes a 2015 construction start date. Therefore, to assess the potential health risk associated with construction on nearby sensitive receptors, the DPM-related risks shown in the 2011 HRA were scaled based on the difference in DPM emissions between the mass emissions used in the 2011 HRA and the emissions presented herein.

Off-road emissions were scaled from the 2011 HRA based on emission estimates specific for both alternatives. With respects to truck hauling, the Proposed Project would include similar truck hauling activities that were evaluated in the 2011 HRA; therefore, pollutant concentrations associated with truck hauling that were estimated in the 2011 HRA were incorporated directly into this analysis. However, the 130-unit Alternative would not include truck hauling; therefore, pollutant concentrations associated with truck hauling that were estimated in the 2011 HRA were assumed to be zero and not included in the analysis.

In addition, the Office of Environmental Health Hazard Assessment (OEHHA) recently updated its Risk Assessment Guidelines in March 2015, which included updated exposure assessment factors (Office of Environmental Health Hazard Assessment 2015). The 2011 HRA included various exposure assessment factors that were updated in the OEHHA 2015 update, including age sensitivity factors (ASFs) to take into account the increased sensitivity to carcinogens during early-in-life exposure. However, the OEHAA 2015 guidance updated additional factors, specifically daily breathing rates (DBR). Therefore, risks that were estimated in the 2011 HRA were adjusted to reflect the revised DBR guidance issued by OEHHA in 2015 before applying the scaling factors described above. The 2011 HRA included risk calculations for non-DPM pollutants, including acrolein.[2] However, DPM accounts for the majority of cancer risk from construction activities. For example, the DPM in the 2011 HRA accounted for approximately 99.7 percent of the cancer risk. Further, the MBUAPCD suspended the requirement to assess risk from acrolein in July 2008 and has yet to reissue the requirement. Therefore, the HRA herein only includes a scaling of DPM-related emissions and associated risk and does not include the effects of acrolein emissions as it is no longer required by MBUAPCD guidance. The 2011 HRA and scaled calculations are provided in **Appendix F**.

Operation-Related Emissions

Implementation of either the Proposed Project or the 130-Unit Alternative would result in emissions at the project site that would replace existing emissions associated with one of the existing 18-hole golf courses.

[2] The EPA has identified a group of 92 airborne compounds emitted from mobile sources as substances known to cause human health effects. Acrolein is among the seven compounds EPA has highlighted as a priority air toxic.

Existing Operation-Related Emissions

Existing conditions at the project site include one of two 18-hole golf courses. Existing emission sources associated with the golf course include visitor vehicle trips, water consumption, waste generation, and landscaping. According to the Traffic Impact Study (TIS) (**Appendix E**), the existing golf course attracts 414 daily trips. An estimate of daily criteria pollutant emissions associated with existing (baseline) activity at the project site is shown in **Table 3.8-5**. It is assumed that existing (baseline) emissions would be replaced with implementation of either the Proposed Project or 130-Unit Alternative.

Table 3.8-5. Existing (Baseline) Operational Criteria Pollutant 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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	2.3	4.7	23.8	1.6	0.1	1.6	0.4	0.1	0.5
Existing Emissions from Golf Course Operations	2.3	4.7	23.8	1.6	0.1	1.6	0.4	0.1	0.5

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).

Notes:

CO = carbon monoxide.

NA = not applicable.

NO_X = nitrogen oxides.

PM10 = particulate matter less than 10 microns in diameter.

PM2.5 = particulate matter less than 2.5 microns in diameter.

ROG = reactive organic gases.

Project 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 operation of both the Proposed Project and the 130-Unit Alternative were estimated using the CalEEMod model, based on motor vehicle trip generation data from the TIS (**Appendix E**) and on the CalEEMod defaults for natural gas, electricity, and water consumption; wastewater and solid waste generation; and area sources (hearths, landscaping, etc.) for the proposed land uses. It was assumed that both the Proposed Project and the 130-Unit Alternative would be fully constructed and operational by 2016. Assuming an earlier operational year represents a conservative assumption, in that emissions per rate of activity (e.g., per vehicle mile traveled) decline over time through fleet turnover and modernization. Thus, operational emissions from 2016 would be slightly higher than assuming a later operational year. Emissions are presented at the daily time scale and are compared with the MBUAPCD thresholds discussed below.

Carbon Monoxide Hot Spot Analysis

With respect to localized CO (CO hot spots) emissions analysis, 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 and 130-Unit Alternative are 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 Impact AIR-5, in *Project Impacts and Mitigation Measures*, the Proposed Project and 130-Unit Alternative do not warrant quantitative CO hot spot modeling.

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

Criteria for Determining Significance

In accordance with CEQA, the State CEQA Guidelines, the 2010 Monterey County General Plan plans and policies, the MBUAPCD's 2008 CEQA guidelines and agency and professional standards, a project impact would be considered significant if it would:

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[3]).
  - 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.

[3] 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) (Monterey Bay Unified Air Pollution Control District 2008a).

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 1 million).
- 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 AIR-1: Conflict with the 2012 Air Quality Management Plan (less than significant)

Proposed Project

MBUAPCD's most recent air quality plan is the 2012 Triennial Plan Revision (Monterey Bay Unified Air Pollution Control District 2013), which was based on the Association of Monterey Bay Area Governments (AMBAG) and Department of Finance (DOF) forecast of 45,406 dwelling units for unincorporated Monterey County in 2020 (Association of Monterey Bay Area Governments 2008). The estimated current housing stock within unincorporated Monterey County is 38,971 dwelling units (Association of Monterey Bay Area Governments 2014). Planned housing that is approved but not constructed is an estimated 2,856 dwelling units. These units include up to 100 single-family residential lots in Pebble Beach (as part of the Pebble Beach Company Project), approximately up to 2,400 dwelling units in two large development projects outside of Pebble Beach and other approved but not yet construction projects (Sidor pers. comm.)[4]. When combined with the Proposed Project's estimated increase of 281 dwelling units, there would be a total of 42,108[5] dwelling units in 2020, which is 3,298 fewer dwelling units than AMBAG's previous 2020 forecast of 45,406. Therefore, this impact would be *less than significant*. No mitigation is required.

130-Unit Alternative

Similar to the Proposed Project, the 130-Unit Alternative is not anticipated to result in exceedance of AMBAG's 2020 forecast.

As discussed above, the estimated current housing stock within unincorporated Monterey County is 38,971 dwelling units (Association of Monterey Bay Area Governments 2014) and planned housing that is approved but not constructed is an estimated 2,856 dwelling units. When combined with the

[4] The two approved large development projects are East Garrison with 1,142 units and Rancho San Juan (Butterfly Village) with 1,240 units, for a total of 2,382 total units (rounded to 2,400 units).

[5] 38,971 existing dwelling units (Associated Monterey Bay Area Governments 2014) + 2,856 approved but not built dwelling units + 281 Proposed Project dwelling units = 42,108 units. 45,406 units (Associated Monterey Bay Area Governments 2008) – 42,108 units = 3,298 fewer units than the 2020 air quality plan forecast.

130-Unit Alternative's estimated increase of 130 dwelling units, there would be a total of 41,957[6] dwelling units in 2020, which is 3,449 fewer dwelling units than AMBAG's previous 2020 forecast of 45,406.Therefore, this impact would be *less than significant*. No mitigation is required.

B. Long-Term Emissions

Impact AIR-2: Result in a Long-Term Increase in ROG, NO_X, CO, and PM10 Emissions from Vehicular Traffic and Area Sources (less than significant with mitigation)

Proposed Project

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

Table 3.8-6 presents area, energy, and mobile source emissions associated with Project operations in opening year 2016. As shown in **Table 3.8-6**, operation of the Proposed Project would exceed MBUAPCD's daily emissions thresholds for Project operations for ROG, CO, and PM10 due to the emissions associated with wood-burning fireplaces. Therefore, this impact is *potentially significant* and mitigation is required.

Table 3.8-6. Proposed Project Unmitigated 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	446.6	6.1	553.3	0.0	74.6	74.6	0.0	74.6	74.6
Energy	0.2	2.1	0.9	0.0	0.2	0.2	0.0	0.2	0.2
Mobile	14.5	42.0	185.9	19.6	0.5	20.1	5.2	0.5	5.7
Maximum Daily	461.3	50.2	740.1	19.6	75.2	94.9	5.2	75.2	80.4
Existing Golf Course	2.3	4.7	23.8	1.6	0.1	1.6	0.4	0.1	0.5
Net New over Existing	**459.0**	**45.5**	**716.3**	**18.1**	**75.2**	**93.2**	**4.8**	**75.1**	**79.9**
MBUAPCD threshold	*137*	*137*	*550*	-	-	*82*	-	-	-
Above MBUAPCD threshold?	Yes	No	Yes	NA	NA	Yes	NA	NA	NA

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).

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.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

[6] 38,971 existing dwelling units (Associated Monterey Bay Area Governments 2014) + 2,856 approved but not built dwelling units + 130-Unit Alternative dwelling units = 41,957 units. 45,406 units (Associated Monterey Bay Area Governments 2008) – 41,957 units = 3,449 fewer units than the 2020 air quality plan forecast.

Implementation of **Mitigation Measure AIR-1** would prohibit wood-burning fireplaces within the proposed residential units. For purposes of analysis, it was assumed wood-burning fireplaces would be replaced by natural-gas fireplaces. As shown in **Table 3.8-7**, implementation of **Mitigation Measure AIR-1** would reduce ROG, CO, and PM10 emissions to below MBUACPD thresholds. Impacts would be *less- than-significant* with mitigation incorporated.

Mitigation Measure AIR-1: Prohibit Wood-Burning Fireplaces

To reduce operational ROG, CO, and PM10 emissions, the Project Applicant will ensure that no wood-burning fireplaces will be permitted in any proposed residential units.

130-Unit Alternative

Similar to the Proposed Project, the primary operational emissions associated with the 130-Unit Alternative, including Lot 130, would be ozone precursors (ROG and NO_X), CO, and PM10 emitted as area sources (i.e., consumer products, coatings, natural gas, fireplace use, landscaping) and vehicle exhaust, but in quantities different from those for the Proposed Project.

Table 3.8-7. Proposed Project Mitigated 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	16.7	0.2	17.8	0.0	0.4	0.4	<0.01	0.4	0.4
Energy*	0.2	1.8	0.7	0.0	0.1	0.1	0.0	0.1	0.1
Mobile	14.2	40.1	179.3	18.7	0.5	19.1	5.0	0.4	5.4
Maximum Daily	31.1	42.1	197.9	18.7	1.0	19.7	5.0	1.0	6.0
Existing Golf Course	2.3	4.7	23.8	1.6	0.1	1.6	0.4	0.1	0.5
Net New over Existing	**28.8**	**37.4**	**174.1**	**17.1**	**1.0**	**18.1**	**4.6**	**0.9**	**5.5**
MBUAPCD threshold	*137*	*137*	*550*	-	-	*82*	-	-	-
Above MBUAPCD threshold?	No	No	No	NA	NA	No	NA	NA	NA

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).

Notes:

* Energy emissions also show reductions associated with **Mitigation Measure GHG-2**. See *Section 3.13*, Greenhouse Gas Emissions.

NA = not applicable.

CO = carbon monoxide.

NOx = 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.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

Table 3.8-8 presents area, energy, and mobile source emissions associated with operation of the 130-Unit Alternative, including Lot 130, assuming an opening year of 2016. As shown in **Table 3.8-8**, operations would exceed MBUAPCD's air quality standards of daily emissions thresholds for

project operations for ROG due to wood-burning fireplaces. Therefore, this impact is *potentially significant* and mitigation is required.

Mitigation Measure AIR-1 would prohibit wood-burning fireplaces within the proposed residential units. For purposes of analysis, it was assumed wood-burning fireplaces would be replaced by natural-gas fireplaces. As shown in **Table 3.8-9**, implementation of **Mitigation Measure AIR-1** would reduce ROG emissions to below MBUACPD thresholds. Impacts would be *less than significant* with mitigation incorporated.

Table 3.8-8. 130-Unit Alternative Unmitigated 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
130-Unit Alternative									
Area	208.1	2.8	256.0	0.0	34.5	34.5	0.0	34.5	34.5
Energy	0.1	1.1	0.5	0.0	0.1	0.1	0.0	0.1	0.1
Mobile	7.8	22.6	100.1	10.6	0.3	10.8	2.8	0.2	3.1
Maximum Daily	*216.0*	*26.5*	*356.6*	*10.6*	*34.8*	*45.4*	*2.8*	*34.8*	*37.7*
Existing Golf Course	2.3	4.7	23.8	1.6	0.1	1.6	0.4	0.1	0.5
Net New over Existing	**213.7**	**21.8**	**332.8**	**9**	**34.7**	**43.8**	**2.4**	**34.7**	**37.2**
MBUAPCD threshold	*137*	*137*	*550*	-	-	*82*	-	-	-
Above MBUAPCD threshold?	Yes	No	No	NA	NA	No	NA	NA	NA

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).

Notes:

NA = not applicable.

CO = carbon monoxide.

NOx = 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.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

Table 3.8-9. 130-Unit Alternative Mitigated Operational Emissions (pounds per day)

.	ROG	NO_X	CO	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
130-Unit Alternative									
Area	9.2	0.1	8.3	0.0	0.2	0.2	0.0	0.2	0.2
Energy	0.1	0.9	0.4	0.0	0.1	0.1	0.0	0.1	0.1
Mobile	7.8	22.4	99.4	10.5	0.2	10.7	2.8	0.2	3.0
Maximum Daily	*16.9*	*22.6*	*105.0*	*10.0*	*0.3*	*10.7*	*2.8*	*0.2*	*30.*
Existing Golf Course	2.3	4.7	23.8	1.6	0.1	1.6	0.4	0.1	0.5
Net New over Existing	**14.6**	**17.9**	**81.2**	**8.4**	**0.4**	**8.9**	**2.3**	**0.4**	**2.7**
MBUAPCD threshold	*137*	*137*	*550*	-	-	*82*	-	-	-
Above MBUAPCD threshold?	No	No	No	NA	NA	No	NA	NA	NA

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).

Notes:

* Energy emissions also show reductions associated with **Mitigation Measure GHG-2**. See *Section 3.13*, Greenhouse Gas Emissions.

CO = carbon monoxide.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

NA = not applicable.

NO_X = nitrogen oxides.

PM10 = particulate matter less than 10 microns in diameter.

PM2.5 = particulate matter less than 2.5 microns in diameter.

ROG = reactive organic gases.

C. Construction Emissions

Impact AIR-3: Result in a Short-Term Increase in PM10 Emissions due to Grading and Construction (less than significant)

Proposed Project

Construction of the Proposed 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 ozone NAAQS or CAAQS (Monterey Bay Unified Air Pollution Control District 2008). The MBUAPCD guidelines have an exception if a project uses "non-typical equipment, e.g., grinders, and portable equipment." The Proposed 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 Proposed Project would involve grading and up to approximately

220,000 cubic yards of cut and fill onsite, 100,000 cubic yards of imported fill, 7,200 haul truck trips, and up to 76.7 acres of disturbance.

As discussed above in *Construction-Related Emissions* in the *Methodology* section, analysis of the construction-related PM10 emissions for the Proposed Project is based on CalEEMod construction default data. All construction phases are expected to occur concurrently, and construction of each phase would depend on market conditions. As shown in **Table 3.8-10**, the Proposed Project's direct construction PM10 emissions are not expected to exceed MBUAPCD's PM10 significance threshold of 82 pounds per day during construction.

Table 3.8-10. Proposed Project Direct Construction PM10 Emissions (pounds per day)

Category	Fugitive PM10	Exhaust PM10	Total PM10
Site Preparation	10.7	17.8	28.5
Building Construction	3.1	2.3	5.4
Haul Trucks	11.4	2.6	14.1
Maximum Daily	**25.2**	**22.7**	**47.9**
MBUAPCD threshold	--	--	*82*
Above MBUAPCD threshold?	--	--	No

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR).

Notes:

Emissions shown are uncontrolled and do not account for County's Standard Conditions of Approval PD047.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

NA = not applicable.

PM10 = particulate matter less than 10 microns in diameter.

Additionally, as described in the *Regulatory Setting* section, all projects located in Monterey County are subject to the MBUAPCD regulations in effect at the time of construction including Rule 400 (Visible Emissions). Specific regulations applicable to the Proposed Project would be determined by the County at the time of construction. The County's Standard Condition of Approval PD047 (per MBUAPCD Rule 439) would also apply to any site demolition activities. Although emissions would not exceed the significance threshold and mitigation is not required, the following dust control measures from the MBUAPCD 2008 CEQA Guidelines would be implemented during grading activities, as described in Chapter 2, *Project Description:*

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Prohibit all grading activities during periods of high wind (more than 15 miles per hour).
- Cover all trucks hauling dirt, sand, or loose materials.
- Cover inactive storage piles.

Consequently, this impact would be *less than significant*. No mitigation is required.

130-Unit Alternative

Similar to the Proposed Project, construction of the 130-Unit Alternative 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. 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 130-Unit Alternative, including Lot 130, would involve grading and up to approximately 168,000 CY of cut and fill onsite and up to 83 acres of disturbance. It was assumed there would be no import of fill.

As discussed above in *Construction-Related Emissions* in the *Methodology* section, analysis of the construction-related PM10 emissions for the residential elements of the 130-Unit Alternative, including Lot 130, is based on CalEEMod construction default data.

All residential element construction phases are expected to occur concurrently, and construction of each phase would depend on market conditions. Since the residences will likely be built one by one over an extended period, building phase emissions will be attenuated over time, but during actual building construction may approach the levels shown below.

As shown in **Table 3.8-11**, the 130-Unit Alternative's direct construction PM10 emissions from the residential element are not expected to exceed MBUAPCD's PM10 significance threshold of 82 pounds per day during construction. Similar to the Proposed Project, all projects located in Monterey County are subject to the MBUAPCD regulations in effect at the time of construction. Specific regulations applicable to the residential element of the 130-Unit Alternative, including Lot 130, would be determined by the County at the time of construction. The County's Standard Condition of Approval PD047 (per MBUAPCD Rule 439) would also apply to any site demolition activities. Although emissions would not exceed the significance threshold and mitigation is not required, the following dust control measures from the MBUAPCD 2008 CEQA Guidelines would be implemented during grading activities, as described in Chapter 2, *Project Description:*

- Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.
- Prohibit all grading activities during periods of high wind (more than 15 miles per hour).
- Cover all trucks hauling dirt, sand, or loose materials.
- Cover inactive storage piles.

Consequently, this impact would be *less than significant*. No mitigation is required.

Table 3.8-11. 130-Unit Alternative Direct Construction PM10 Emissions (pounds per day)

Category	Fugitive PM10	Exhaust PM10	Total PM10
Site Preparation	10.7	17.8	28.5
Building Construction	1.5	1.1	2.7
Maximum Daily	**12.2**	**18.3**	**30.5**
MBUAPCD threshold	--	--	*82*
Above MBUAPCD threshold?	--	--	No

Source: CalEEMod Emissions Modeling (**Appendix F** to this Recirculated Draft EIR)

Notes:

Emissions shown are uncontrolled and do not account for County's Standard Conditions of Approval PD047.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

NA = not applicable.

PM10 = particulate matter less than 10 microns in diameter.

D. Sensitive Receptors

Impact AIR-4: Result in the Emission of Toxic Air Contaminants from Diesel Truck and Equipment Use during Construction (less than significant)

Proposed Project

Construction of some Proposed 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 Proposed 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 (for non-cancer health effects) would constitute a significant risk to human health.

As noted above, ICF performed an HRA for the Rancho Cañada Village Project (former Rancho Cañada Village Specific Plan Project) in 2011 which analyzed exposure to TACs, including DPM, associated with construction-related off-road construction equipment and on-road haul trucks and the 2011 HRA was updated to reflect a 2015 assumed construction start date and to reflect updates in methodology from OEHHA. Sensitive receptors were analyzed at the Carmel Middle School at two locations, a residential receptor along Carmel Valley Road and three residential receptor locations along Rio Road west of the project site.

As shown in **Table 3.8-12**, worst-case construction activities are expected to result in a maximum risk of 8.80 cases of cancer per million and a chronic Health Index score of 0.11 at the most affected

receptor. This level is of exposure and risk is below MBUAPCD's cancer risk and hazard thresholds. Therefore, this impact would be *less than significant*. No mitigation is required.

Table 3.8-12. Proposed Project Potential Health Risks to Air Quality Sensitive Receptors near the Project Site

		Cancer Risk (risk per million)	Chronic Non-Cancer Health Index Score
Proposed Project Risk	Off-road	6.35	0.00
	On-road	2.46	0.11
	Total	8.80	0.11
MBUAPCD Threshold		10	1.0
Above MBUAPCD Threshold?		No	No

Notes: The most affected sensitive receptor modeled for DPM cancer risk was a residential receptor along Rio Road, assuming haul trucks were to import soil using Rio Road. The most affected sensitive receptor modeled for non-cancer health effects for DPM was for a residential receptor along Carmel Valley Road assuming haul trucks were to import soil using Carmel Valley Road.

HRA = health risk assessment.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

Public comments received on the 2008 Draft Environmental Impact Report for the Rancho Cañada Village Specific Plan requested an analysis of the potential health risks associated with construction generation of fugitive dust containing crystalline silica and aspergillus spores. Crystalline silica is a basic component of soil, sand, granite, and many other minerals. Aspergillus is a common mold (type of fungus), the spores of which are present in the air, which lives outdoor and indoors. Construction associated with the Proposed Project would be subject to the MBUAPCD regulations in effect at the time of construction. As described above, the project will include dust control best management practices include watering all active construction areas at least twice daily; prohibiting all grading activities during period of high wind; covering all trucks hauling dirt, sand, or loose material; and covering inactive storage piles. These best management practices would minimize fugitive dust impacts, including dust containing crystalline silica and aspergillus spores, to a *less-than-significant* level.

130-Unit Alternative

Similar to the Proposed Project, results from the 2011 HRA were adjusted to a 2015 assumed construction start date and due to updates in methodology from OEHHA. Additionally, construction of the 130-Unit Alternative would include no soil import, so the risk presented in the 2011 HRA for truck hauling is not applicable to the 130-unit Alternative.

As shown in **Table 3.8-13**, worst-case construction activities are expected to result in a maximum risk of 5.47 cases of cancer per million and a chronic Health Index score of 0.00 at the most affected receptor. This level of exposure and risk is below MBUAPCD's cancer risk and hazard thresholds. Therefore, this impact would be *less than significant*. No mitigation is required.

Table 3.8-13. 130-Unit Alternative Potential Health Risks to Air Quality Sensitive Receptors near the Project Site

		Cancer Risk (risk per million)	Chronic Non-Cancer Health Index Score
130 Unit Alternative Risk	Off-road	5.47	0.01
	On-road	0.00	0.00
	Total	5.27	0.01
MBUAPCD Threshold		10	1.0
Above MBUAPCD Threshold?		No	No

Notes: The most affected sensitive receptor modeled for DPM cancer risk was a residential receptor along Rio Road. The most affected sensitive receptor modeled for non-cancer health effects for DPM was for a residential receptor along Carmel Valley Road. The 130-unit alternative would not include importation of soil and thus no soil haul truck emissions were included in the HRA for this alternative (unlike the Proposed Project).

HRA = health risk assessment.

MBUAPCD = Monterey Bay Unified Air Pollution Control District.

As with the Proposed Project, potential health risks associated with construction generation of fugitive dust containing crystalline silica and aspergillus spores would be *less than significant*, as construction associated with the 130-Unit Alternative would comply with best management practices to minimize fugitive dust impacts described above.

Impact AIR-5: Expose Sensitive Receptors to Substantial CO Concentrations from Project-Related Traffic (less than significant)

Proposed Project

The traffic analysis (**Appendix E**) for the Proposed Project analyzed peak-hour intersection operations at nearby intersections under existing (2014) and existing plus Proposed Project conditions.

The MBUAPCD CEQA guidelines (2008) provide screening guidelines to identify roadway locations where there is a potential for significant impacts related to operational CO concentrations and where site-specific CO modelling may be warranted as follows:

- Intersections or road segments that operate at LOS D or better that would operate at LOS E or F with the project's traffic, or
- Intersections or road segments that operate at LOS E or F where the volume-to-capacity (V/C) ratio would increase 0.05 or more with the project's traffic, or
- Intersections that operate at LOS E or F where delay would increase by 10 seconds or more with the project's traffic, or
- Unsignalized intersections which operate at LOS E or F where the reserve capacity would decrease by 50 or more with the project's traffic. This criterion is based on the turning movement with the worst reserve capacity, or

- Project would generate substantial heavy duty truck traffic or generate substantial traffic along urban street canyons or near a major stationary source of CO.

Results from the traffic analysis indicate the following relative to intersection conditions:

- Study intersections currently operating at LOS C or better would continue to operate at LOS C or better with Project conditions and would not exceed the MBUAPCD screening criteria.
- Two signalized study intersections, State Route (SR) 1/Carpenter Street (PM), SR 1/Rio Road (PM), currently operate at LOS D (see Section 3.7, *Traffic*). The project would not degrade existing LOS to a lower level at these two intersections and would not exceed the MBUAPCD screening criteria.
- One unsignalized study intersections, Carmel Valley Road/Laureles Grade currently operates at LOS D in the AM peak period (with the worst turning movement at LOS F) and LOS F in the PM peak period (see Section 3.7, Traffic). With project conditions:
  - AM peak conditions would degrade overall operations from LOS D to LOS E, triggering the MBUAPCD screening criteria for suggested CO hot spot quantitative modeling. The increased delay experienced at this intersection would be 1 second with Project conditions overall (and 5 seconds for the worst turning movement).
  - PM Peak conditions would remain LOS F, but the intersection is in overflow conditions (>200 seconds delay under existing and existing + project conditions) in which the traffic model does not produce precise results for the change in delay. Thus, it is possible that PM peak conditions may also exceed the MBUAPCD criteria.

Results from the traffic analysis indicate the following relative to road segments:

- Roadway study segments currently operating at LOS D or better would continue to operate at LOS D or better with Project conditions and would not exceed the MBUAPCD screening criteria.
- The project would add traffic to three roadway segments with current LOS E or LOS F conditions: SR 1 b/w Ocean and Carmel Valley Road, Carmel Valley Road between Robinson Canyon and Schulte, and Carmel Valley Road between Schulte and Rancho San Carlos (see Section 3.7, *Traffic*). However, project would not increase the volume to capacity ratio at any of these segments by more than 0.05 and thus would not exceed the MBUAPCD screening criteria (project volume increases for these segments only range from 1 to 3 percent).

Thus, using the MBUAPCD screening criteria, the only intersection of potential concern relative to CO concentrations is the Carmel Valley Road/Laureles Grade intersection.[7]

Quantitative CO hot spot modeling was performed for the Pebble Beach Company EIR in 2011 (Monterey County 2011). The CO modeling results indicated that CO concentrations at the intersections most affected by the PBC Buildout Project were not expected to contribute to any localized violation of the 1- or 8-hour ambient standard (see Table 3.2-11 of the Pebble Beach Company EIR). The highest intersection volumes for the PBC Buildout Project were much higher than the with-project volumes at the Carmel Valley Road/Laureles Grade intersection affected by

[7] The project would not generate substantial operational heavy duty truck traffic or generate substantial operational traffic along urban street canyons or near a major stationary source of CO.

the Proposed Project. For example, the SR 68/SR 1 off-ramp intersection[8] would have a 2015 PM peak-hour volume of 2,952 compared to the 1,377 with-project PM peak-hour volume for the Carmel Valley Road/Laureles Grade intersection. CO modeling conducted as part of the Pebble Beach Company EIR at the SR 68/SR 1 off-ramp intersection concluded that the worst-case 1-hour CO concentration at 100 feet from the intersection would be 5.03 ppm for existing conditions, whereas the federal and State 1-hour standards are 35 and 20 ppm, respectively. The Carmel Valley Road/Laureles Grade intersection, which has far lower peak-hour traffic volume than the SR 68/SR 1 intersection and the nearest receptors are more than 200 feet from the intersection would have much lower CO concentrations than the SR 68/SR 1 intersection. Furthermore, the Carmel Valley Road/Laureles Grade intersection will experience only a 1 second increase in delay with the Rancho Cañada Village Project. Thus, the Project is not expected to result in CO concentrations that would contribute to any localized violation of the 1- or 8-hour ambient standard.

As explained above, quantitative CO hot spot modeling is not warranted due to the minor increase in delay with the Project and the comparatively lower peak-hour volumes that have been shown by prior study to be less than significant. The Proposed 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*. No mitigation is required.

130-Unit Alternative

The TIS (**Appendix E**) for the 130-Unit Alternative analyzed peak-hour intersection operations at nearby intersections under both existing (2014) and existing plus 130-Unit Alternative conditions and project impacts would be less than the Proposed Project given the lower trip generation. As discussed above, traffic operations under the Proposed Project are not expected to result in CO concentrations that would contribute to any localized violation of the 1- or 8-hour ambient standard as nearby intersections with greater project-level impacts were well within the standard when CO concentrations were modeled. The same conclusion holds true for the 130-Unit Alternative which would result in lower traffic volumes.

Thus, quantitative CO hot spot modeling is not warranted. The 130-Unit Alternative is not expected to contribute to any localized violations of the 1- or 8-hour ambient standards. This impact would be *less than significant*. No mitigation is required.

E. Odors

Impact AIR-6: Expose New Sensitive Receptors to Objectionable Odors (less than significant)

Proposed Project

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 also should be given to other land uses where people may congregate, such as recreational facilities, work sites, and commercial areas.

[8] The 2011 Pebble Beach EIR identified that PM peak-hour conditions at the intersections would be LOS F, indicating highly congested conditions.

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, and the existing forested buffer between the development site and the closest existing sensitive receptors to the north and 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 Proposed 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*. No mitigation is required.

130-Unit Alternative

Similar to the Proposed Project, the 130-Unit Alternative, including Lot 130, is not expected to result in odor impacts on nearby receptors. Construction activities would not be likely to result in nuisance odors that would violate MBUAPCD's Nuisance Rule, Rule 402, and once constructed, the 130-Unit Alternative, including Lot 130, 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. Therefore, this impact would be *less than significant*. No mitigation is required.