

5.2 AIR QUALITY

This section evaluates the potential for the Project to result in significant short- and long-term air quality impacts. An evaluation of potential Project-related health risk impacts that may result from short- and long-term exposure to diesel particulate matter are also evaluated.

5.2.1 Physical Setting

Regional Climate and Meteorology. The climate in and around Goleta, as in most of Southern California, is dominated by the strength and position of the semi-permanent high-pressure center that results in cool summers, mild winters, and infrequent rainfall.

Temperatures in the Goleta area average 59°F annually. In contrast to the steady temperature regime, rainfall is highly variable. Measurable precipitation occurs mainly from early November to mid-April and averages 18 inches of rain annually. Winds in the region display several characteristic regimes. During the day, especially in summer, winds are from the south in the morning and from the west in the afternoon. Daytime wind speeds are five to 10 miles per hour (mph) on average. At night, especially in winter, the land becomes cooler than the ocean and an offshore wind of three to five mph develops. Early morning winds are briefly from the southeast parallel to the coastline before the daytime onshore flow becomes well established again. The effect of the wind pattern on air pollution is that locally-generated emissions are carried offshore at night and toward inland Santa Barbara County during the day. One other important wind regime occurs when high pressure builds over the western United States and creates hot, dry and gusty Santa Ana winds from the north and northeast across Santa Barbara County.

In addition to winds that control the rate and direction of pollution dispersal, Southern California experiences strong temperature inversions that limit the vertical depth through which pollution can be mixed. In summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a lid over the basin. A second inversion type forms on clear winter nights when cold air off the mountains sinks to the surface while the air aloft remains warm. This process forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants near their sources.

Existing Air Quality. The Project is located in the South Central Coast Air Basin, which encompasses San Luis Obispo, Santa Barbara, and Ventura Counties. The California Air Resources Board (ARB) and the Santa Barbara County Air Pollution Control District (SBCAPCD) operate ambient air monitoring stations that measure pollutant concentrations throughout Santa Barbara County. The nearest monitoring station to the project site is the Goleta monitoring station, at 380 North Fairview Avenue, which monitors ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), inhalable particulate matter (PM₁₀), and fine particulate matter

(PM_{2.5}). Table 5.2-1 summarizes the last five years of published data from the monitoring station.

**Table 5.2-1
Summary of Air Quality Data at Goleta Monitoring Station**

Pollutant	2009	2010	2011	2012	2013
Ozone (O₃)					
State maximum 1-hr concentration (ppm)	0.090	0.072	0.091	0.065	0.075
State maximum 8-hr concentration (ppm)	0.077	0.065	0.075	0.056	0.064
Days State 1-hour Standard Exceeded (>0.09 ppm)	0	0	0	0	0
Days Federal 8-hour Standard Exceeded (>0.075 ppm)	1	0	0	0	0
Days State 8-hour Standard Exceeded (>0.070 ppm)	1	0	1	0	0
Carbon Monoxide (CO)					
Maximum 8-hr concentration (ppm)	0.60	0.56	0.56	0.65	-
Maximum 1-hr concentration (ppm)	1.6	2.0	2.0	1.6	-
Days Federal 8-hour Standard Exceeded (>9 ppm)	0	0	0	0	-
Days State 8-hour Standard Exceeded (>9.0 ppm)	0	0	0	0	-
Days Federal 1-hour Standard Exceeded (>35 ppm)	0	0	0	0	-
Days State 1-hour Standard Exceeded (>20 ppm)	0	0	0	0	-
Nitrogen Dioxide (NO₂)					
Maximum 1-hr concentration (ppm)	0.046	0.044	0.052	0.041	0.132
Days State 1-hour Standard Exceeded (0.18 ppm)	0	0	0	0	0
Suspended Particulates (PM₁₀)					
State maximum 24-hr concentration (µg/m ³)	-	45.2	70.0	48.0	44.0
National maximum 24-hr concentration (µg/m ³)	-	44.0	67.9	46.5	43.0
Days State 24-hour Standard Exceeded (>50 µg/m ³)	-	-	-	0	-
Days Federal 24-hour Standard Exceeded (>150 µg/m ³)	-	-	0	0	0
Suspended Particulates (PM_{2.5})					
State maximum 24-hr. concentration (µg/m ³)	-	23.6	18.4	29.0	20.5
National maximum 24-hr concentration (µg/m ³)	-	-	-	-	-
Days Federal 24-hour Standard Exceeded (>35 µg/m ³)	-	-	-	-	-

Notes:

ppm = parts per million

µg/m³ = micrograms per cubic meter

Source: California Air Resources Board, 2014

Sensitive Receptors. Sensitive receptors are generally defined as pollutant-sensitive members of the population or where air pollutant emissions could adversely affect use of the land. Sensitive members of the population include those who may be more negatively affected by poor air quality than other members of the population, such as children, the elderly, or persons with respiratory conditions. In general, residential areas, hospitals, daycare facilities, elder-care facilities, elementary schools, and parks typically contain a high concentration of these

sensitive population groups. Sensitive receptors in the vicinity of the project site include adjacent residential areas to the west, north and east.

5.2.2 Regulatory Setting

Air quality is regulated by the Federal Clean Air Act (CAA) and California Clean Air Act (CCAA), and by local air district planning that is conducted pursuant to the Acts. At the Federal level, the U.S. Environmental Protection Agency (EPA) administers the CAA. The CCAA is administered by the ARB and by the air quality management districts at the regional and local levels. The Santa Barbara County Air Pollution Control District (SBCAPCD) has local jurisdiction over the project region.

Ambient Air Quality Standards and Area Attainment Designations. EPA and ARB have established national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), respectively, for the following six criteria air pollutants: ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb). These standards currently in effect in California are shown in Table 5.2-2. Sources and health effects of criteria air pollutants are summarized in Table 5.2-3.

Other pollutants of concern in the project area are toxic air contaminants (TACs). Although no air quality standards exist for TACs, they may result in an increase in mortality or serious illness, or 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 various diseases. In 1998, following a 10-year scientific assessment process, ARB identified particulate matter from diesel-fueled engines, commonly called diesel particulate matter (DPM), as a TAC. Compared with 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).

Based on local monitoring data areas are classified as either in attainment or in nonattainment with respect to NAAQS and CAAQS. If a pollutant concentration is lower than the State or Federal standard, the area is considered to be in attainment of the standard for that pollutant. If pollutant levels exceed a standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. Table 5.2-2 summarizes the attainment status of Santa Barbara County with regard to the NAAQS and CAAQS.

Santa Barbara County is designated as a Federal O₃ unclassifiable/attainment area for the 8-hour O₃ standard (the 1-hour Federal standard was revoked for Santa Barbara County). The State 8-hour O₃ standard has been exceeded and the State standard for PM₁₀ continues to be exceeded. Santa Barbara County is, therefore, a nonattainment area for the State standards for O₃ and PM₁₀. The county is in attainment for the Federal PM_{2.5} standard and unclassified for the State PM_{2.5} standard, and is designated "attainment" or "unclassified" for other State standards and for all Federal clean air standards.

**Table 5.2-2
Ambient Air Quality Standards**

Criteria Pollutant	Averaging Time	California Standards	National Standards ^a		Attainment Status of Santa Barbara County ^b	
			Primary	Secondary	State	National
Ozone	1-hour	0.09 ppm	None	None	Nonattainment	-- ^c
	8-hour	0.070 ppm	0.075 ppm	0.075 ppm	Nonattainment	Unclassified/ Attainment
Particulate Matter (PM ₁₀)	24-hour	50 µg/m ³	150 µg/m ³	150 µg/m ³	Nonattainment	Attainment
	Annual mean	20 µg/m ³	None	None	Nonattainment	Attainment
Fine Particulate Matter (PM _{2.5})	24-hour	None	35 µg/m ³	35 µg/m ³	--	Unclassified/ Attainment
	Annual mean	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³	Unclassified	Unclassified
Carbon Monoxide	8-hour	9.0 ppm	9 ppm	None	Attainment	Attainment
	1-hour	20 ppm	35 ppm	None	Attainment	Attainment
Nitrogen Dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm	Attainment	Unclassified/ Attainment
	1-hour	0.18 ppm	0.100 ppm	None	Attainment	Unclassified/ Attainment
Sulfur Dioxide	Annual mean	None	0.030 ppm	None	--	--
	24-hour	0.04 ppm	0.014 ppm	None	Attainment	--
	3-hour	None	None	0.5 ppm	--	--
	1-hour	0.25 ppm	0.075 ppm	None	Attainment	--
Lead	30-day Average	1.5 µg/m ³	None	None	Attainment	--
	Calendar quarter	None	1.5 µg/m ³	1.5 µg/m ³	--	Attainment
	3-month average	None	0.15 µg/m ³	0.15 µg/m ³	--	Unclassified
Sulfates	24-hour	25 µg/m ³	None	None	Attainment	--
Hydrogen Sulfide	1-hour	0.03 ppm	None	None	Attainment	--
Vinyl Chloride	24-hour	0.01 ppm	None	None	--	--

Notes:

ppm= parts per million

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

^a National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

^b Local monitoring data are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS. The four designations are further defined as:

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.

^c The Federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for State Implementation Plans.

Source: California Air Resources Board 2013a, 2013b.

**Table 5.2-3
Source and Effects of Air Pollutants**

Pollutants	Sources	Primary Effects
Ozone (O ₃)	Formed when reactive organic gases (ROG) and nitrogen oxides (NO _x) react in the presence of sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	Breathing difficulties, lung tissue damage, damage to rubber and some plastics
Respirable Particulate Matter (PM ₁₀)	Road dust, windblown dust (agriculture) and construction (fireplaces). Also formed from other pollutants (acid rain, NO _x , sulfur oxides [SO _x], organics). Incomplete combustion of any fuel.	Increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling
Fine Particulate Matter (PM _{2.5})	Fuel combustion in motor vehicles, equipment and industrial sources, and residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO _x , SO _x , organics).	Increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling
Carbon Monoxide (CO)	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Chest pain in heart patients, headaches, reduced mental alertness
Nitrogen Dioxide (NO ₂)	See carbon monoxide	Lung irritation and damage. Reacts in the atmosphere to form ozone and acid rain
Lead (Pb)	Metal Smelters, Resource Recovery, Leaded Gasoline, Deterioration of Lead Paint	Learning disabilities, brain and kidney damage
Sulfur Dioxide (SO ₂)	Coal or Oil Burning Power Plants and Industries, Refineries, Diesel Engines	Increases lung disease and breathing problems for asthmatics. Reacts in the atmosphere to form acid rain.
Visibility Reducing Particles	See PM _{2.5}	Reduces visibility (e.g., obscures mountains and other scenery), reduced airport safety, lower real estate value, discourages tourism.
Sulfates	Produced by the reaction in the air of SO ₂ (see SO ₂ sources), a component of acid rain.	Breathing difficulties, aggravates asthma, reduced visibility
Hydrogen Sulfide	Geothermal Power Plants, Petroleum Production and Refining, Sewer Gas	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations).

Source: California Air Resources Board, 2009

Air Quality Planning. State and Federal laws require local jurisdictions that do not meet clean air standards develop plans and programs to bring those areas into compliance. These plans typically contain emission reduction measures and attainment schedules to meet specified deadlines. If and when attainment is reached, the attainment plan becomes a “maintenance plan.”

In 2001, an attainment plan was developed by the SBCAPCD that was designed to meet both Federal and State planning requirements. The Federal attainment plan was combined with those from other statewide nonattainment areas to become the State Implementation Plan (SIP). The 2001 Clean Air Plan (CAP) was adopted as the Santa Barbara portion of the SIP, designed to meet and maintain Federal clean air standards.

The 2004 CAP demonstrates how the County will make progress towards meeting the State 1-hour ozone standard, while the 2007 CAP pertains to provisions of the Federal Clean Air Act that apply to the county’s current designation as an attainment area for the Federal 8-hour O₃ standard. The 2010 CAP incorporated updated data and focused on the identification and implementation of measures related to achieving attainment with the State 8-hour O₃ standard. The 2013 CAP was adopted in March 2015 and is the sixth triennial update to the initial State Clean Air Plan adopted by the SBAPCD. Similar to other CAP updates, the 2013 CAP identifies and evaluates “an all feasible measures” strategy to ensure continued progress towards attainment of the State ozone standards.

Santa Barbara County Air Pollution Control District Rules and Regulations. SBCAPCD is responsible for establishing and enforcing local air quality rules and regulations that address the requirements of Federal and State air quality laws. The Project may be subject to the following SBCAPCD rules (as well as others):

- Rule 302—Visible Emissions
- Rule 303—Nuisance
- Rule 305—Particulate Matter
- Rule 323—Architectural Coatings
- Rule 329—Cutback and Emulsified Asphalt Paving Materials
- Rule 345—Control of Fugitive Dust from Construction and Demolition Activities
- Rule 352—Natural Gas-Fired Fan-Type Central Furnaces and Small Water Heaters
- Rule 360—Emissions of Oxides of Nitrogen From Large Water Heaters and Small Boilers

The SBCAPCD’s *Scope and Content of Air Quality Sections in Environmental Documents* (April 2015) provides various techniques to reduce emissions associated with construction-related fugitive dust to comply with Rules 302, 303, 305, and 345. The following SBCAPCD measures will be implemented:

- During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this must include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency must be required whenever the wind speed exceeds 15 mph. Reclaimed water must be used whenever possible.
- Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less.
- If importation, exportation and stockpiling of fill material is involved, soil stockpiled for more than two days must be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site must be tarped from the point of origin.
- Gravel pads must be installed at all access points to prevent tracking of mud onto public roads.
- After clearing, grading, earth moving or excavation is completed, treat the disturbed area must be treated by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.
- The contractor or builder must designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties must include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons must be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.
- Prior to land use clearance, the applicant must include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements must be shown on grading and building plans.
- Diesel construction equipment meeting the California Air Resources Board (CARB) Tier 1 emission standards for off-road heavy-duty diesel engines must be used. Equipment meeting CARB Tier 2 or higher emission standards should be used to the maximum extent feasible.
- Diesel powered equipment should be replaced by electric equipment whenever feasible.
- If feasible, diesel construction equipment must be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by EPA or California.

- Catalytic converters must be installed on gasoline-powered equipment, if feasible.
- All construction equipment must be maintained in tune per the manufacturer's specifications.
- The engine size of construction equipment must be the minimum practical size.
- The number of construction equipment operating simultaneously must be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
- Construction worker trips should be minimized by requiring carpooling and by providing for lunch onsite.

The following is a list of regulatory requirements and control strategies that would be implemented to the maximum extent feasible. Measures will be shown on grading and building plans and adhered to throughout grading, hauling, and construction activities. The following measures are required by state law:

- All portable diesel-powered construction equipment must be registered with the state's portable equipment registration program OR shall obtain an APCD permit.
- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-use Off-road Diesel Vehicles (13 California Code of Regulations § 2449), the purpose of which is to reduce diesel particulate matter (PM) and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles. For more information, please refer to the CARB website (www.arb.ca.gov/msprog/ordiesel/ordiesel.htm).
- All commercial diesel vehicles are subject to California Code of Regulations, Title 13, § 2485 which limits engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading is limited to five minutes; electric auxiliary power units should be used whenever possible.

To comply with SBAPCD Rules 323.1, 329, 352 and 360, the following measures will be implemented:

- Construction of new buildings and appurtenances could involve application of coatings that contain VOC. To minimize VOC emissions, Rule 323.1 requires that architectural coatings, as defined by the SBAPCD, must comply with VOC limits specified in SBAPCD Rule 323.1-1.

- Construction of new parking areas on site would require application of aggregate concrete (asphalt) that could create objectionable odors. Such odors would be temporary and localized and would be subject to SBCAPCD Rule 329. Rule 329 requires asphaltting procedures that would minimize air quality impacts, including odor, associated with construction of new parking areas.
- Construction of the Project may involve the use of natural gas-fired fan-type central furnaces and water heaters. Rules 352 and 360 require that furnaces and water heaters meet specified limits to minimize NOX emissions and be certified by the APCD for use.

City of Goleta. All new residential buildings must comply with California Building Standards Code as adopted by the Goleta Municipal Code; the Green Building Code as adopted by the Goleta Municipal Code; and the Energy Efficiency Standards of the City to meet the objectives of greenhouse emissions reductions under the California Global Warming Solutions Act of 2006 (AB 32). Construction projects must comply with Goleta Municipal Code Chapter 15.09, Grading, Erosion and Sediment Control.

5.2.3 Thresholds of Significance

Based on CEQA Guidelines Appendix G and the City's *Environmental Thresholds and Guidelines Manual*, a significant impact on air quality could occur if a project would:

- a. Conflict with or obstruct implementation of the applicable air quality plan.
- b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O₃ precursors).
- d. Expose sensitive receptors to substantial pollutant concentrations.
- e. Create objectionable odors affecting a substantial number of people.
- f. Interfere with progress toward the attainment of the O₃ standard by releasing emissions that equal or exceed the established long-term quantitative thresholds for NO_x and reactive organic compounds (ROC).
- g. Equal or exceed the State or Federal ambient air quality standards for any criteria pollutant (as determined by modeling).
- h. Result in toxic or hazardous air pollutants in amounts that may increase cancer risks for the affected population.

Items a through e are from the Initial Study Checklist, and Items f through h are from the City's *Environmental Thresholds and Guidelines Manual*.

Determinations regarding the significance of project-related air emissions have been made in this EIR based on SBCAPCD thresholds that were most recently adopted as part of the update of SBAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* (April, 2015). The SBBAPCD thresholds have been used as they are more current than the City's air quality significance thresholds, which were initially approved by the Santa Barbara County Board of Supervisors in 1994. As indicated by the SBAPCD, a project will not have a significant impact on air quality, either individually or cumulatively, if operation of the project will:

1. Emit (from all project sources, both stationary and mobile) less than the daily trigger for offsets or Air Quality Impact Analysis set in the APCD New Source Review Rule, for any pollutant (i.e., 240 pounds per day for ROC or NO_x; and 80 pounds per day for PM₁₀. There is no daily operation threshold for CO; it is an attainment pollutant);
2. Emit less than 25 pounds per day of NO_x or ROC from motor vehicle trips only;
3. Not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone);
4. Not exceed the APCD health risk public notification thresholds adopted by the APCD Board (10 excess cancer cases in a million for cancer risk and a Hazard Index of more than one for non-cancer risk); and
5. Be consistent with the latest adopted Federal and State air quality plans for Santa Barbara County.

The cumulative contribution of project emissions to regional levels should be compared with existing progress and plans, including the most recent CAP. Due to Santa Barbara County's nonattainment status for ozone and the regional nature of ozone as a pollutant, if a project's air pollutant emissions of either of the ozone precursors (NO_x or ROC) exceed the long-term thresholds, then the project's cumulative impacts will be considered significant. For projects that do not have significant ozone precursor emissions or localized pollutant impacts, if emissions have been taken into account in the most recent CAP growth projections, regional cumulative impacts may be considered to be insignificant. When a project's emissions exceed the thresholds and are clearly not accounted for in the most recent CAP growth projections, then the project is considered to have significant cumulative impacts that must be mitigated to a level of insignificance.

The District does not currently have quantitative thresholds of significance for short-term or construction emissions. However, the APCD uses 25 tons per year for ROC or NO_x as a guideline for evaluating the significance of construction impacts.

Since Santa Barbara County does not comply with the state standard for PM₁₀, policies of the 1979 Air Quality Attainment Plan require that all discretionary construction activities implement dust control measures, regardless of the significance of fugitive dust impacts. Dust control measures are also required to minimize the potential for dust-related nuisance impacts

5.2.4 Impact Evaluation

Short- and long-term emissions that would result from the construction and occupancy of the Project were estimated using the California Emissions Estimator Model (CalEEMod version 2013.2.2). Air emission estimate worksheets are provided in EIR Appendix C. Traffic volumes used to estimate long-term mobile emissions are based on a traffic study prepared by Associated Transportation Engineers dated January, 2016, which is included in EIR Appendix D. The Project's potential health risk impacts that may result from short- and long-term exposure to diesel particulate matter is also evaluated.

Short-Term Construction Emissions

The use of mechanical equipment for grading and throughout the Project's approximately 12- to 18-month long construction period would result in emissions of criteria pollutants, fugitive dust, and diesel exhaust. Project-related grading would result in approximately 41,000 cubic yards of cut, 50,000 cubic yards of fill, and approximately 9,000 cubic yards of soil would be imported to the project site. No demolition of existing structures would be required to implement the project.

Criteria Pollutant Emissions. A summary of Project-related construction equipment emissions that would result from grading and construction activities is provided on Table 5.2-4. As shown, annual construction-related emissions of ROG and NO_x during the project's construction period would be substantially lower than the 25 tons per year emissions guideline the APCD uses to determine the significance of construction impacts. Therefore, impacts related to short-term emissions of criteria pollutants would be a **less than significant impact (Class III)**. The construction equipment operation measures recommended by the SBAPCD and that would be required by the City of Goleta as stated in EIR Section 5.2.2 above, would reduce the Project's construction-related emissions of ROG and NO_x to the extent feasible.

**Table 5.2-4
Estimated Annual Construction Emissions (unmitigated)**

Year	Construction Emission Estimates (tons/year)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
2017 Emissions	2.25	4.41	3.44	0.005	0.49	0.34
2018 Emissions	0.04	0.41	0.35	0.0006	0.03	0.02
Total Emissions	2.29	4.82	3.79	0.006	0.52	0.36
SBCAPCD Threshold	25	25	N/A	N/A	N/A	N/A
Threshold exceeded?	No	No	N/A	N/A	N/A	N/A

Source: CalEEMod version 2013.2.2

Fugitive Dust. Project-related grading and development operations have the potential to result in the generation of a substantial amount of fugitive dust, which could result in nuisance impacts to surrounding residential uses and could have the potential to contribute substantially to existing violations of the State PM₁₀ air quality standard. Potentially significant fugitive dust impacts can be reduced to a less than significant level with the implementation of standard dust control mitigation measures listed in EIR Section 5.2.2 above and that would be required by the City of Goleta. Therefore, short-term fugitive dust impacts of the Project would be a **less than significant (Class III) impact**.

Exposure to Construction-Related Diesel Particulate Matter. The use of diesel-powered equipment during the construction of the Project would result in emissions of DPM. Potential health-related impacts that could result from exposure to construction-related DPM were assessed by predicting the health risks in terms of excess cancer and non-cancer hazard impacts. A screening-level health risk assessment (HRA) was performed according to the following steps.

1. Evaluate increased DPM cancer risk and the DPM non-cancer hazard impact based on the mass emissions of PM₁₀ exhaust estimated using CalEEMod.
2. Use EPA's AERSCREEN model, which is the screening-level model for AERMOD, to predict PM₁₀ hourly concentrations at sensitive land uses based on the annual exhaust emissions for each construction phase.
3. Calculate the cancer risk and non-cancer hazard index for each project phase based on the AERSCREEN hourly concentrations and the construction durations.

The results of the health risk assessment are summarized in Table 5.2-5. Quantitative health risk thresholds have not been adopted for short-term construction emissions, therefore, SBCAPCD's health risk thresholds for long-term exposures were used to evaluate the construction-related health risk impacts. Table 5.2-5 presents the maximum health risks associated with the Project at the nearby receptors. Detailed information on emissions modeling and quantification methods are provided in EIR Appendix E.

**Table 5.2-5
Maximum Health Risks During Construction**

Construction Phase	Maximum Health Risks During Construction	
	Non-Cancer Hazard Index	Increased Cancer Risk (per million)
Site Preparation	0.0	0.3
Grading	0.0	0.6
Building Construction (peak year)	0.1	3.7
Building Construction (non-peak year)	0.0	0.3
Paving	0.0	0.2
Coatings	0.0	0.0
Total	0.1	5.2
SBCAPCD Threshold	1	10
Threshold exceeded?	No	No

Source: ICF International, 2014

As shown in Table 5.2-5, the estimated health risks from construction-related DPM emissions would be substantially below SBAPCD’s significance thresholds for non-cancer hazards and cancer risk. Therefore, construction-related health risk impacts would **be less than significant (Class III)**. The implementation diesel equipment operation measures recommended by the SBAPCD and that would be required by the City of Goleta as stated in EIR Section 5.2.2 above would further reduce the potential for health-related impacts resulting from short-term exposures to DPM.

Long-Term Emission Impacts

Occupancy of the residential units that would be developed on the project site would result in long-term emissions of criteria pollutants from both mobile and non-mobile sources. Occupants of the proposed residences would also have the potential to be exposed to DPM emissions that occur as a result of the operation of vehicles on U.S. 101 and trains on the nearby UPRR tracks. The potential for long-term air quality-related impacts are evaluated below.

Mobile and Non-Mobile Sources of Emissions. Mobile source emissions are associated with vehicle trips, and it is estimated that the Project would generate approximately 397 average daily vehicle trips. Non-mobile emissions include emissions from area and energy sources. Area sources include landscaping activities, consumer product use (e.g., personal care products), and periodic paint emissions from building maintenance. Energy sources include direct and indirect emissions from project-related natural gas and electricity use. Estimates of the project’s mobile and non-mobile emissions are summarized in Table 5.2-6.

**Table 5.2-6
Long-Term Emission Estimates**

Source	Emissions (pounds per day)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Mobile Sources	1.74	4.20	19.35	0.04	2.78	0.78
<i>Mobile Emissions Threshold</i>	25	25	<i>No Threshold</i>	<i>No Threshold</i>	<i>No Threshold</i>	<i>No Threshold</i>
Non-Mobile Sources						
Area Sources	3.52	0.06	4.99	0	0.03	0.03
Energy Sources	0.03	0.28	0.12	0.01	0.02	0.02
Total Emissions	5.29	4.54	24.46	0.04	2.83	0.83
SBCAPCD Threshold	240	240	<i>No Threshold</i>	<i>No Threshold</i>	80	<i>No Threshold</i>
Threshold exceeded?	No	No	<i>No Threshold</i>	<i>No Threshold</i>	No	<i>No Threshold</i>

Source: CalEEMod version 2013.2.2

The vehicle emissions that would result from the occupancy of the Project would not exceed the Santa Barbara County APCD significance threshold of 25 pounds per day for mobile emissions. Combined mobile and non-mobile emissions generated by the Project would not exceed the APCD thresholds of 240 pounds per day for total ozone precursor (ROG and NO_x) emissions, or 80 pounds per day for PM₁₀ emissions. Therefore, the Project would not exceed the established long-term quantitative thresholds for emissions of ozone precursor pollutants and the project would result in a **less than significant (Class III)** air quality impact.

Long-Term Diesel Particulate Matter Exposure. The Project would not be a substantial long-term source of DPM as it would not include the operation of DPM-generating equipment such as emergency generators. Therefore, this evaluation focuses on potential exposures of project residents to DPM that may occur due to the project site's proximity to U.S. 101 and the UPPR tracks.

Diesel engines emit a complex mixture of air pollutants, mainly composed of gases, vapors and fine particles. Diesel exhaust particles carry many of the harmful organic compounds and metals present in the exhaust. Exposures to airborne respirable DPM can result in respiratory symptoms such as changes in lung function and cardiovascular disease. California identifies DPM as a toxic air contaminant based on its potential to cause cancer and other adverse health effects. The main sources of diesel particulate matter are exhaust from heavy-duty trucks on the interstate freeway system and diesel-powered locomotives.

Due to the potential for exposure of sensitive receptors to DPM and other toxic air contaminants, the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective* (June 2005) recommends avoiding siting new sensitive land uses, such as residences, schools, daycare centers, playgrounds, or medical facilities, within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.

The ARB Handbook found that based on traffic-related studies, additional non-cancer health risks attributable to proximity to freeways occurs within 1,000 feet and is strongest within 300 feet. California freeway studies show about a 70% drop-off in particulate pollution levels at 500 feet (ARB, 2005). Based on ARB's findings, the Santa Barbara County APCD also recommends policies that "require re-designing a residential project so that sensitive receptors are moved 500 feet away from the freeway to reduce potential health impacts" (SBCAPCD, 2015). Proposed residences on the Project site would be located approximately 370 to 1,000 feet north of the UPRR railroad tracks and approximately 100 to 800 feet north of the edge of the closest (westbound) lane of U.S. 101.

A Health Risk Assessment (HRA) was recently prepared for the Cortona Apartments Project in the City of Goleta, which is similar to the Project in that it is also located adjacent to U.S. 101 and the UPRR tracks. The Cortona HRA evaluated that project's potential carcinogenic risk and chronic inhalation health hazards that could result from the exposure of residents to DPM and other carcinogens. The Cortona HRA analysis determined that residents of the Cortona Project would be exposed to an excess cancer risk of between 14 and 23 in one million, assuming an on-site residency of 70-years. The HRA also concluded that DPM was responsible for about 85% of the calculated cancer risk. The Cortona Project HRA concluded that because the calculated carcinogenic health risk for lifetime residency exceeded the SBCAPCD health risk threshold of ten excess cases of cancer in one million individuals, the potential health-related effects of the Cortona Project would be significant. The Cortona HRA also concluded that an average (50-percentile) residency time of nine (9) years for an adult would result in a health-related effect of less than three in one million, and residency at the site by a child for nine (9) years) would result in a health effect of less than five (5) in one million. Based on more typical exposure durations, the risk to adult residents and children would be less than the ten excess cancer cases in one million threshold. The Cortona HRA also found that chronic health hazards associated with that project would be below the SBCAPCD threshold (a hazard index of 1.0).

The Cortona Project HRA was based on outdoor DPM concentrations and conservatively assumed that interior DPM concentrations would be the same. Environmental Protection Agency activity factors show that people in a residential environment spend only a small portion of the day on an average basis outdoors. Therefore, the Cortona HRA recommended a mitigation measure to provide forced air ventilation with filter screens on outside air intake ducts for all residential units at that project site. The identified mitigation measure was found to substantially reduce the future residents' exposure to toxic air contaminants associated with U.S. 101 and the UPRR to below the 10 in one million threshold for a 70-year residency.

The Final EIR prepared for the Cortona Project indicated that although the analysis of health risks assumes outdoor exposure, the finding of a potentially significant impact related to cancer risk does not mean that using exterior portions of the site would create acute, or short-term, health risks for site residents or visitors. The excess cancer risk identified by the HRA is based on a 70-year exposure, which far exceeds the length of time that most residents of the rental housing project would be expected to live on-site.

Based on recommendations of the SBAPCD that residential projects should provide a 500-foot buffer from the freeway to reduce potential health impacts, and the results of the previous HRA prepared for the Cortona Project, which has location characteristics relative to U.S. 101 and the SPRR tracks that are similar to those of the Project, it has been conservatively concluded that the Project would have the potential to result in a significant health risk impact to future residents of the project site. Also similar to the Cortona Project analysis, this impact is considered **significant and mitigable (Class II)** and can be reduced to a less than significant level by implementing risk reduction measures similar to those required for the Cortona Project. The previously identified mitigation measures require the installation and maintenance of particulate filtration systems on ventilation and recirculation systems of all proposed residential units to reduce indoor exposure to DPM. According to the EPA (2009) filters with a minimum efficiency reporting value of 13 (MERV-13) achieve a DPM removal efficiency of about 90 percent. The HRA prepared for the Cortona Project determined that the proposed mitigation measure would reduce estimated cancer risk from between 14 and 23 in one million for a 70-year on-site residency to a risk of approximately one (1) to two (2) in one million for a 70-year residency. With the implementation of the proposed mitigation measures, the Project would not expose sensitive receptors to substantial pollutant concentrations or exceed thresholds adopted for the purpose of evaluating the significance of increased cancer risks.

Odors. Construction of new parking areas and streets on the project site would require the application of aggregate concrete (asphalt) that could create objectionable odors. Such odors would be temporary and localized and would be subject to SBCAPCD Rule 329. This rule governs the application of asphalt paving materials and would apply to all proposed paving activities. After the Project is occupied, the proposed residences would not be as substantial long-term source of odors. Therefore, the project would not create objectionable odors affecting a substantial number of people and the Project's odor impacts would be **less than significant (Class III)**.

Consistency with the 2010 SBCAPCD Clean Air Plan

Consistency with the SBAPCD 2013 Clean Air Plan (CAP) means that direct and indirect emissions associated with the project are accounted for in the CAP's emissions growth assumptions and the project is consistent with policies adopted in the CAP. The CAP relies primarily on the land use and population projections provided by the Santa Barbara County Association of Governments (SBCAG) and ARB on-road emissions forecast as a basis for vehicle emission forecasting. The 2013 CAP utilized SBCAG's Regional Growth Forecast 2010-2040 (2012) to project population growth and associated air pollutant emissions for all of the Santa Barbara County incorporated and unincorporated areas. Residential projects that involve population growth in an individual jurisdiction or subregion of the unincorporated County above the amount forecasted for that jurisdiction or subregion will be considered inconsistent with the CAP and may have a significant impact on air quality.

SBCAG's 2010-2040 Regional Growth Forecast indicates that the 2010 population of Goleta was 29,824, and projects Goleta's population in 2020 to be 29,954, which is an increase

of 130 persons over a ten year period¹. The 2015 population of Goleta is estimated to be 30,765, (California Department of Finance, 2015). Based on 2015 population data from the California Department of Finance, Goleta's current population of 30,765 already exceeds the SBCAG 2020 population projection of 29,954 by 811 people.

The Project would result in the development of 60 residential units and the California Department of Finance indicates that the average population per household in Goleta is 2.76. Therefore, the Project would add an estimated 166 residents (60 dwelling units x 2.76 people/dwelling unit) to the City of Goleta, which would increase the City's population to 30,931 and contribute to the existing exceedance of population projections used in the 2013 CAP.

Objectives of the Project include providing a variety of housing types housing that are affordable to the local workforce. These objectives, along with the project site's location near several employment centers in the City, are consistent with efforts by the CAP to implement transportation performance standards that will provide a substantial reduction in the rate of increase in passenger vehicle trips and vehicle miles traveled (VMT). A reduction in county-wide VMT is identified by the CAP as a major component of an overall strategy to reduce mobile emissions of ozone precursor pollutants (NO_x and ROG) and to achieve attainment of the State 1-hour ozone standard. As indicated on Table 5.2-6 (Long-Term Emission Estimates), mobile and total emissions from the Project would be substantially below the project-specific and cumulative thresholds of significance adopted by the SBAPCD. In addition, the Project would construct new trails and sidewalk segments that would enhance pedestrian circulation in the Project area, which is a transportation control measure also encouraged by the CAP. Therefore, the Project would be consistent with planning efforts to reduce county-wide VMT, and Project-related emissions would not substantially interfere with the SBAPCD's efforts to achieve attainment with the 1-hour ozone standard. As a result, the Project would not conflict with or obstruct implementation of the applicable air quality plan, and would result in a **less than significant (Class III)** impact related to consistency with the CAP.

5.2.5 Cumulative Impacts

Based on criteria provided by the City's *Environmental Thresholds and Guidelines Manual*, if a project's emissions of ozone precursors (NO_x or ROG) exceed the long-term thresholds, or if emissions have not been taken into account in the most recent CAP growth projections, then the project's cumulative air quality impact would be significant. The vehicle emissions from the Project would not exceed the 25 pounds per day threshold; therefore, the project's mobile emissions of ozone precursors would not be cumulatively significant. Similarly, the combined non-mobile and mobile emissions of ozone precursors would not exceed the operational threshold of 240 pound per day, and would not be cumulatively significant.

¹ SBCAG, Regional Growth Forecast 2010-2040 (2012); Table 7, Trend-based Allocation Methodology Subject to Land Use Capacity Population, Household and Employment Forecast.

As described above, the Project would be consistent with the 2013 CAP because the project would be consistent with planning efforts to reduce county-wide VMT, and Project-related emissions would not substantially interfere with the SBAPCD's efforts to achieve attainment with the 1-hour ozone standard. Therefore, cumulative air quality impacts of the Project would be **less than significant (Class III)**.

5.2.6 Mitigation Measures

Impact AQ-1 Due to the proximity of the project site to U.S. 101 and the UPRR railroad tracks, Project residents would have the potential to be exposed to diesel particulate matter and other toxic air contaminants. Potential long-term (70-year) exposures to toxic air contaminants at the project site have the potential to exceed SBAPCD's significance threshold for cancer-related health effects.

AQ-1a. Indoor Air Quality. The following indoor air quality measures must be implemented for each residence on the project site:

AQ-1a.1 Forced air ventilation with filter screens on outside air intake ducts must be provided for all residential units on the project site (MERV 13 or better). The filter screens must be capable of removing at least 85% of the particulate matter including fine particulate matter (PM<2.5 micron).

AQ-1a.2 For single-family or other residences with separate HVAC systems, a brochure notifying future residents of the need for maintaining the filter screens must be prepared and provided at the time of ownership exchange.

AQ-1a.3 Project CC&Rs must include a notice of the diesel particulate matter risk hazard and the need for screen maintenance must be placed in the property title or lease.

AQ-1a.4 For residential units with conjoined HVAC (i.e., multi-family units), the agent (i.e., HOA or landlord) is responsible for maintaining the filter screens annually. In addition, a notice of the diesel particulate matter risk hazard and the need for screen maintenance must be placed in the property title or lease.

AQ-1a.5 Windows and doors must be fully weatherproofed with caulking and weather-stripping that is rated to last at least 20 years.

Plan Requirements and Timing: The required diesel particulate matter exposure reduction measures must be shown on the plans submitted for building plan check. The brochure and specifications for the filter screens must also be submitted to the Planning and Environmental Review Director, or designee, for review and approval before the City issues a building permit. Project CC&Rs and the required property title or lease language regarding the need for screen maintenance must be approved by the City Attorney's Office prior to final map recordation. CC&R and property title or lease review by the City Attorney's office will be at the applicant's expense.

Monitoring: The Planning and Environmental Review Director, or designee, must review plans depicting required exposure reduction measures and confirm acceptable wording in the brochure and the suitability of the proposed screens before issuance of a building permit. City building inspectors must check for installation of the filter screens and adequate weather-proofing before issuance of certificate of occupancy.

Residual Impact. The required mitigation measures would result in a substantial reduction in potential exposures to diesel particulate matter within proposed residential buildings, thereby reducing the overall exposure of project site residents. With this reduction in exposure to toxic air contaminants, the combined exposure from time spent both indoors and outdoors would result in health-related effects that would be below significance thresholds and the residual air quality/health impacts would be less than significant.