

4.5 AIR QUALITY

This section provides a discussion of existing air quality, evaluates potential air quality impacts associated with the proposed project—both short-term construction-related impacts and long-term operational impacts—and identifies mitigation measures recommended for potentially significant impacts. Modeled air quality levels are based upon vehicle data and project trip generation prepared for this project. This section summarizes information provided in the Air Quality Analysis for San Miguel Ranch (July 2009) prepared by LSA Associates, Inc. The Air Quality Analysis is included in Appendices E and P of this Environmental Impact Report (EIR).

4.5.1 Existing Environmental Conditions

The Project area (i.e., the Development project site, Wastewater Treatment Plant expansion site, and off-site infrastructure) are located near or in the San Miguel Urban Area in unincorporated San Luis Obispo County (County). The County is within the South Central Coast Air Basin (SCCAB) that includes San Luis Obispo, Santa Barbara, and Ventura Counties. Air quality regulation in the SCCAB is administered by the Air Pollution Control District (APCD).

Regional Air Quality. Both the State of California (State) and the federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants. As shown in Table 4.5.A, these pollutants include ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), coarse particulate matter with a diameter of 10 microns or less (PM₁₀), fine particulate matter less than 2.5 microns in diameter (PM_{2.5}), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

In addition to setting out primary and secondary AAQS, the State of California has established a set of episode criteria for O₃, CO, NO₂, SO₂, and particulate matter. These criteria refer to periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. Table 4.5.B lists the health effects of these criteria pollutants and their potential sources. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these health effects would not occur unless the standards are exceeded by a large margin. The State AAQS are more stringent than the federal AAQS.

Climate/Meteorology. The climate of the County can be characterized as Mediterranean, with warm, dry summers and cooler, damp winters. Along the coast, mild temperatures are the rule throughout the year due to the moderating influence of the Pacific Ocean. This effect is diminished inland in proportion to distance from the ocean or by major intervening terrain features, such as the coastal mountain ranges. As a result, inland areas are characterized by a wider range of temperature conditions. Maximum summer temperatures average approximately 70 degrees Fahrenheit (°F) near the coast, while inland valleys are often in the high 90s. Minimum winter temperatures average from the low 30s along the coast to the low 20s inland. The climatological station closest to the site that monitors temperature is the Paso Robles

Table 4.5.A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		Federal Standards ²			
		Concentration ³	Method ⁴	Primary ^{2,5}	Secondary ^{2,6}	Method ⁷	
Ozone (O ₃)	1-Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry	
	8-Hour	0.07 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)			
Respirable Particulate Matter (PM ₁₀)	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³		–			
Fine Particulate Matter (PM _{2.5})	24-Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³			
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Nondispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Nondispersive Infrared Photometry (NDIR)	
	1-Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)			
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		–			
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence	
	1-Hour	0.18 ppm (339 µg/m ³)		–			
Lead ⁸	30 days average	1.5 µg/m ³	Atomic Absorption	–	Same as Primary Standard	High-Volume Sampler and Atomic Absorption	
	Calendar Quarter	–		1.5 µg/m ³			
	Rolling 3-Month Average ⁹	=		0.15 µg/m			
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	–	Spectrophotometry (Pararosaniline Method)	
	24-Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)			
	3-Hour	–		–			0.5 ppm (1300 µg/m ³)
	1-Hour	0.25 ppm (655 µg/m ³)		–			–
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards			
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography				
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride ⁸	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography				

Source: LSA Associates, Inc., [July 2009](#).

Footnotes can be found on next page.

Footnotes:

- ¹ California standards for O₃, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, suspended particulate matter (PM₁₀, PM_{2.5}), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- ² National standards (other than O₃, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth-highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.
- ³ Concentration is expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25EC and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25EC and a reference pressure of 760 torr; parts per million (ppm) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ⁴ Any equivalent procedure that can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- ⁵ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ⁶ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ⁷ Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
- ⁸ The ARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ⁹ [National lead standard, rolling 3-month average: final rule signed October 15, 2008.](#)

Table 4.5.B: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutants	Sources	Primary Effects
Ozone (O ₃)	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory and cardiovascular diseases. Irritation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Nitrogen Dioxide (NO ₂)	Motor vehicle exhaust. High temperature stationary combustion. Atmospheric reactions.	Aggravation of respiratory illness. Reduced visibility. Reduced plant growth. Formation of acid rain.
Carbon Monoxide (CO)	Byproducts from incomplete combustion of fuels and other carbon containing substances, such as motor exhaust. Natural events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart diseases (angina).
Suspended Particulate Matter (PM _{2.5} and PM ₁₀)	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions. <u>Combustion of diesel fuel</u>	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility. <u>Cancer, cardiac, respiratory effects, and their related economic and productivity impacts.</u>
Sulfur Dioxide (SO ₂)	Combustion of sulfur-containing fossil fuels. Smelting of sulfur-bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, leather, finishes, coatings, etc.
Lead	Contaminated soil (e.g., from leaded fuels and lead-based paints).	Impairment of blood function and nerve construction. Behavioral and hearing problems in children.

Source: LSA Associates, Inc., [July 2009](#).

Station.¹ The annual average maximum temperature recorded at this station is 76.7°F, and the annual average minimum is 41.5°F. July is typically the hottest month, and December is typically the coldest month in this area of the SCCAB.

Regional meteorology is largely dominated by a persistent high pressure area that commonly resides over the eastern Pacific Ocean. Seasonal variations in the strength and position of this pressure cell cause seasonal changes in the weather patterns of the area. The Pacific High remains generally fixed several hundred miles offshore from May through September, enhancing onshore winds and opposing offshore winds. During spring and early summer, as onshore breezes pass over the cool water of the ocean, fog and low clouds often form in the marine air layer along the coast. Surface heating in the interior valleys dissipates the marine layer as it moves inland.

From November through April, the Pacific High tends to migrate south, allowing northern storms to move across the County. Approximately 90 percent of the total annual rainfall is received during this period. Winter conditions are usually mild, with intermittent periods of precipitation followed by mostly clear days. Rainfall amounts can vary considerably around the County. In the coastal plain, annual rainfall varies from 16 to 28 inches, while the Upper Salinas River Valley generally receives 12 to 20 inches. The Carrizo Plain is the driest area of the County, with less than 12 inches of rain in a typical year. The climatological station closest to the site that monitors precipitation is the Paso Robles Station. Average rainfall measured at this station varied from 3.15 inches in February to 0.55 inch or less between May and October, with an average annual total of 14.81 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

Airflow around the County plays an important role in the movement and dispersion of pollutants. The speed and direction of local winds are controlled by the location and strength of the Pacific high-pressure system and other global patterns, by topographical factors, and by circulation patterns resulting from temperature differences between the land and sea. In spring and summer, when the Pacific High attains its greatest strength, onshore winds from the northwest generally prevail during the day. At night, as the sea breeze dies, weak drainage winds flow down the coastal mountains and valleys to form a light, easterly land breeze.

In the fall, onshore surface winds decline and the marine layer grows shallow, allowing an occasional reversal to a weak offshore flow. This, along with the diurnal alternation of land-sea breeze circulation, can sometimes produce a “sloshing” effect. Under these conditions, pollutants may accumulate over the ocean for a period of one or more days and are subsequently carried back onshore with the return of the sea breeze. Strong inversions can form at this time, trapping pollutants near the surface.

This effect is intensified when the Pacific High weakens or moves inland. This may produce a “Santa Ana” condition in which air, often pollutant-laden, is transported into the County from the east and southeast. This can occur over a period of several days until the high pressure system returns to its normal location, breaking the pattern. The breakup of a Santa Ana condition may result in relatively stagnant conditions and a buildup of pollutants offshore. The onset of the typical daytime sea breeze can bring these pollutants back onshore, where they combine with

¹ Western Regional Climatic Center. 2008. <http://www.wrcc.dri.edu> (accessed January 11, 2008).

local emissions to cause high pollutant concentrations. Not all occurrences of the post-Santa Ana condition lead to high ambient pollutant levels, but it does play an important role in the air pollution meteorology of the County.

Global Warming. Global warming is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. The Earth's average near-surface atmospheric temperature rose 0.6 ± 0.2 °Celsius (1.1 ± 0.4 °F) in the 20th century. The prevailing scientific opinion on climate change is that most of the warming observed over the last 50 years is attributable to human activities.¹ The increased amounts of carbon dioxide (CO₂) and other greenhouse gases (GHGs) are the primary causes of the human-induced component of warming. They are released by the burning of fossil fuels, land clearing, agriculture, etc., and lead to an increase in the greenhouse effect.

GHGs are present in the atmosphere naturally, released by natural sources, or formed from secondary reactions taking place in the atmosphere. They include CO₂, methane, NO₂, and O₃. In approximately the last 200 years, humankind has been releasing substantial quantities of GHGs into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere, enhancing the natural greenhouse effect, which is believed to be causing global warming. While manmade GHGs include CO₂, methane, and NO₂, some gases, like chlorofluorocarbons (CFCs), are relatively new to the atmosphere.

Natural sources of CO₂ include the respiration (breathing) of animals and plants and evaporation from the oceans. Together, these natural sources release approximately 150 billion tons of CO₂ each year, far outweighing the 7 billion tons of manmade emissions from fossil fuel burning, waste incineration, deforestation, and cement manufacture. Nevertheless, natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of manmade CO₂, and, consequently, the gas is building up in the atmosphere.

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Manmade sources include the mining and burning of fossil fuels; digestive processes in ruminant animals such as cattle; rice paddies; and the burying of waste in landfills. Total annual emissions of methane are approximately 500 million tons, with manmade emissions accounting for the majority. As with CO₂, the major removal process of atmospheric methane—chemical breakdown in the atmosphere—cannot keep pace with source emissions, and methane concentrations in the atmosphere are increasing.

Air Pollution Constituents and Attainment Status. The following describes the criteria air pollutants and their attainment status in the SCCAB based on the California Air Resources Board's (ARB) Area Designations, Activities, and Maps (ARB 2008). Table 4.5.C summarizes the attainment status in [San Luis Obispo County](#) for the major criteria pollutants.

¹. Intergovernmental Panel on Climate Change (IPCC), Climate Change 2001: The Scientific Basis, http://www.grida.no/climate/ipcc_tar/wg1/index.htm.

Table 4.5.C: Attainment Status of Criteria Pollutants in San Luis Obispo County

Pollutant	State	Federal
O ₃ -1 hour	Nonattainment	Standard Revoked June 2005
O ₃ -8 hour	<u>Nonattainment</u>	<u>Pending nonattainment</u>
PM ₁₀	Nonattainment	Attainment
PM _{2.5}	Attainment	Attainment
CO	Attainment	Attainment
NO ₂	Attainment	Attainment
SO ₂	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Source: LSA Associates, Inc., July 2009.

Ozone. O₃ (smog) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases rather than being directly emitted. O₃ is a pungent, colorless gas typical of Southern California smog. Elevated O₃ concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children. O₃ levels peak during summer and early fall. The entire County is designated as a nonattainment area for the State one-hour and eight-hour O₃ standards. Effective June 15, 2005, the EPA revoked, in full, the federal one-hour O₃ ambient air quality standard, including associated designations and classifications. The EPA has officially designated the status for the County regarding the federal eight-hour O₃ standard as attainment; however, an attainment status change to nonattainment is currently pending.

Carbon Monoxide. CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. The entire County is designated as an attainment area for the federal and State CO standards.

Nitrogen Oxides. NO₂, a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NO_x. NO_x is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). NO₂ decreases lung function and may reduce resistance to infection. The entire County is designated as an attainment area for the federal and State standards.

Sulfur Dioxide. SO₂ is a colorless irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO₂ levels. SO₂ irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces

visibility and the level of sunlight. The entire County is in attainment with both federal and State SO₂ standards.

Lead. Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the blood stream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. The entire County is in attainment for the federal and State standards for lead.

Particulate Matter. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (PM₁₀) derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle (PM_{2.5}) levels. PM_{2.5} can also be formed in the atmosphere through chemical reactions. PM₁₀ can accumulate in the respiratory system and aggravate health problems such as asthma. The EPA's scientific review concluded that PM_{2.5}, which penetrates deeply into the lungs, is more likely than PM₁₀ to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM₁₀ standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The entire County is a nonattainment area for the State PM₁₀ standard. The EPA has designated the County as an attainment area for PM₁₀ and PM_{2.5}.

Reactive Organic Gases. Reactive organic gases (ROGs) are formed from the combustion of fuels and evaporation of organic solvents. ROGs are not defined criteria pollutants but are a prime component of the photochemical smog reaction. Consequently, ROGs accumulate in the atmosphere more quickly during the winter, when sunlight is limited and photochemical reactions are slower. ROGs are also referred to as volatile organic compounds (VOCs).

Local Air Quality. The APCD, together with the ARB, maintain ambient air quality monitoring stations in the SCCAB. The air quality monitoring station closest to the site is the Paso Robles station, and its air quality trends are representative of the ambient air quality in the project area. The pollutants monitored are O₃ and PM₁₀.¹ San Luis Obispo is the closest station that monitors CO. The Atascadero Station is the closest station that monitors PM_{2.5} and NO₂, and the Nipomo Station is the closest station that monitors SO₂.

¹ Air quality data, 2004, 2005, 2006; ARB Web site.

The ambient air quality data in Table 4.5.D shows that CO, NO₂, PM_{2.5}, and SO₂ levels are below the relevant State and federal standards. O₃ exceeded the State one-hour standard once within the past three years (in 2005), the State eight-hour standard between 3 and 7 times per year, and exceeded the federal eight-hour standard twice in 2005. The 24-hour PM₁₀ levels exceeded the State standard twice in 2006.

4.5.2 Regulatory Setting

Federal Policies and Regulations. Pursuant to the federal Clean Air Act (CAA) of 1970, the EPA established national ambient air quality standards (NAAQS). The NAAQS were established for six major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

Data collected at permanent monitoring stations are used by the EPA to classify regions as “attainment” or “nonattainment,” depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA.

The EPA has designated the San Luis Obispo Council of Governments (SLOCOG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA within San Luis Obispo County.

The EPA established new NAAQS for ground-level O₃ and PM_{2.5} in 1997. On May 14, 1999, the Court of Appeals for the District of Columbia Circuit issued a decision ruling that the CAA, as applied in setting the new public health standards for O₃ and particulate matter, was unconstitutional as an improper delegation of legislative authority to the EPA. On February 27, 2001, the U.S. Supreme Court upheld the way the government sets air quality standards under the CAA. The court unanimously rejected industry arguments that the EPA must consider financial cost as well as health benefits in writing standards. The justices also rejected arguments that the EPA took too much lawmaking power from Congress when it set tougher standards for O₃ and soot in 1997. Nevertheless, the court threw out the EPA’s policy for implementing new O₃ rules, saying that the agency ignored a section of the law that restricts its authority to enforce such rules.

In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the eight-hour ground-level O₃ standard. The EPA issued the proposed rule implementing the eight-hour O₃ standard in April 2003. The EPA completed final eight-hour nonattainment status on April 15, 2004. The EPA revoked the one-hour O₃ standard on June 15, 2005. Subsequently, the EPA redefined the eight-hour O₃ standard to 0.057, and the ARB recently issued a staff report recommending the County be designated in nonattainment with the federal standard. ARB’s recommendations will be submitted to the EPA in March 2009, and EPA will publish their final designations by March 2010.

The EPA issued the final PM_{2.5} implementation rule in fall 2004 and made final designations on December 15, 2004. The EPA lowered the 24-hour PM_{2.5} standard from 65 to 35 µg/m³ and revoked the annual average PM₁₀ standard in December 2006.

Table 4.5.D: Ambient Air Quality at the Local Air Monitoring Stations

Pollutant	Standard	2004	2005	2006
Carbon Monoxide¹				
Max 1-hr concentration (ppm)		2.6	2.6	1.1
No. days exceeded: State	> 20 ppm/1-hr	0	0	0
Federal	> 35 ppm/1-hr	0	0	0
Max 8-hr concentration (ppm)		1.5	1.3	0.8
No. days exceeded: State	9.0 ppm/8-hr	0	0	0
Federal	9 ppm/8-hr	0	0	0
Ozone²				
Max 1-hr concentration (ppm)		0.080	0.099	0.088
No. days exceeded: State	> 0.09 ppm/1-hr	0	1	0
Max 8-hr concentration (ppm)		0.075	0.085	0.074
No. days exceeded: State	> 0.07 ppm/8-hr	0	2	0
Federal	> 0.075 ppm/8-hr	3	4	7
Particulates (PM₁₀)²				
Max 24-hr concentration (µg/m ³)		43	47	62
No. days exceeded: State	> 50 µg/m ³ /24-hr	0	0	2
Annual Arithmetic Average (µg/m ³)		20	19	19
Exceeded: State	> 20 µg/m ³ ann. arth. avg.	No	No	No
Federal	> 50 µg/m ³ ann. arth. avg.	No	No	No
Particulates (PM_{2.5})³				
Max 24-hr concentration (µg/m ³)		30.7	29.2	25.4
No. days exceeded: Federal	> 65 µg/m ³ /24-hr	0	0	0
Annual Arithmetic Average (µg/m ³)		8.3	7.3	8.3
Exceeded: State	> 12 µg/m ³ ann. arth. avg.	No	No	No
Federal	> 15 µg/m ³ ann. arth. avg.	No	No	No
Nitrogen Dioxide³				
Max 1-hr concentration (ppm)		0.051	0.052	0.056
No. days exceeded: State	> 0.25 ppm/1-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.008	0.007	0.009
Exceeded: Federal	> 0.053 ppm ann. arth. avg.	No	No	No
Sulfur Dioxide⁴				
Max 24-hr concentration (ppm)		0.035	0.007	0.026
No. days exceeded: State	> 0.04 ppm/24-hr	0	0	0
Federal	> 0.14 ppm/24-hr	0	0	0
Annual arithmetic average concentration (ppm)		0.004	0.001	0.002
Exceeded: Federal	> 0.030 ppm ann. arth. avg.	No	No	No

Source: LSA Associates, Inc., July 2009.

¹ Monitored at the San Luis Obispo Monitoring Station.

² Monitored at the Paso Robles Monitoring Station.

³ Monitored at the Atascadero Monitoring Station.

⁴ Monitored at the Nipomo Monitoring Station.

ppm = parts per million

µg/m³ = microgram of pollutant per cubic meter of air

State Policies and Regulations. The State of California began to set California ambient air quality standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are also listed in Table 4.5.A. Originally, there were no attainment deadlines for CAAQS. However, the California Clean Air Act (CCAA) of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the State to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all.

The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented.

Climate Change. In 1967, California's Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus, the Bureau of Air Sanitation, and the Motor Vehicle Pollution Control Board to establish the ARB. Since its formation, the ARB has worked with the public, the business sector, and local governments to find solutions to California's air pollution problem. The resulting CAAQS set by the ARB continue to outpace the rest of the nation and have prompted the development of new antismog technology for industrial facilities and motor vehicles.

California's major initiatives for reducing GHG emissions are outlined in Assembly Bill 32 (AB 32), the "Global Warming Solutions Act," passed by the California State legislature on August 31, 2006; a 2005 Executive Order; and a 2004 ARB regulation to reduce passenger car GHG emissions. These efforts aim at reducing GHG emissions to 1990 levels by 2020, a reduction of approximately 25 percent, and then an 80 percent reduction below 1990 levels by 2050. The main strategies for making these reductions are outlined in the Scoping Plan, which when completed will include a range of GHG reduction actions that can include direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. On January 18, 2007, California further solidified its dedication to reducing GHGs by setting a new Low Carbon Fuel Standard for transportation fuels sold within the State. Executive Order S-1-07 sets a declining standard for GHG emissions measured in CO₂ equivalent gram per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020.

Pursuant to the requirements of AB 32, the State's reduction in global warming emissions will be accomplished through an enforceable statewide cap on global warming emissions that will be phased in starting in 2012. The Act required ARB to identify a list of "discrete early action

greenhouse gas reduction measures” by June 30, 2007 (Health and Safety Code Section 38560(a)). Once on the list, these measures are to be developed into regulatory proposals, adopted by the Board, and made enforceable by January 1, 2010. Additional early action items include a comprehensive framework of regulatory and nonregulatory elements that will result in significant and effective GHG emission reductions. ARB must prepare a plan demonstrating how the 2020 deadline can be met by January 1, 2009, or earlier. However, as immediate progress in reducing GHGs can and should be made, AB 32 directed ARB and the newly created Climate Action Team (CAT) to identify a list of “discrete early action GHG reduction measures” that can be adopted and made enforceable by January 1, 2010. CAT is a consortium of representatives from State agencies who have been charged with coordinating and implementing GHG emission reduction programs that fall outside of ARB’s jurisdiction.

To address GHG emissions and global climate change in General Plans and California Environmental Quality Act (CEQA) documents, Senate Bill 97 (Chapter 185, 2007) requires the Governor’s Office of Planning and Research (OPR) to develop CEQA guidelines on how to address global warming emissions and mitigate project-specific GHGs. OPR is required to prepare, develop, and transmit these guidelines on or before July 1, 2009. Until such a plan has been adopted, direction for evaluation of and potential mitigation for individual project impacts to global warming is not available.

Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002 in response to the transportation sector accounting for more than half of California’s CO₂ emissions. AB 1493 requires ARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined to be vehicles whose primary use is noncommercial personal transportation in the State manufactured in 2009 and all subsequent model years. In setting these standards, the ARB considered cost effectiveness, technological feasibility, and economic impacts. The ARB adopted the standards in September 2004. When fully phased in, the near-term (2009 to 2012) standards would result in a reduction of approximately 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the midterm (2013 to 2016) standards would result in a reduction of approximately 30 percent. Some currently used technologies that achieve GHG reductions include small engines with superchargers, continuously variable transmissions, and hybrid electric drive. To set its own GHG emissions limits on motor vehicles, California must receive a waiver from the EPA. The EPA denied the waiver in December 2007. In January 2008, the California Attorney General filed a petition for review of the EPA’s decision in the Ninth Circuit Court of Appeals, although no decision on that petition has been made. Thus, California cannot enforce AB 1493 at this time.

Regional and Local Policies and Regulations. The 1976 Lewis Air Quality Management Act established the APCD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the State.

The ARB coordinates and oversees both State and federal air pollution control programs in California. The ARB oversees activities of local air quality management agencies and is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. The ARB maintains air quality monitoring stations throughout the State in

conjunction with local air districts. Data collected at these stations are used by the ARB to classify air basins as “attainment” or “nonattainment” with respect to each pollutant and to monitor progress in attaining air quality standards. The ARB has divided the State into 15 air basins. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

The CCAA provides the APCD with the authority to manage transportation activities at indirect sources and regulate stationary source emissions. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution. An example of this would be the motor vehicles at an intersection, at a mall, and on highways. As a State agency, the ARB regulates motor vehicles and fuels for their emissions.

Regional Air Quality Management Plan. The APCD and the SLOCOG are responsible for formulating and implementing the Clean Air Plan (CAP) for the SCCAB. The 2001 CAP, adopted by the APCD at its hearing on March 26, 2002, addresses State requirements by updating the 1991 CAP. The 1991 CAP, which was adopted by the APCD in 1992, contained a comprehensive set of control measures designed to reduce ozone precursor emissions from a wide variety of stationary and mobile sources. The 1995 CAP was an extensive update of the 1991 CAP, but with fewer control strategies recommended for adoption because of changes in State law. The 2001 CAP, similar to the 1998 CAP, is mainly a continuation of the 1995 CAP and proposes no new control measures.

Slowing the rate of growth in the use of private vehicles is a major goal of the CAP. Substantial reductions in these trips cannot be achieved, however, without adequate transportation alternatives. Implementation of adopted transportation control measures is ongoing and will continue to provide mobile source emission reductions necessary to achieve State air control standards. The traffic control measure focuses on traffic flow improvements and traffic calming. Traffic calming refers to a full range of methods designed to improve the flow of nonmotorized transportation by slowing motorized traffic. Traffic calming is generally used in residential areas on nonarterial local streets and roads.

The goal of the traffic control measure is to improve the road system and infrastructure in a way that increases its efficiency, reduces emissions, and supports the other transportation control measures in the plan. Traffic flow improvements help keep traffic moving smoothly during peak hours when the road system is near its capacity, such as during commute periods or on holidays. Peak-hour traffic management should also increase pedestrian and bicyclist safety.

4.5.3 Methodology

A number of modeling tools are available to assess air quality impacts of projects. In addition, certain air districts such as the APCD have created their own guidelines and requirements to conduct air quality analyses. APCD’s current guidelines, *CEQA Air Quality Handbook* (APCD, April 2003), were adhered to in the assessment of air quality impacts for the proposed project. The air quality models identified in the CEQA Handbook are outdated; therefore, the URBEMIS 2007 model was used to estimate project-related mobile and stationary sources emissions in the Air Quality Impact Analysis prepared for this project (Appendices E and P of this EIR).

The Air Quality Impact Analysis includes estimated emissions associated with short-term construction and long-term operation of the proposed project. A local CO hot spot analysis was conducted using the ARB-approved CALINE4 air quality dispersion model, which allows microscale CO concentrations to be estimated along roadway corridors or near intersections. Project-specific information was used in the modeling. Default values representative of the proposed project were used when project-specific data were not available. This model is designed to identify localized concentrations of CO, often termed “hot spots.” A brief discussion of input to the CALINE4 model follows. The analysis was performed for the worst-case wind angle and wind speed condition and is based on the following assumptions:

- Selected modeling locations represent the intersections closest to the project site, with the highest project-related vehicle-turning movements and the worst level of service deterioration.
- Twenty receptor locations with the possibility of extended outdoor exposure from 8 to 14 meters (m) (approximately 26 to 46 ft) of the roadway centerline near intersections were modeled to determine CO concentrations.
- The calculations assume a meteorological condition of almost no wind (0.5 m/second), a suburban topographical condition between the source and receptor, and a mixing height of 1,000 m, representing a worst-case scenario for CO concentrations.
- CO concentrations are calculated for the one-hour averaging period and then compared to the one-hour standards. CO eight-hour averages were calculated using a persistence factor of 0.7 and compared to the eight-hour standards.
- Concentrations are given in parts per million (ppm) at each of the receptor locations.
- The “at-grade” link option with speed adjusted based on average cruise speed and number of vehicles per lane per hour was used rather than the “intersection” link selection in the CALINE4 model (Caltrans has suggested that the “intersection” link should not be used due to an inappropriate algorithm based on outdated vehicle distribution). Emission factors from the EMFAC2007 model for all vehicles, based on the adjusted speed for 2008, 2017, and 2030, were used for the vehicle fleet.
- The highest CO concentrations would occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis. Based on the Traffic Impact Analysis prepared for the proposed project EIR (LSA, January 2008), the long-term regional analysis above and CO hot spot analyses were conducted for existing, build-out year (2017), and general plan (2030) conditions. The 2017 and 2030 CO hot spot analyses include the cumulative project vehicle trips.

The highest level of the second-highest one-hour and eight-hour CO concentrations monitored at the San Luis Obispo Station in the past three years were used as background concentrations (2.3 ppm for the one-hour CO and 1.5 ppm for the eight-hour CO). The “background” concentrations are then added to the model results for the future with and without the proposed project conditions.

The net increase in pollutant emissions determine the significance and impact on regional air quality as a result of the proposed project. The results also allow the local government to determine whether

the proposed project would inhibit regional progress in the reduction of pollutants in accordance with the CAP in order to comply with NAAQS and CAAQS.

4.5.4 Impact Significance Criteria

Based on Guidelines for the Implementation of California Environmental Quality Act, Appendix G, Public Resource Code Sections 15000–15387, a project would normally be considered to have a significant effect on air quality if the project would:

- | | |
|------------------------|---|
| Threshold 4.5.1 | Conflict with or obstruct implementation of the APCD’s adopted Clean Air Plan |
| Threshold 4.5.2 | Violate any air quality standard or contribute substantially to an existing air quality violation |
| Threshold 4.5.3 | 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 which exceed quantitative thresholds for ozone precursors) |
| Threshold 4.5.4 | Expose sensitive receptors to substantial pollutant concentrations |
| Threshold 4.5.5 | Create objectionable odors affecting a substantial number of people |

APCD Significance Criteria. Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the APCD’s CEQA Air Quality Handbook. The APCD has established the following four separate categories of evaluation for determining the significance of project impacts:

1. Comparison of calculated project emissions to APCD emission thresholds
2. Consistency with the most recent CAP for the County
3. Comparison of predicted ambient pollutant concentrations resulting from the project to State and federal health standards, when applicable
4. The evaluation of special conditions that apply to certain projects

Full disclosure of the potential air pollutant and/or toxic air emissions from a project is needed for these evaluations, as required by CEQA.

Thresholds for Construction Emissions. Mitigation of construction activities is required when the emissions thresholds shown in Table 4.5.E are equaled or exceeded by both fugitive and combustion emissions.

Table 4.5.E: Level of Construction Activity Requiring Mitigation

Pollutant of Concern	Thresholds ¹		Mitigation Measures
	Tons/Qtr	Lbs/Day	
<u>Ozone Precursors (ROG+NO_x)</u>	2.5	185	Requires CBACT ²
	6.0		Requires CBACT plus further mitigation, including emission offsets
PM ₁₀	2.5		Any project with a grading area greater than 4.0 acres of continuously worked area will exceed the 2.5-ton PM ₁₀ quarterly threshold. Combustion emissions should also be calculated based on the amount of cut and fill expected.

Source: LSA Associates, Inc., [July 2009](#).

¹ Thresholds were approximated using the screening level emission rates from the APCD CEQA Handbook, Table 6-2. Daily emission thresholds are based upon the level of daily emissions that may result in a short-term exceedance of the ozone standard.

² CBACT = Best Available Control Technology for Construction equipment.

Lbs = pounds ___Qtr = quarter

The APCD retains the discretion to require mitigation for projects that would not exceed the mitigation thresholds if those projects would result in special circumstances, such as the release of diesel particulate matter emissions near sensitive receptors.

Projects in the SCCAB with construction-related emissions that exceed any of the emissions thresholds (daily or quarterly) above are considered significant by the APCD. For purposes of this analysis, a PM₁₀ threshold of 75 pounds per day (lbs/day) has been calculated using three months per quarter and 22 days per month.

Thresholds for Operational Emissions. The threshold criteria established by the APCD to determine the significance and appropriate mitigation level for long-term emissions from a project are shown in Table 4.5.F. Emissions that equal or exceed the designated threshold levels are considered potentially significant and require mitigation. As shown in the table, the level of analysis and mitigation recommended follow a tiered approach based on the overall emissions generated by the project.

Table 4.5.F: Thresholds of Significance for Operational Emissions Impacts

Pollutant		Tier 1	Tier 2	Tier 3
<u>Ozone Precursors (ROG+NO_x)</u>	< 10 lbs/day	10 lbs/day	25 lbs/day	25 tons/year
<u>SO₂ or PM₁₀</u>	<u>< 10 lbs/day</u>	<u>10 lbs/day</u>	<u>25 lbs/day</u>	<u>25 tons/year</u>
CO	< 550 lbs/day		550 lbs/day	
Significance	Less than significant	Potentially Significant Impacts	Significant Impacts	Significant Impacts

Source: LSA Associates, Inc., [July 2009](#).

lbs = pounds

Less than 10 lbs/day of ROG+NO_x, SO₂, PM₁₀ or less than 550 lbs/day of CO. There are no significant air quality impacts associated with a project. Thus, mitigation measures are not required; any development strategies described in the CEQA Handbook that are integrated into the project would be considered a project benefit.

Tier 1: 10–24 lbs/day of ROG+NO_x, SO₂, PM₁₀. Any project that has the potential to exceed the Tier 1 threshold has the potential to cause significant air quality impacts and should be submitted to the APCD for review. On-site mitigation measures, following the guidelines in the CEQA Handbook, are recommended to reduce air quality impacts to a level of insignificance.

Tier 2: Greater than or equal to 25 lbs/day or more of ROG+NO_x, SO₂, PM₁₀ or greater than or equal to 550 lbs/day of CO. If all feasible mitigation measures are incorporated into the project and emissions are still greater than the Tier 2 threshold, additional mitigation measures, including off-site mitigation, may be required depending on the level and scope of air quality impacts identified in the EIR.

For CO, emission levels equal to or exceeding 550 lbs/day should be modeled to determine their significance.

Tier 3: 25 tons/year or more of emissions. If emissions from a project will exceed the Tier 3 threshold, mitigation measures, including off-site mitigation measures, may be required to reduce the overall air quality impacts of the project to a level of insignificance.

Clear Air Plan Consistency. A CAP describes air pollution control strategies to be taken by counties or regions classified as nonattainment areas. The CAP's main purpose is to bring the area into compliance with the NAAQS and CAAQS requirements. The CAP uses the assumptions and projections of local planning agencies to determine control strategies for regional compliance status. Therefore, any projects causing a significant impact on air quality would impede the progress of the CAP. For a project in the SCCAB to be consistent with the CAP, the pollutants emitted from the project must not exceed the APCD significance threshold or cause a significant impact on air quality. If feasible, mitigation measures can be implemented to reduce the project's impact level from significant to less than significant under CEQA; then the project is considered to be consistent with the CAP.

A consistency analysis determination plays an essential role in local agency project review by linking local planning and unique individual projects to the CAP in the following two ways: (1) it fulfills the CEQA goal of fully informing local agency decision makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed, and (2) it provides the local agency with ongoing information, assuring local decision makers that they are making real contributions to clean air goals defined in the most current CAP (adopted in 1991 and updated in 1995, 1998, and 2001). Because the CAP is based on projections from local General Plans, projects consistent with the local General Plan are considered to be consistent with the CAP.

Global Warming. Global climate change may result in significant adverse effects to the environment that will be experienced worldwide, with some specific effects felt in California. Assembly Bill (AB) 32 requires statewide GHG emissions reductions to 1990 levels by 2020. Though these statewide reductions are now mandated by law, no generally applicable GHG emission threshold has yet been established, nor will guidance on global climate change analysis in CEQA documents be available until mid-2009. The Governor's Office of Planning and Research (OPR) will develop, and the California Resources Agency will certify and adopt amendments to the CEQA Guidelines on or before January 1, 2010, pursuant to Senate Bill 97.¹ OPR released a Technical Advisory on June 19, 2008, and the "Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions" on January 8, 2009. The documents state that:

Lead Agencies should make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO₂ and other GHG emissions from a project, including the emissions associated with construction vehicular traffic, energy consumption, water usage and construction activities.

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting." The State CEQA Guidelines further indicate that even when thresholds are established, they may include an "identifiable quantitative, qualitative or performance level of a particular environmental effect[.]" (State CEQA Guidelines, Section 15064.7)

Some suggest that a zero emissions threshold would be appropriate in a climate change analysis; however, most feel that this would stop all progress and interfere with the ability of the economy to function. Further, prior CEQA case law makes clear that the "one additional molecule" rule is not consistent with CEQA (*Communities for a Better Environment v. California Resources Agency*, 103 Cal. App. 4th 98 [2002]). Such a rule also appears inconsistent with the State's approach to mitigation of climate change impacts. AB 32 does not prohibit all new GHG emissions; rather, it requires a reduction in statewide emissions to a given level. Thus, AB 32 recognizes that GHG emissions will continue to occur. OPR's Technical Advisory states that:

The potential effects of a project may be individually limited but cumulatively considerable. Lead agencies should not dismiss a proposed project's direct and/or indirect climate change impacts without careful available information and analysis should be provided for any project that may significantly contribute new GHG emissions, either individually or cumulatively, directly or indirectly (e.g., transportation impacts).

The California Air Pollution Control Officers Association (CAPCOA) recently published a White Paper (January 2008) that explored several options for setting numeric, nonzero thresholds. The

¹ State of California, Governor's Office of Planning and Research, CEQA and Climate Change Technical Advisory, June 19, 2008.

White Paper acknowledges medium to high uncertainty as to each potential numeric threshold “due to the uncertainty associated with the effectiveness of AB 32 implementation overall, the new character of GHG reduction strategies on a project basis, the immaturity of GHG reduction technologies or infrastructure (such as widespread biodiesel availability), and the uncertainty of GHG reduction effectiveness of certain technologies (such as scientific debate concerning the relative lifecycle GHG emissions of certain biofuels, for example).” When applied to residential examples, the thresholds discussed would range from approximately 50 single-family dwelling units to 2,600 residential units as screening thresholds; commercial thresholds would rely on square footage. Application of those thresholds, however, may first require enactment of a specific CAP in a General Plan or other large-scale policy document. Based on the above, none of the potential numeric thresholds would be appropriate for application to this project. Thus, for the purposes of analyzing this project, and consistent with one of the CAPCOA’s identified approaches to climate change analysis, the potential climate change impacts will be analyzed without setting a specific threshold.

Climate change is a global environmental problem; therefore, this study addresses climate change as a cumulative impact. To the extent possible, this study assesses potential sources of GHG emissions from the project and quantifies those emissions.

Bearing in mind that CEQA does not require “perfection” but instead “adequacy, completeness, and a good faith effort at full disclosure,” the analysis below is based on methodologies and information available at the time the study was prepared. Additionally, as explained in greater detail below, many uncertainties exist regarding the precise relationship between specific levels of GHG emissions and the ultimate impact on global climate change. Thus, while information is presented below to assist the public and the County decision makers in understanding the project’s potential contribution to global climate change impacts, the information available to the County is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts.

Because no applicable numeric thresholds have yet been defined, and because the precise causal link between an individual project’s emissions and global climate change has not been developed, this study also identifies qualitative factors to determine whether this project’s emissions should be considered “cumulatively considerable.” Some of those qualitative factors compare the proposed project to potential “business as usual” conditions. Such comparison is appropriate in the case of this climate change analysis because the statewide GHG reduction strategy involves reducing future emissions compared to future emissions under a “business as usual” scenario. Until the County or other regulatory agency devises a generally applicable climate change threshold, the analysis used in this study may or may not be applicable to other County projects.

OPR’s Technical Advisory states that:

The lead agency must impose all mitigation measures that are necessary to reduce GHG emissions to a less than significant level. CEQA does not require mitigation measures that are infeasible for specific legal, economic, technological or other reasons. A lead agency is not responsible for wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is “less than significant.”

4.5.5 Project Impacts

Threshold 4.5.1 Conflict with or obstruct implementation of the APCD's adopted Clean Air Plan

As discussed in Section 4.5.4, Impact Significance Criteria, the CAP uses the assumptions and projections of local planning agencies to determine control strategies for regional compliance status. Therefore, any projects causing a significant impact on air quality would impede the progress of the CAP. For a project in the SCCAB to be consistent with the CAP, the pollutants emitted from the project must not exceed the APCD significance threshold or cause a significant impact on air quality. In addition, because the CAP is based on projections from local General Plans, projects consistent with the local General Plan are considered to be consistent with the CAP, and projects that are not consistent with the General Plan are considered to be inconsistent with the CAP.

The proposed San Miguel Ranch development is inconsistent with the APCD's CAP due to certain design features and air quality impacts discussed as follows:

1. As shown subsequently in Tables 4.5.H through 4.5.K, the long-term emissions that would be generated by the proposed project would exceed the APCD's thresholds for ozone precursors (ROG+NO_x) and PM₁₀.
2. Implementation of the proposed project would result in the following conflicts with the County General Plan:
 - The proposed project would require a General Plan Amendment, as the current Agricultural land use designation would be changed to various residential, commercial development, public facility, and open space uses.
 - The proposed project would potentially add 1,179 new unplanned residents.
 - The proposed project would increase the population by approximately 1,179 and would potentially provide an additional 63 jobs in the San Miguel Urban Area. Therefore, the planned land uses are not sufficiently mixed to allow for a balance between jobs and housing.

The proposed uses are not consistent with the General Plan's Salinas River Area Plan and, therefore, are inconsistent with the planning basis of the CAP for the project area.

3. The proposed project would conflict with the following policies listed in Appendix E, *Land Use and Circulation Management Strategies*, of the CAP:
 - a. *Cities and unincorporated communities should be developed at densities that reduce trips and travel distances and encourage the use of alternative forms of transportation.* The APCD encourages a minimum residential density of 7 dwelling units per gross acre. The proposed development would construct 389 residences on 550 acres of land for a ratio of 0.7 dwelling unit per gross acre. Therefore, the proposed development would fall below the population-to-area ratio of 7 dwelling units per gross acre needed for effective bus service. In addition, the proposed project is not a compact design or pedestrian friendly. As discussed in item 3c below, the proposed development does not have pedestrian linkages to the San Miguel Urban Area on the east side of US 101.

- b. *Urban growth should occur within the urban reserve lines of cities and unincorporated communities.* The proposed development would be built outside of San Miguel's Urban Reserve Line and Urban Services Line, which are predominantly on the east side of US 101. The Development project site would be separated from the San Miguel Urban Area by US 101.
 - c. *Local planning agencies should encourage walking and transit use by planning neighborhoods and commercial centers at densities to allow for convenient access to and use of local and regional transit systems.* The proposed development would be constructed on the west side of US 101, away from the existing San Miguel Urban Area. The proposed project does not include pedestrian components linking the development area to the San Miguel Urban Area and would result in longer commute trips and minimal use of transit.
4. The proposed project is not consistent with General Plan policies regarding alternative transportation (e.g., Air Quality Goal 5) or the County's Smart Growth principles that promote and encourage the use of transportation alternatives to the single-passenger vehicle and minimize travel distance and trip generation. The following design features would encourage long commutes by automobile:
- a. The Development project site is physically separated from the San Miguel community by US 101 and is therefore not close or connected to the existing bus stop operated by SLORTA at the intersection of Mission and 14th Street. (Refer to Section 4.12 of this EIR regarding public transportation facilities.)
 - b. The low density of the proposed residences limits the potential for an effective public transportation system.
 - c. The project site has a low ratio of jobs to residents.

Because the proposed project would exceed the APCD's emission thresholds, is inconsistent with the County of San Luis Obispo's General Plan, and would conflict with CAP policies, it is considered to be inconsistent with the CAP. Project-related impacts associated with APCD's CAP are significant, adverse, and unavoidable.

Project Impact Summary: Class I. The proposed project would result in exceedances of the APCD emission thresholds and is inconsistent with the County's General Plan and CAP policies pertaining to use of alternative transportation modes (e.g., transit), growth within established urban service and reserve lines, and pedestrian access to transit facilities. Therefore, the proposed project is inconsistent with the APCD's CAP. The proposed project would continue to exceed long-term APCD emissions thresholds. Project impacts related to long-term air emissions cannot be mitigated to below a level of significance.

Threshold 4.5.2 **Violate any air quality standard or contribute substantially to an existing air quality violation**

Threshold 4.5.3 **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 which exceed quantitative thresholds for ozone precursors)

Construction-Related Impacts.

Construction Equipment Exhaust Emissions. Construction activities produce combustion emissions from various sources, such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Although exhaust emissions during construction of the proposed project would vary daily as construction activity levels change, the use of construction equipment would result in localized exhaust emissions.

Currently, no specific details are available regarding the construction operation and schedule for the proposed project other than the four anticipated phases of construction between 2010 and 2017. Therefore, the following construction emission estimates, summarized in Table 4.5.G, were based on projects similar to the proposed project. The emissions listed in Table 4.5.G are estimated based on a peak grading period and apply to each of the four project phases.

Table 4.5.G: Daily Construction Equipment Exhaust Emissions

Number and Equipment Type	No. of Hours in Operation	Pollutants (lbs/day)					
		CO	NO _x + ROG	SO _x	PM ₁₀	PM _{2.5}	CO ₂
2 Tracked Loader	8	6.7	14.8	1.8	1.3	1.2	3,520
2 Tracked Tractor	8	9.9	26.2	3.7	1.6	1.5	3,520
2 Scraper	8	12.0	45.0	7.9	1.7	1.6	3,520
1 Roller	8	2.9	5.7	1.1	0.4	0.3	1,760
2 Motor Graders	8	8.6	23.1	4.4	1.1	1.0	3,520
2 Miscellaneous	8	8.5	23.2	3.6	1.0	0.9	3,520
Water Truck	8	0.1	0.2	0.0	0.0	0.0	19.8
15 Haul Trucks	50 mi/RT ¹	11.1	23.5	0.0	0.8	0.7	2,473.5
25 Construction Worker Trips	50 mi/RT ¹	8.6	1.5	0.0	0.1	0.1	847.5
Daily Total (lb)		68.4	163.3	22.6	12.5	8.3	22,700.8
APCD Daily Threshold		N/A	185	N/A	75	N/A	N/A
Exceed APCD Threshold?			NO		NO		
Quarterly Total (tons)		2.3	5.3	0.7	0.4	0.3	749.1
APCD Quarterly Threshold		N/A	2.5	N/A	2.5	N/A	N/A
Exceed APCD Threshold?			YES		NO		

Source: LSA Associates, Inc., July 2009.

¹ RT: Round-trip

lbs = pounds

mi = miles

N/A = not applicable

As stated above, the APCD has established emissions thresholds for construction activities associated with the proposed project. As shown in Table 4.5.G, when properly coordinated, construction equipment emissions would not exceed the daily thresholds for any of the criteria pollutants: NO_x+ROG, CO, SO_x, and PM₁₀. Construction operations would, however, occur daily for long periods of time. Based on 22 construction days per month and three months per quarter, the NO_x +ROG emissions would exceed the 2.5 tons per quarter threshold. To reduce construction emissions, the APCD has identified Best Available Control Technology for Construction equipment (CBACT) measures, such as installing diesel catalysts, reducing equipment idling, and frequent watering to reduce dust. Mitigation Measure 4.5.1 requires the development of a comprehensive Construction Activity Management Plan (Plan). The Plan would include the CBACT measures that the APCD has identified to reduce construction emissions. The Plan would also stipulate compliance with APCD rules and regulations on cutback and emulsified asphalt paving materials and the requirements of APCD Rule 403 to reduce fugitive dust emissions. Required CBACT measures are included in Section 4.5.8. In addition to the 2.5-ton per quarter threshold listed in Table 4.5.G, the APCD has established a 6-ton per quarter threshold. Projects that exceed the 6-ton per quarter threshold are required to implement emission offsets in addition to the CBACT measures. As the proposed project would not exceed the 6-ton per quarter threshold, no emission offsets would be required.

During construction, as much as up to 22,700 pounds (lbs)/day of CO₂ will be generated. This is much higher than the average daily emission rate, as it includes a maximum set of equipment that will not often all operate on one day, as well as representing a maximum day in terms of overall activity level.

Fugitive Dust. Fugitive dust (PM_{2.5} and PM₁₀) emissions are generally associated with land clearing, exposure, and cut-and-fill operations. Dust generated daily during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending on prevailing wind conditions. Fugitive dust would also be generated as construction equipment or trucks travel on unpaved areas of the construction site.

PM_{2.5} and PM₁₀ emissions from grading operations during a peak construction day are based on the localized significance threshold (LST) analysis techniques published by the South Coast Air Quality Management District (SCAQMD). Mitigation Measure 4.5.1 requires implementation of CBACT measures identified by the APCD and Rule 403 requirements for the reduction of fugitive dust emissions. With implementation of Mitigation Measure 4.5.1, construction fugitive dust emissions would be less than significant.

Long-Term Project-Related Impacts.

Stationary and Mobile Source Emissions. Implementation of the proposed project would include development of 345 single-family residences, 11 secondary dwellings, 44 multi-family residences, a maximum of 5,000 square feet (sf) of highway retail and 16,000 sf of neighborhood retail, 13.1 ac of park space, and expansion of the San Miguel Community Services District (CSD) Wastewater Treatment Plant. The proposed land uses would result in both stationary and

mobile sources of air pollution, which together constitute project-related operational emissions. The stationary source emissions from these land uses would come from the consumption of natural gas, emissions from landscaping, consumer products, and electricity. Mobile sources of air pollution are primarily the result of an increase in vehicle trips. Based on the Traffic Impact Analysis prepared for the proposed project EIR (LSA, July 2008), build out of the proposed project would generate 6,487 average daily trips.

Operational emissions from the proposed project are shown in Tables 4.5.H through 4.5.K for Phase 1 (2011), Phase 2 (2013), Phase 3 (2015), and Phase 4 build-out (2017) conditions. As shown in Tables 4.5.H through 4.5.K, the long-term operational emissions from the proposed project would exceed the Tier 2 daily emissions thresholds for ROG+NO_x, and PM₁₀. The proposed project emissions would also exceed the Tier 3 25 tons per year threshold for the combined ROG+ NO_x emissions. Therefore, the proposed project would be required to implement all of the standard mitigation measures, all of the feasible discretionary mitigation measures, and off-site mitigation measures identified in the APCD’s CEQA Handbook. Mitigation Measure 4.5.2 requires implementation of the standard mitigation measures, the feasible discretionary mitigation measures, and the off-site measures listed in Sections 5.7, 5.8, and 5.9 of the APCD’s CEQA Handbook. However, due to the cost of fully applying off-site mitigation, and the design of the project making some operational mitigations infeasible, the proposed project’s long-term impacts would remain significant after mitigation.

Global Warming. Annual operational emissions of CO₂, methane (CH₄), and N₂O (from both project-related vehicles and stationary sources) for the proposed project are shown in Table 4.5.L.

Table 4.5.H: Project Operational Emissions–Phase 1 (2011)

<u>Source</u>	<u>Pollutants, lbs/day</u>					
	<u>CO</u>	<u>ROG and NO_x</u>	<u>SO₂</u>	<u>PM₁₀</u>	<u>PM_{2.5}</u>	<u>CO₂</u>
<u>Proposed Project Emissions</u>						
<u>Stationary sources: summer</u>	<u>16</u>	<u>17</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3,271</u>
<u>Vehicular traffic: summer</u>	<u>734</u>	<u>148</u>	<u>1</u>	<u>106</u>	<u>20</u>	<u>51,627</u>
<u>Subtotal summer</u>	<u>750</u>	<u>165</u>	<u>1</u>	<u>106</u>	<u>20</u>	<u>54,898</u>
<u>Stationary sources: winter</u>	<u>117</u>	<u>31</u>	<u>0</u>	<u>19</u>	<u>18</u>	<u>7,674</u>
<u>Vehicular traffic: winter</u>	<u>845</u>	<u>185</u>	<u>1</u>	<u>106</u>	<u>20</u>	<u>48,745</u>
<u>Subtotal winter</u>	<u>962</u>	<u>216</u>	<u>1</u>	<u>125</u>	<u>38</u>	<u>56,419</u>
<u>APCD daily threshold</u>	<u>550</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Daily Threshold?</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>N/A</u>	<u>N/A</u>
<u>Annual Emissions (Tons)</u>	<u>148</u>	<u>33</u>	<u>0</u>	<u>20</u>	<u>4</u>	<u>9,975</u>
<u>APCD annual threshold</u>	<u>N/A</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Threshold?</u>	<u>N/A</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>N/A</u>	<u>N/A</u>

Source: LSA Associates, Inc., July 2009.
APCD = Air Pollution Control District
lbs/day = pounds per day
N/A = not applicable

Table 4.5.I: Project Operational Emissions–Phase 2 (2013)

<u>Source</u>	<u>Pollutants, lbs/day</u>					
	<u>CO</u>	<u>ROG and NO_x</u>	<u>SO₂</u>	<u>PM₁₀</u>	<u>PM_{2.5}</u>	<u>CO₂</u>
<u>Proposed Project Emissions</u>						
<u>Stationary sources: summer</u>	<u>18</u>	<u>20</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3,914</u>
<u>Vehicular traffic: summer</u>	<u>643</u>	<u>130</u>	<u>1</u>	<u>114</u>	<u>22</u>	<u>55,610</u>
<u>Subtotal summer</u>	<u>661</u>	<u>150</u>	<u>1</u>	<u>114</u>	<u>22</u>	<u>59,524</u>
<u>Stationary sources: winter</u>	<u>140</u>	<u>37</u>	<u>0</u>	<u>23</u>	<u>22</u>	<u>9,188</u>
<u>Vehicular traffic: winter</u>	<u>728</u>	<u>162</u>	<u>1</u>	<u>114</u>	<u>22</u>	<u>52,430</u>
<u>Subtotal winter</u>	<u>868</u>	<u>199</u>	<u>1</u>	<u>137</u>	<u>44</u>	<u>61,618</u>
<u>APCD daily threshold</u>	<u>550</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Daily Threshold?</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>N/A</u>	<u>N/A</u>
<u>Annual Emissions (Tons)</u>	<u>131</u>	<u>30</u>	<u>0</u>	<u>22</u>	<u>5</u>	<u>10,827</u>
<u>APCD annual threshold</u>	<u>N/A</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Threshold?</u>	<u>N/A</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>N/A</u>	<u>N/A</u>

Source: LSA Associates, Inc., July 2009.

APCD = Air Pollution Control District; lbs/day = pounds per day; N/A = not applicable

Table 4.5.J: Project Operational Emissions–Phase 3 (2015)

<u>Source</u>	<u>Pollutants, lbs/day</u>					
	<u>CO</u>	<u>ROG and NO_x</u>	<u>SO₂</u>	<u>PM₁₀</u>	<u>PM_{2.5}</u>	<u>CO₂</u>
<u>Proposed Project Emissions</u>						
<u>Stationary sources: summer</u>	<u>23</u>	<u>28</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5,457</u>
<u>Vehicular traffic: summer</u>	<u>653</u>	<u>132</u>	<u>1</u>	<u>135</u>	<u>25</u>	<u>65,650</u>
<u>Subtotal summer</u>	<u>676</u>	<u>160</u>	<u>1</u>	<u>135</u>	<u>25</u>	<u>71,107</u>
<u>Stationary sources: winter</u>	<u>194</u>	<u>51</u>	<u>0</u>	<u>31</u>	<u>30</u>	<u>12,821</u>
<u>Vehicular traffic: winter</u>	<u>737</u>	<u>162</u>	<u>1</u>	<u>135</u>	<u>25</u>	<u>61,852</u>
<u>Subtotal winter</u>	<u>931</u>	<u>214</u>	<u>1</u>	<u>166</u>	<u>55</u>	<u>74,673</u>
<u>APCD daily threshold</u>	<u>550</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Daily Threshold?</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>N/A</u>	<u>N/A</u>
<u>Annual Emissions (Tons)</u>	<u>136</u>	<u>32</u>	<u>0</u>	<u>26</u>	<u>6</u>	<u>12,964</u>
<u>APCD annual threshold</u>	<u>N/A</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Threshold?</u>	<u>N/A</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>N/A</u>	<u>N/A</u>

Source: LSA Associates, Inc., July 2009.

APCD = Air Pollution Control District; lbs/day = pounds per day; N/A = not applicable

Table 4.5.K: Project Operational Emissions–Phase 4 Build Out (2017)

<u>Source</u>	<u>Pollutants, lbs/day</u>					
	<u>CO</u>	<u>ROG and NO_x</u>	<u>SO₂</u>	<u>PM₁₀</u>	<u>PM_{2.5}</u>	<u>CO₂</u>
<u>Proposed Project Emissions</u>						
<u>Stationary sources: summer</u>	<u>26</u>	<u>32</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6,373</u>
<u>Vehicular traffic: summer</u>	<u>639</u>	<u>129</u>	<u>1</u>	<u>156</u>	<u>29</u>	<u>76,306</u>
<u>Subtotal summer</u>	<u>665</u>	<u>161</u>	<u>1</u>	<u>156</u>	<u>29</u>	<u>82,679</u>
<u>Stationary sources: winter</u>	<u>226</u>	<u>59</u>	<u>1</u>	<u>37</u>	<u>35</u>	<u>14,978</u>
<u>Vehicular traffic: winter</u>	<u>715</u>	<u>158</u>	<u>1</u>	<u>156</u>	<u>29</u>	<u>71,839</u>
<u>Subtotal winter</u>	<u>941</u>	<u>217</u>	<u>2</u>	<u>193</u>	<u>64</u>	<u>86,817</u>
<u>APCD daily threshold</u>	<u>550</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Daily Threshold?</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>N/A</u>	<u>N/A</u>
<u>Annual Emissions (Tons)</u>	<u>135</u>	<u>32</u>	<u>0</u>	<u>30</u>	<u>7</u>	<u>15,072</u>
<u>APCD annual threshold</u>	<u>N/A</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>N/A</u>	<u>N/A</u>
<u>Exceed Threshold?</u>	<u>N/A</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>N/A</u>	<u>N/A</u>

Source: LSA Associates, Inc., July 2009.

APCD = Air Pollution Control District; lbs/day = pounds per day; N/A = not applicable

Table 4.5.L: Long-Term Project Operational Emissions of CO₂

<u>Emission Source</u>	<u>CO₂ Emissions (tons per year)</u>	<u>CH₄ Emissions (tons per year)</u>	<u>N₂O Emissions (tons per year)</u>	<u>Total CO₂eq. (tons per year)</u>
Vehicles	<u>14,000</u>	<u>1.0</u>	<u>1.4</u>	<u>14,000</u>
Electricity production	1,000	0.011	0.0061	1,000
Natural gas combustion	1,800	0.035	0.033	1,800
Total	<u>17,000</u>	<u>1.0</u>	<u>1.4</u>	<u>17,000</u>

Source: LSA Associates, Inc., July 2009.

Global warming potentials (GWPs) are used to compare the abilities of different GHGs to trap heat in the atmosphere. GWPs are based on the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO₂, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO₂. The GWP provides a construct for converting emissions of various gases into a common measure, which allows climate analysts to aggregate the radiative impacts of various GHGs into a uniform measure denominated in carbon or CO₂ equivalents.

The generally accepted authority on GWPs is the Intergovernmental Panel on Climate Change (IPCC). In 2001, the IPCC updated its estimates of GWPs for key GHGs. Table 4.5.M lists the GWPs to calculate carbon dioxide equivalents (CO₂eq.) Table 4.5.N shows the CO₂, CH₄, and N₂O emissions recalculated as their CO₂eq. The first four lines of the table are all in units of tons per year. The fifth line lists the total project emissions of GHGs as CO₂eq. in units of teragrams

(one trillion [10^{12}] grams or one million metric tons [tonnes]) per year ([Tg/year]). This is the standard metric unit used worldwide.

Table 4.5.M: 100-Year GWP Estimates from the IPCC's Third (2001) Assessment Report

Gas	Atmospheric Lifetime (years)	2001 IPCC GWP
Carbon Dioxide (CO ₂)	50–200	1
Methane (CH ₄)	12 ± 3	23
Nitrous Oxide (N ₂ O)	120	296
HFC-23	264	12,000
HFC-125		3,400
HFC-134a	14.6	1,300
HFC-143a		4,300
HFC-152a	1.5	120
HFC-227ea		3,500
HFC-236fa		9,400
Perfluoromethane (CF ₄)	50,000	5,700
Perfluoroethane (C ₂ F ₆)	10,000	11,900
Sulfur Hexafluoride (SF ₆)	3,200	22,200

Source: LSA Associates, Inc., [July 2009](#).

Table 4.5.N: Long-Term Project Operational Emissions in Terms of CO₂eq.

Emission Source	Total CO ₂ eq. (tons per year)
Vehicles	<u>14,000</u>
Electricity Production	1,000
Natural Gas Combustion	1,800
Total (tons/year.)	<u>17,000</u>
Total (Tg/year.)	<u>0.016</u>
% of CA 2004 total CO₂eq. emissions	<u>0.0033%</u>

Source: LSA Associates, Inc., [July 2009](#).

CO₂eq = carbon dioxide equivalents

Tg/year = metric tons per year

Due to the many uncertainties of the effects of increased GHG concentrations, there are no federal, State, or local emissions thresholds established for GHGs. According to a white paper on GHG emissions and global climate change prepared by the Association of Environmental Professionals (AEP), total worldwide GHG emissions in 2004 were estimated to be 20,135 metric tons (Tg)

CO₂eq., excluding emissions/removals from land use, land use change, and forestry.¹ In 2004, GHG emissions in the United States were 7,074.4 Tg CO₂eq. California is a substantial contributor of GHG, as it is the second largest contributor in the United States and the 16th largest in the world. In 2004, California produced 494² Tg CO₂eq., which is approximately 7 percent of United States emissions. The major source of GHG in California is transportation, contributing 41 percent of the State's total GHG emissions. Electricity generation is the second largest source, contributing 22 percent of the State's GHG emissions. The last line of Table 4.5.N shows the percentage of the total emissions of GHG from the State of California in 2004 (the most recent data available).

The emissions from project-related vehicle exhaust comprise approximately 75 percent of the total project CO₂eq. emissions; however, they are controlled by the State and federal governments and are outside the control of this project. The remaining 25 percent of the project CO₂eq. emissions are primarily from building heating systems and increased regional power plant electricity generation due to the project's electrical demands. These are both within the control of the proposed project and would be minimized by compliance with State Title 24 regulations for building energy efficiency.

CO Hot Spot Analysis. Vehicular trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality effects would occur when emissions from vehicular traffic increase in a local area as a result of the proposed project. The primary mobile source pollutant of local concern is CO, which is a direct product of vehicle idling time and, thus, traffic flow conditions. CO transport is extremely limited; it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations proximate to a congested roadway or intersection may reach unhealthy levels, affecting local sensitive receptors (e.g., residents, school children, the elderly, hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. In areas with high ambient background CO concentration, modeling is recommended to determine a project's effect on local CO levels.

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate project vicinity are not available. Ambient CO levels monitored at the San Luis Obispo Station, the closest station with monitored CO data, showed a highest-recorded one-hour concentration of 2.6 ppm (State standard is 20 ppm) and a highest eight-hour concentration of 1.5 ppm (State standard is 9 ppm) during the past three years (see Table 4.5.D).

¹ Association of Environmental Professionals, Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents. Final-June 29, 2007.

² California's estimated gross GHG emissions without forestry or land use (emissions or sinks) as reported by the California Energy Commission on January 23, 2007 in Revisions to the 1990 to 2004 Greenhouse Gas Emissions Inventory Report, published in December 2006 (CEC-600-2006-013).

Table 4.5.O lists the CO concentrations for 10 intersections in the project vicinity under existing (2008)¹ conditions. Tables 4.5.P and 4.5.Q list the CO concentrations for the build-out year (2017) and General Plan (2030) conditions, respectively. It should be pointed out that, due to technology improvements, emission factors (for vehicle exhaust) for future years could possibly decrease. In addition, background concentrations in future years are anticipated to continue to decrease as the concerted effort to improve regional air quality progresses. Therefore, CO concentrations in the future years can be anticipated to be lower than existing conditions.

As shown in Tables 4.5.O, 4.5.P, and 4.5.Q, none of the 10 intersections analyzed would have a one-hour CO concentration exceeding the State standard of 20 ppm. The eight-hour CO concentration at these intersections would also be below the State standard of 9 ppm. Since no federal or State standards would be exceeded, no CO hot spot would occur. Therefore, no air pollution control measures are necessary or recommended for CO emissions, and no mitigation is required.

Project Impact Summary: Class I. The proposed project would exceed thresholds and therefore result in significant air quality impacts associated with short-term (construction) ROG+NO_x emissions, long-term (operational) Tier 2 daily emissions thresholds for ROG+NO_x, and PM_{10.2}, and long-term (operational) Tier 3 quarterly emissions thresholds for ROG+NO_x. Due to project location and design incompatibilities between the project and some operational mitigations, and uncertainty over the full application of an off-site mitigation program due to the cost, it cannot be said with certainty that all measures included in Mitigation Measure 4.5.2 can or will be applied to the proposed project. Even with implementation of the feasible components of Mitigation Measures 4.5.1 and 4.5.2, potential project impacts would remain significant and adverse. The proposed project would not generate CO hotspots, and no mitigation is required (Class III). The on-site GHG emissions would be minimized by the implementation of Mitigation Measure 4.5.3, which includes compliance with State Title 24 regulations for building energy efficiency.

Threshold 4.5.4: Expose sensitive receptors to substantial pollutant concentrations

Hazardous Emissions. According to a Phase I Environmental Site Assessment (ESA), the Development project site was used for agricultural farmland, such as vineyards, rangeland, and dry grain fields back to at least 1957. As part of the Phase I ESA, a database search of hazardous materials sites in the vicinity of the Project area was conducted. Table 4.9.A lists properties that have a history of hazardous materials use. Three sites were identified in the records search (Camp Roberts, an Exxon station, and the San Miguel Petrol Station). Based upon findings of studies conducted to date, none of the sites would be likely to expose future sensitive receptors on the Development project site to substantial pollutant concentrations, and no mitigation is required.

Construction and operation activities on the Development project site and the Wastewater Treatment Plant expansion site would involve the routine use, handling, storage, transport, and

¹ The existing traffic data is for 2007. However, the CO calculations were performed using the 2008 emission factors.

Table 4.5.O: Existing CO Concentrations¹

Intersection	Receptor Distance to Road Centerline (meters)	Project-Related Increase 1-hr/8-hr (ppm)	Without/With Project One-Hour CO Concentration (ppm)	Without/With Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards ²	
					1-Hr	8-Hr
US 101 SB Ramps and San Miguel Ave	8 / 8	0.5 / 0.4	2.3 / 2.8	1.5 / 1.9	No	No
	8 / 8	0.4 / 0.3	2.3 / 2.7	1.5 / 1.8	No	No
	8 / 8	0.4 / 0.3	2.3 / 2.7	1.5 / 1.8	No	No
	8 / 8	0.4 / 0.3	2.3 / 2.7	1.5 / 1.8	No	No
US 101 NB Ramps and San Miguel Ave	8 / 8	0.4 / 0.3	2.5 / 2.9	1.6 / 1.9	No	No
	8 / 8	0.4 / 0.3	2.4 / 2.8	1.6 / 1.9	No	No
	8 / 8	0.4 / 0.3	2.4 / 2.8	1.6 / 1.9	No	No
	7 / 7	0.3 / 0.2	2.4 / 2.7	1.6 / 1.8	No	No
US 101 SB Ramps and Tenth St	10 / 10	0.4 / 0.3	2.5 / 2.9	1.6 / 1.9	No	No
	10 / 10	0.4 / 0.3	2.5 / 2.9	1.6 / 1.9	No	No
	8 / 8	0.3 / 0.3	2.5 / 2.8	1.6 / 1.9	No	No
	8 / 8	0.3 / 0.3	2.5 / 2.8	1.6 / 1.9	No	No
US 101 NB Ramps and Tenth St	8 / 8	0.3 / 0.2	2.6 / 2.9	1.7 / 1.9	No	No
	8 / 8	0.3 / 0.2	2.6 / 2.9	1.7 / 1.9	No	No
	8 / 8	0.3 / 0.2	2.6 / 2.9	1.7 / 1.9	No	No
	8 / 8	0.2 / 0.2	2.6 / 2.8	1.7 / 1.9	No	No
Mission St and River Rd	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
	8 / 8	0.1 / 0.1	2.7 / 2.8	1.8 / 1.9	No	No
	8 / 8	0.1 / 0.1	2.7 / 2.8	1.8 / 1.9	No	No
	8 / 8	0.1 / 0.1	2.7 / 2.8	1.8 / 1.9	No	No
Mission St and Tenth St	8 / 8	0.0 / 0.0	3.0 / 3.0	2.0 / 2.0	No	No
	8 / 8	0.1 / 0.1	2.9 / 3.0	1.9 / 2.0	No	No
	8 / 8	0.1 / 0.1	2.9 / 3.0	1.9 / 2.0	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	1.9 / 1.9	No	No
Monterey Rd and Mission St	8 / 8	0.0 / 0.0	2.9 / 2.9	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	1.9 / 1.9	No	No
US 101 SB Ramps and 36th St	13 / 13	0.0 / 0.0	3.0 / 3.0	2.0 / 2.0	No	No
	13 / 13	0.0 / 0.0	3.0 / 3.0	2.0 / 2.0	No	No
	12 / 12	0.0 / 0.0	3.0 / 3.0	2.0 / 2.0	No	No
	12 / 12	0.1 / 0.1	2.9 / 3.0	1.9 / 2.0	No	No
US 101 SB Ramps and 24th St	14 / 14	0.1 / 0.1	4.5 / 4.6	3.0 / 3.1	No	No
	14 / 14	0.1 / 0.0	4.4 / 4.5	3.0 / 3.0	No	No
	14 / 14	0.0 / 0.0	4.3 / 4.3	2.9 / 2.9	No	No
	12 / 12	0.0 / 0.0	4.3 / 4.3	2.9 / 2.9	No	No
US 101 NB Ramps and 24th St	12 / 14	0.3 / 0.2	5.0 / 5.3	3.4 / 3.6	No	No
	10 / 12	0.3 / 0.2	4.9 / 5.2	3.3 / 3.5	No	No
	10 / 10	0.2 / 0.2	4.9 / 5.1	3.3 / 3.5	No	No
	10 / 10	0.1 / 0.1	4.7 / 4.8	3.2 / 3.3	No	No

Source: LSA Associates, Inc., August 2008.

¹ Includes ambient one-hour concentration of 2.3 ppm and ambient eight-hour concentration of 1.5 ppm. Measured at the San Luis Obispo, CA, AQ Station (San Luis Obispo County).

² The one-hour CO State standard is 20 ppm, and the eight-hour CO standard is 9 ppm.
NB = northbound ppm = parts per million SB = southbound

Table 4.5.P: Build-out Year (2017) CO Concentrations¹

Intersection	Receptor Distance to Road Centerline (meters)	Project-Related Increase 1-hr/8-hr (ppm)	Without/With Project One-Hour CO Concentration (ppm)	Without/With Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards ²	
					1-Hr	8-Hr
US 101 SB Ramps and San Miguel Ave	8 / 8	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
	8 / 8	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
	8 / 8	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
	8 / 8	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
US 101 NB Ramps and San Miguel Ave	8 / 8	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
	8 / 8	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
	8 / 8	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
	7 / 7	0.2 / 0.1	2.3 / 2.5	1.5 / 1.6	No	No
US 101 SB Ramps and Tenth St	10 / 10	0.2 / 0.1	2.4 / 2.6	1.6 / 1.7	No	No
	10 / 10	0.2 / 0.1	2.4 / 2.6	1.6 / 1.7	No	No
	8 / 8	0.2 / 0.1	2.4 / 2.6	1.6 / 1.7	No	No
	8 / 8	0.1 / 0.0	2.4 / 2.5	1.6 / 1.6	No	No
US 101 NB Ramps and Tenth St	8 / 8	0.1 / 0.1	2.5 / 2.6	1.6 / 1.7	No	No
	8 / 8	0.1 / 0.1	2.5 / 2.6	1.6 / 1.7	No	No
	8 / 8	0.1 / 0.1	2.5 / 2.6	1.6 / 1.7	No	No
	8 / 8	0.1 / 0.1	2.5 / 2.6	1.6 / 1.7	No	No
Mission St and River Rd	8 / 8	0.1 / 0.1	2.6 / 2.7	1.7 / 1.8	No	No
	8 / 8	0.1 / 0.1	2.6 / 2.7	1.7 / 1.8	No	No
	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
Mission St and Tenth St	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
Monterey Rd and Mission St	8 / 8	-0.1 / -0.1	3.0 / 2.9	2.0 / 1.9	No	No
	8 / 8	-0.1 / -0.1	3.0 / 2.9	2.0 / 1.9	No	No
	8 / 8	-0.1 / -0.1	3.0 / 2.9	2.0 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.9 / 2.9	1.9 / 1.9	No	No
US 101 SB Ramps and 36th St	13 / 13	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	12 / 12	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	12 / 12	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	12 / 12	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
US 101 SB Ramps and 24th St	14 / 14	0.0 / 0.0	3.5 / 3.5	2.3 / 2.3	No	No
	14 / 14	0.0 / 0.0	3.5 / 3.5	2.3 / 2.3	No	No
	14 / 14	0.1 / 0.0	3.4 / 3.5	2.3 / 2.3	No	No
	12 / 12	0.0 / 0.0	3.3 / 3.3	2.2 / 2.2	No	No
US 101 NB Ramps and 24th St	14 / 14	0.0 / 0.0	3.7 / 3.7	2.5 / 2.5	No	No
	12 / 14	0.1 / 0.1	3.6 / 3.7	2.4 / 2.5	No	No
	10 / 10	0.0 / 0.0	3.6 / 3.6	2.4 / 2.4	No	No
	10 / 10	0.0 / 0.0	3.6 / 3.6	2.4 / 2.4	No	No

Source: LSA Associates, Inc., August 2008.

¹ Includes ambient one-hour concentration of 2.3 ppm and ambient eight-hour concentration of 1.5 ppm. Measured at the San Luis Obispo, CA, AQ Station (San Luis Obispo County).

² The one-hour CO State standard is 20 ppm, and the eight-hour CO standard is 9 ppm.

NB = northbound

ppm = parts per million

SB = southbound

Table 4.5.Q: General Plan (2030) CO Concentrations¹

Intersection	Receptor Distance to Road Centerline (meters)	Project-Related Increase 1-hr/8-hr (ppm)	Without/With Project One-Hour CO Concentration (ppm)	Without/With Project Eight-Hour CO Concentration (ppm)	Exceeds State Standards ²	
					1-Hr	8-Hr
US 101 SB Ramps and San Miguel Ave	8 / 8	0.0 / 0.0	2.3 / 2.3	1.5 / 1.5	No	No
	8 / 8	0.0 / 0.0	2.3 / 2.3	1.5 / 1.5	No	No
	8 / 8	0.0 / 0.0	2.3 / 2.3	1.5 / 1.5	No	No
	8 / 8	0.0 / 0.0	2.3 / 2.3	1.5 / 1.5	No	No
US 101 NB Ramps and San Miguel Ave	8 / 8	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
	8 / 8	0.0 / 0.0	2.3 / 2.3	1.5 / 1.5	No	No
	8 / 8	0.0 / 0.0	2.3 / 2.3	1.5 / 1.5	No	No
	7 / 7	0.0 / 0.0	2.3 / 2.3	1.5 / 1.5	No	No
US 101 SB Ramps and Tenth St	10 / 10	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
	10 / 10	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
	8 / 8	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
	8 / 8	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
US 101 NB Ramps and Tenth St	8 / 8	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
	8 / 8	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
	8 / 8	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
	8 / 8	0.1 / 0.1	2.3 / 2.4	1.5 / 1.6	No	No
Mission St and River Rd	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	8 / 8	0.1 / 0.1	2.5 / 2.6	1.6 / 1.7	No	No
Mission St and Tenth St	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	8 / 8	0.0 / 0.0	2.6 / 2.6	1.7 / 1.7	No	No
	8 / 8	0.1 / 0.1	2.5 / 2.6	1.6 / 1.7	No	No
Monterey Rd and Mission St	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.8 / 2.8	1.9 / 1.9	No	No
	8 / 8	0.0 / 0.0	2.7 / 2.7	1.8 / 1.8	No	No
US 101 SB Ramps and 36th St	13 / 13	0.0 / 0.0	2.5 / 2.5	1.6 / 1.6	No	No
	13 / 12	0.0 / 0.0	2.5 / 2.5	1.6 / 1.6	No	No
	12 / 12	0.0 / 0.0	2.5 / 2.5	1.6 / 1.6	No	No
	12 / 12	0.0 / 0.0	2.5 / 2.5	1.6 / 1.6	No	No
US 101 SB Ramps and 24th St	14 / 14	0.0 / 0.0	3.4 / 3.4	2.3 / 2.3	No	No
	14 / 14	0.0 / 0.0	3.4 / 3.4	2.3 / 2.3	No	No
	14 / 14	0.0 / 0.0	3.3 / 3.3	2.2 / 2.2	No	No
	14 / 10	0.0 / 0.0	3.3 / 3.3	2.2 / 2.2	No	No
US 101 NB Ramps and 24th St	14 / 12	0.1 / 0.1	3.7 / 3.8	2.5 / 2.6	No	No
	12 / 12	0.0 / 0.0	3.6 / 3.6	2.4 / 2.4	No	No
	10 / 10	0.0 / 0.0	3.5 / 3.5	2.3 / 2.3	No	No
	10 / 10	0.1 / 0.0	3.4 / 3.5	2.3 / 2.3	No	No

Source: LSA Associates, Inc., August 2008.

¹ Includes ambient one-hour concentration of 2.3 ppm and ambient eight-hour concentration of 1.5 ppm. Measured at the San Luis Obispo, CA, AQ Station (San Luis Obispo County).

² The one-hour CO State standard is 20 ppm, and the eight-hour CO standard is 9 ppm.

NB = northbound

ppm = parts per million

SB = southbound

disposal of hazardous materials such as fuels, paints, and solvents consistent with applicable federal, State, and local regulations. In compliance with existing federal, State, and local regulations, the amounts of these materials present would be limited and would not pose a significant adverse hazard to workers, nearby residents, or the environment. Refer to Section 4.9 for additional information related to hazards and hazardous materials.

The proposed project would not produce hazardous emissions such as those associated with industrial uses. Because the traffic-related emissions are not concentrated at one location, the health risk associated with project air quality is not significant. The potential for an individual project of this type to significantly deteriorate regional air quality or contribute to significant health risk is small, even if the emission thresholds are exceeded by the project. Because of the overall improvement trend of air quality in the air basin, it is unlikely that the regional air quality or health risk would worsen from the current condition due to emissions from an individual project of this type or size. Emissions associated with project vehicular traffic would not expose sensitive receptors to substantial pollutant concentrations, and no mitigation is required.

Asbestos. Asbestos can occur naturally in certain rock formations, such as those that include serpentinite or ultramafic rock. Naturally occurring asbestos (NOA) includes fibrous minerals found in certain types of rock formations. NOA can take the form of long, thin, separable fibers. Natural weathering or human disturbance can break NOA down to microscopic fibers, easily suspended in air.

According to the EPA, there is no health threat if NOA remains undisturbed and does not become airborne. When airborne NOA is inhaled, these thin fibers irritate tissues and resist the body's natural defenses. Asbestos, a known carcinogen, causes cancers of the lung and the lining of internal organs, as well as asbestosis and other diseases that inhibit lung function. Covering NOA with clean soil or planting grass reduces exposure.

The Development project site and the Wastewater Treatment Plant expansion site are underlain by alluvium and sedimentary deposits of the Paso Robles formation, which are not asbestos-bearing. Therefore, the potential for NOA to be encountered at the project site is extremely low. Consequently, impacts associated with NOA are less than significant, and no mitigation is required.

Potential Impact Summary: Class III. Construction and operation of the project site would not expose workers, nearby residents, or the environment to substantial pollutant concentrations. In addition, the potential for naturally occurring asbestos to be encountered at the project site is extremely low. No mitigation is required.

Threshold 4.5.5: Create objectionable odors affecting a substantial number of people

Some objectionable odors may emanate from the operation of diesel-powered construction equipment during the construction phases of the proposed project. These odors, however, would

be limited to the short-term construction period of the project and, therefore, would not be significant.

A landfill permitted for operation is located within Camp Roberts at an approximate distance of 4,175 ft from the proposed project's western boundary (see Section 4.9, Hazards). At this distance, the odors from the small (17.8 ac) landfill would be minimal and limited to days when the wind is traveling directly from the landfill to the proposed residences. Section 4.9 evaluates the potential hazards associated with the landfill.

Potential Impact Summary: Class III. Although some objectionable odors may emanate from operation of diesel-powered construction equipment during the construction phases of the proposed project, these odors would be limited to the short-term construction period of the project and would be less than significant. Odors from the landfill would be limited to the days when the wind transports the odors directly toward the proposed residences. No mitigation is required.

4.5.6 Cumulative Impacts

The cumulative study area for air quality impacts is the SCCAB. The project would contribute criteria pollutants to the SCCAB during project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction could result in substantial short-term increases in air pollutants. This would be a contribution to short-term cumulative air quality impacts.

Under the cumulative conditions 2017 (project build out) and 2030 (area build out), the Traffic Analysis included vehicular trips from the proposed project and all present and future projects in the project vicinity as of November 2007.¹ Therefore, CO hot spot concentrations calculated at these intersections include the cumulative traffic effect. Based on Tables 4.5.O through 4.5.Q, no significant cumulative CO impacts would occur. However, [as shown in Tables 4.5.H through 4.5.K](#), the project would result in significant operational air quality impacts that cannot be mitigated to below a level of significance. Thus, it is anticipated that these additional emissions would contribute significantly to cumulative air quality impacts.

GHG Emissions. The project will generate emissions of GHGs, primarily in the form of vehicle exhaust and in the consumption of electricity and natural gas. There are no federal, State, or local emissions thresholds established for GHGs such as CO₂. The emissions from vehicle exhaust are controlled by the State and federal governments and are outside the control of this project. Emissions from building heating and electrical systems will be minimized by complying with Mitigation Measure 4.5.3.

¹ The County of San Luis Obispo provided a list of cumulative projects in the vicinity of the San Miguel Ranch project area in November 2007. Any projects proposed after that time would be accounted for in the 2 percent per year growth rate that was applied to the existing traffic counts in all future year conditions. The list of cumulative projects is included in Section 4.1.

Potential Cumulative Impact Summary: Class I. The proposed project would contribute to short-term cumulative air quality impacts and long-term operational air quality impacts. Even with implementation of Mitigation Measures 4.5.1 and 4.5.2, the project's contribution to cumulative air quality impacts would remain significant and adverse.

4.5.7 Level of Significance Prior to Mitigation

Prior to implementing proposed mitigation measures, the proposed project would exceed thresholds and therefore result in significant air quality impacts associated with short-term (construction) NO_x +ROG and fugitive dust (PM_{10}) emissions, the long-term (operational) Tier 2 daily emissions thresholds for $\text{ROG}+\text{NO}_x$, and PM_{10} , and the long-term Tier 3 quarterly emission threshold for NO_x +ROG. The proposed project would also be inconsistent with the CAP.

4.5.8 Mitigation Measures

Mitigation Measure 4.5.1

Construction Activity Management Plan. Prior to issuance of any grading or building permits, a comprehensive Construction Activity Management Plan shall be developed. The plan shall be reviewed and approved by the County of San Luis Obispo Director of Planning and Building, or designee. The Plan shall include the Best Available Control Technology for Construction equipment (CBACT) measures that the Air Pollution Control District (APCD) has identified to reduce construction emissions. The Plan shall also stipulate compliance with APCD rules and regulations on cutback and emulsified asphalt paving materials and the requirements of APCD Rule 403 to reduce fugitive dust emissions. Required CBACT measures are included in Appendix B of the Air Quality Impact Analysis for the San Miguel Ranch Project (LSA Associates, Inc., July 2008). The construction mitigation measures applicable to the proposed project are summarized below.

Standard Mitigation Measures for Construction Equipment

The standard mitigation measures for reducing ozone precursor (reactive organic gases [ROG]+nitrogen oxide [NO_x]), and diesel particulate matter emissions from construction equipment are listed below.

- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Fuel all off-road and portable diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, with Air Resources Board (ARB) certified motor vehicle diesel fuel (non-taxed version suitable for use off-road).

- Maximize, to the extent feasible, the use of diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and must comply with the State Off-Road Regulation.
- Maximize to the extent feasible, the use of on-road heavy-duty trucks that meet the ARB's 2007 or newer certification standard for on-road heavy-duty diesel engines, and must comply with the State On-Road Regulation.
- All on and off-road diesel equipment shall not be allowed to idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5 minute idling limit.
- Electrify equipment when feasible.
- Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and
- Use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel.

Best Available Control Technology (BACT) for Construction Equipment

If the estimated construction ozone precursor emissions from the actual fleet for a given Phase are expected to exceed the APCD's threshold of significances after the standard mitigation measures are factored into the estimation, then BACT needs to be implemented to further reduce these impacts. The BACT measures can include:

- Replacing equipment with equipment with cleaner engines;
- Repowering equipment with the cleanest engines available;
- Installing California Verified Diesel Emissions Control Strategies; and
- Implementing a Comprehensive Construction Activity Management Plan designed to minimize the amount of large construction equipment operating during any given time period. If this plan will be implemented as BACT, then it should be submitted to the APCD for review and approval prior to the start of construction. The plans should include but not be limited to the following elements:
 - Schedule construction truck trips during non-peak hours to reduce peak-hour emissions.
 - Limit the length of the construction work-day period, if necessary; and

- Phase construction activities, if appropriate.

Fugitive Particulate Matter Less than 10 Microns in Diameter (PM₁₀) Mitigation Measures

The following mitigation measures are required for all projects that exceed the mitigation thresholds identified above. Proper implementation of these measures will achieve a significant reduction in fugitive dust emissions.

- a. Reduce the amount of the disturbed area where possible.
- b. Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 miles per hour (mph). Reclaimed (nonpotable) water should be used whenever possible.
- c. All dirt stockpile areas should be sprayed daily as needed.
- d. Permanent dust control measures identified in the approved project revegetation and landscape plans should be implemented as soon as possible following completion of any soil-disturbing activities.
- e. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established.
- f. All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the APCD.
- g. All roadways, driveways, sidewalks, etc., to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- h. Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site.
- i. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least 2 feet (ft) of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code (CVC) Section 23114.
- j. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.

- k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.

All PM₁₀ mitigation measures required must be included on grading and building plans. In addition, the contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off site. Their duties shall include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the APCD prior to land use clearance for map recordation and land use clearance for finish grading of the structure.

Construction Permit Requirement

Portable equipment, 50 horsepower (hp) or greater, used during construction activities will require California statewide portable equipment registration (issued by the California Air Resources Board [ARB]) or an Air Pollution Control District (APCD) permit.

Mitigation Measure 4.5.2

Operational Air Quality Measures. All project design shall be conducted in conformance with the standard mitigation measures included in Sections 5.7 and 5.8 of the San Luis Obispo Air Pollution Control District's (APCD) California Environmental Quality Handbook. Prior to issuance of building permits, the County of San Luis Obispo Director of Planning and Building, or designee, shall verify that the required measures are noted on all building plans. Required measures include site design and energy efficiency measures. Required measures are included in Appendix C of the Air Quality Impact Analysis for the San Miguel Ranch Project (LSA Associates, Inc., July 2008) and summarized below.

Standard Residential Measures

- Link cul-de-sacs and dead-end streets to encourage pedestrian and bicycle travel.
- Traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs, and intersection modifications designed to reduce vehicle speeds, thus encouraging pedestrian and bicycle travel.
- Easements or land dedications for bikeways and pedestrian walkways.
- Provide continuous sidewalks separated from the roadway by landscaping and on-street parking. Adequate lighting for

sidewalks must be provided, along with crosswalks at intersections.

Standard Commercial Measures

- Provide on-site bicycle parking. One bicycle parking space for every 10 car-parking spaces is considered appropriate.
- Provide on-site eating, refrigeration, and food vending facilities to reduce lunchtime trips.
- Provide preferential carpool and vanpool parking.
- Provide shower and locker facilities to encourage employees to bike and/or walk to work, typically one shower and three lockers for every 25 employees.

Standard Energy Efficiency Measures

- Increase the building energy efficiency rating by 10 percent above what is required by Title 24 requirements. This can be accomplished in a number of ways (increasing attic, wall or floor insulation, etc.).

Discretionary Residential Measures

- Increased street tree planting.
- Outdoor electrical outlets to encourage the use of electric appliances and tools.
- Secure on-site bicycle parking for multi-family residential developments.
- Increase number of bicycle routes/lanes.
- Build new homes with internal wiring/cabling that allows telecommuting, teleconferencing, and telelearning to occur simultaneously in at least three locations in each home.
- Provide pedestrian signalization and signage to improve pedestrian safety.

Discretionary Commercial Measures

- Increased street tree planting.
- Shade tree planting in parking lots to reduce evaporative emissions from parked vehicles.
- Install an electrical vehicle charging station with both conductive and inductive charging capabilities.

- Provide on-site banking (ATM) and postal services.
- Provide an on-site child care facility.
- Increase number of bicycle routes/lanes.
- Provide on-site housing for employees.
- Implement on-site circulation design elements in parking lots to reduce vehicle queuing and improve the pedestrian environment.
- Provide pedestrian signalization and signage to improve pedestrian safety.

Discretionary Transportation Demand Management Measures

- Employ or appoint an Employee Transportation Coordinator.
- Implement a Transportation Choices Program. The applicant should work with the Transportation Choices Coalition partners for free consulting services on how to start and maintain a program. Contact [San Luis Obispo \(SLO\) Regional Rideshare](#) at 541-2277.
- Provide for shuttle/minibus service.
- Provide incentives to employees to carpool/vanpool, take public transportation, telecommute, walk, bike, etc.
- Implement compressed work schedules.
- Implement telecommuting program.
- Implement a lunchtime shuttle to reduce single-occupant vehicle trips.
- Participate in an employee “flash-pass” program, which provides free travel on transit buses.
- Include teleconferencing capabilities, such as web cams or satellite linkage, which will allow employees to attend meetings remotely without requiring them to travel out of the area.
- If the development is a grocery store or large retail facility, provide home delivery service for customers.

Discretionary Energy Efficiency Measures

- Shade tree planting along southern exposures of buildings to reduce summer cooling needs.
- Use roof material with a solar reflectance value meeting the United States Environmental Protection Act (EPA)/Department of Energy (DOE) Energy Star® rating to reduce summer cooling needs.

- Use high-efficiency, gas, or solar water heaters.
- Use built-in energy efficient appliances.
- Use double-paned windows.
- Use low-energy street lights (i.e., sodium).
- Use energy-efficient interior lighting.
- Use low-energy traffic signals (i.e., light-emitting diode).
- Install door sweeps and weather stripping if more efficient doors and windows are not available.
- Install high-efficiency or gas space heating.

Off-Site Measures

Prior to issuance of grading permits, the applicant shall work with the APCD to define and implement off-site emission reduction measures to reduce emissions to below Tier 2 levels. In accordance with APCD methodology, the excess emissions shall be multiplied by the cost effectiveness of mitigation as defined in the State's current Carl Moyer Incentive Program Guidelines to determine the annual off-site mitigation amount (currently \$16,000/ton). This amount shall then be extrapolated over the life of the project to determine total off-site mitigation. Off-site emission reduction measures may include, but would not be limited to:

- Developing or improving park-and-ride lots;
- Retrofitting existing homes in the project area with APCD-approved wood combustion devices;
- Retrofitting existing homes in the project area with energy-efficient devices;
- Constructing satellite worksites;
- Funding a program to buy and scrap older, higher emission passenger and heavy-duty vehicles;
- Replacing/repowering transit buses;
- Replacing/repowering heavy-duty diesel school vehicles (i.e. bus, passenger or maintenance vehicles);
- Funding an electric lawn and garden equipment exchange program;
- Retrofitting or repowering heavy-duty construction equipment, or on-road vehicles;
- Repowering marine vessels;

- Repowering or contributing to funding clean diesel locomotive main or auxiliary engines;
- Installing bicycle racks on transit buses;
- Purchasing particulate filters or oxidation catalysts for local school buses, transit buses or construction fleets;
- Installing or contributing to funding alternative fueling infrastructure (i.e. fueling stations for CNG, LPG, conductive and inductive electric vehicle charging, etc.);
- Funding expansion of existing transit services;
- Funding public transit bus shelters;
- Subsidizing vanpool programs;
- Subsidizing transportation alternative incentive programs;
- Contributing to funding of new bike lanes;
- Installing bicycle storage facilities; and
- Providing assistance in the implementation of projects that are identified in County Bicycle Master Plan.

Residential Wood Combustion

Under APCD Rule 504 only APCD approved wood burning devices can be installed in new dwelling units. These devices include:

- All EPA-Certified Phase II wood burning devices;
- Catalytic wood burning devices which emit less than or equal to 4.1 grams per hour of particulate matter which are not EPA certified but have been verified by a nationally recognized testing lab;
- Non-catalytic wood burning devices which emit less than or equal to 7.5 grams per hour of particulate matter which are not EPA certified but have been verified by a nationally recognized testing lab;
- Pellet-fueled wood heaters; and
- Dedicated gas fireplaces.

The applicant shall incorporate the listed provisions into development plans. Planning and Building shall conduct a site inspection to ensure development is in accordance with approved plans prior to occupancy clearance. Planning and Building staff shall verify installation in accordance with approved building plans.

Mitigation Measure 4.5.3

Global Warming/Climate Change Control Measures. No significant construction or operational impacts from greenhouse gas (GHG) emissions have been identified; however, the following measures have been included to list measures that shall be implemented, as feasible, to minimize the emissions of these gases:

Construction Measures

- The project plans and specifications shall include a statement that construction equipment shall be shut off when not in use and shall not idle for more than 15 minutes.
- The project plans and specifications shall include a statement that queuing of trucks on and off site shall be limited to periods when absolutely necessitated by grading or construction activities.
- The project plans and specifications shall include a statement that, to the extent feasible, all diesel- and gasoline-powered construction equipment shall be replaced with equivalent electric equipment.
- The project plans and specifications shall include policies and procedures for the reuse and recycling of construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- The project plans and specifications shall include education for construction workers about reducing waste and available recycling services.

Operational Measures

- The applicant shall demonstrate that the design of the proposed buildings or structures exceeds Title 24 requirements by a minimum of 20 percent. This is an increase above the 10 percent required under Mitigation Measure 4.5.2.
- The applicant shall demonstrate that the design of the proposed buildings or structures incorporates basic or enhanced insulation such that heat transfer and thermal bridging are minimized.
- Limit air leakage through the structures or within the heating and cooling distribution systems to minimize energy consumption.
- The applicant shall demonstrate that the design of the proposed buildings or structures incorporates Energy Star-rated windows or better.
- The applicant shall demonstrate that the design of the proposed buildings or structures incorporates Energy Star-rated space heating and cooling equipment or better.

- The applicant shall demonstrate that the design of the proposed buildings or structures incorporates Energy Star-rated light fixtures or better.
- The applicant shall demonstrate that the design of the proposed buildings or structures includes consideration of installation/operation of renewable electric generation systems.
- The applicant shall demonstrate that the proposed building or structure designs incorporate energy-efficient hot water systems.
- The applicant shall demonstrate that the landscape plan for the proposed buildings or structures incorporates water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls or irrigation controls that account for actual weather conditions.
- The applicant shall demonstrate that the landscape plan for the proposed commercial buildings or structures uses reclaimed water for landscape irrigation, including the infrastructure to deliver and use reclaimed water.
- The applicant shall demonstrate that the design of the proposed buildings or structures includes measures to be water-efficient, such as water-efficient fixtures and appliances.
- The applicant shall demonstrate that measures have been included to promote ridesharing programs such as, but not necessarily including, publishing ridesharing information for all of the tenants, designating a certain percentage of parking spaces for ridesharing vehicles, designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles, and providing a Web site or message board for coordinating rides.
- The applicant shall demonstrate that measures have been included to provide adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience.
- The applicant shall demonstrate that all interior building lighting supports the use of compact fluorescent light bulbs or equivalently efficient lighting.

The applicant shall incorporate the listed provisions into development plans. Planning and Building shall conduct a site inspection to ensure development is in accordance with approved plans prior to occupancy clearance. Planning and Building staff shall verify installation in accordance with approved building plans.

4.5.9 Level of Significance after Mitigation

After implementation of mitigation measures, the proposed project would continue to exceed the thresholds for short-term ozone precursor emissions (NO_x+ROG) and long-term NO_x+ROG, and PM₁₀. Due to the location and design of the proposed project, some of the recommended operation measures in 4.5.2 would not be feasible and thus would not result in the intended reduction in emissions. In addition, while an off-site mitigation program as identified in 4.5.2 is feasible in theory, the cost of an off-site program for the proposed project would be very expensive. Given the large cost, it may not be economically feasible, and may not be applied in full by the decision makers. Thus, it cannot be said with certainty that long term emissions will be mitigated to a level of insignificance. Therefore implementation of the proposed project would result in significant, unavoidable short-term air quality impacts associated with NO_x+ROG and significant, unavoidable long-term air quality impacts associated with NO_x+ROG and PM₁₀. In addition, the proposed project would be inconsistent with the CAP.

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