4.3 AIR QUALITY

4.3.1 Introduction

This section discusses existing air quality, evaluates potential air quality impacts associated with implementation of the proposed project, and identifies feasible mitigation measures recommended for potentially significant project-related adverse air quality impacts. This section summarizes information provided in the *Air Quality Analysis* (LSA Associates, Inc. [LSA], June 2013), which is included in Appendix D of this Environmental Impact Report (EIR).

4.3.2 Analysis Method

The potential air quality impacts of the La Entrada Specific Plan (proposed project) were assessed in conformance with appropriate standards, using procedures and methodologies in the South Coast Air Quality Management District's (SCAQMD) California Environmental Quality Act (CEQA) Air Quality Handbook. The air quality assessment included using the CalEEMod air quality model to estimate emissions associated with short-term construction and long-term operation of the proposed project and the CALINE4 model to estimate local carbon monoxide (CO) concentration impacts. Modeled air quality levels are based on area, energy, and mobile emissions sources, and project trip generation and traffic flow from the *La Entrada Traffic Impact Analysis* (LSA, June 2013, Appendix L). The methodologies for assessing the potential short- and long-term air quality effects of the proposed project are discussed in detail in the *Air Quality Analysis*.

The *Air Quality Analysis* includes estimated emissions associated with short-term construction and long-term operation of the proposed project. This analysis has been prepared based on the Riverside County Guidelines that the City of Coachella follows, and to satisfy the requirements for disclosure of potential impacts and mitigation measures per CEQA. The Riverside County Guidelines require analysis of existing conditions, project completion conditions, and cumulative conditions at build out of the project. For General Plan Amendments and Specific Plans, a horizon year analysis is also required. To identify project-specific impacts, this analysis also includes with and without project conditions for the future scenarios required by the County of Riverside (County).

The Riverside County Guidelines require an analysis of cumulative conditions that describes project conditions at build out with impacts from cumulative projects added to impacts from the proposed project. Additionally, the Riverside County Guidelines also require analysis of a horizon year build-out condition (currently 2035). The La Entrada Specific Plan is anticipated to be fully built by year 2035, which is also the County's horizon year scenario. Therefore, cumulative conditions and build-out conditions are the same for this analysis.

The construction impact analysis includes activities that produce combustion emissions from sources such as site grading, utility engines, on-site heavy-duty construction vehicles, asphalt paving, and motor vehicles transporting the construction crew. Project construction would include demolition of miscellaneous minor structures and old roadways, site preparation and grading operations, and

construction of the new structures and infrastructure on and off site that would include the application of architectural coatings and paving operations. The construction emissions estimates also include the off-site traffic intersection mitigation improvements.

The long-term project operations impact analysis includes air emissions from the proposed mix of residential and commercial land uses. Criteria pollutants with regional impacts would be emitted by area sources such as architectural coatings, consumer products, and landscaping maintenance performed on the project site, from energy sources including natural gas consumption for heating and electricity for the lighting in the buildings and at outdoor areas, and from mobile sources (vehicles associated with the proposed residential and commercial land uses, both internal to the project site and external to and from off-site destinations and origins). Localized air quality effects would occur when emissions from vehicular traffic increase in local areas as a result of the proposed project. As described in Chapter 3.0, Project Description, Phase 5 of the project would be conditioned to be built only if and after the I-10/Avenue 50 interchange is constructed. However, the interchange is a planned regional improvement and not a Project Design Feature of the La Entrada Specific Plan. Therefore, this analysis analyzes the localized air quality effects (i.e., CO Hot-Spot Analysis) for the following three separate "Existing Plus Project" conditions to satisfy CEQA requirements:

- Existing Plus Project (Phases 1 through 4) without the I-10/Avenue 50 interchange;
- Existing Plus Full Project (Phases 1 through 5) without the I-10/Avenue 50 interchange conditions; and
- Existing Plus Full Project (Phases 1 through 5) with the I-10/Avenue 50 interchange.

In addition, opening year analyses were conducted for years 2020, 2030, and 2035.

4.3.3 Existing Environmental Setting

The project site is located in the City of Coachella (City) in Riverside County, within the Coachella Valley Planning Area, which is part of the Salton Sea Air Basin (SSAB). The SSAB portion of the County is separated from the western portion of the County by the San Jacinto Mountains and from the eastern portion of the County by the Little San Bernardino Mountains. For the *Air Quality Analysis*, the baseline condition is the on-the-ground conditions at the project site at the time of the release of the Notice of Preparation (NOP).

Regional Air Quality. 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 4.3.A, these pollutants are: ozone (O_3), CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse particulate matter with a diameter of 10 microns or less (PM_{10}), fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead. In addition, the State has set AAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 4.3.A: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 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	12 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive 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)[8]	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)		100 ppb (188 µg/m^3)	—	
Sulfur Dioxide (SO_2)[9]	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas)[9]	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	—	
	3-Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)	—	
Lead[10,11]	30-Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	
	Rolling 3-Month Average[11]	—		0.15 µg/m^3		
Visibility-Reducing Particles[12]	8-Hour	See Footnote 12	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[10]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: *Air Quality Analysis*, LSA Associates, Inc. (June 2013).

Footnotes (also continued on next page):

1 California standards for O_3; CO (except Lake Tahoe); SO_2 (1- and 24-hour); NO_X; suspended particulate matter - PM_{10}, $PM_{2.5}$ and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California AAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth-highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

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

[4] Any equivalent procedure which can be shown to the satisfaction of 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] To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[9] On June 2, 2010, the new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of ppb. California standards are in units of ppm. To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[10] 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.

[11] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[12] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basins, respectively.

°C = degrees Celsius
ARB = California Air Resources Board
EPA = United States Environmental Protection Agency
$\mu g/m^3$ = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
ppm = parts per million
ppb = parts per billion

Table 4.3.B lists the primary sources and health effects of, and prevention and control methodologies for, the criteria air pollutants. 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 or for a prolonged period of time. Among the pollutants, O_3 and particulate matter (PM, $PM_{2.5}$, and PM_{10}) are considered regional pollutants, while the others have more localized effects

Table 4.3.B: Air Pollution Sources, Effects and Control

Pollutant	Sources	Effects	Prevention and Control
Ozone (O_3)	Formed when ROG and NO_X react in the presence of sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage, and pesticides.	Breathing difficulties, lung tissue damage, damage to rubber, and some plastics.	Reduce motor vehicle ROG and NO_X emissions through emissions standards, reformulated fuels, inspection programs, and reduced vehicle use. Limit ROG emissions from commercial operations and consumer products. Limit ROG and NO_X emissions from industrial sources such as power plants and refineries. Conserve energy.
Respirable Particulate Matter (PM_{10})	Road dust, windblown dust (agriculture) and construction (fireplaces) Also formed from other pollutants (acid rain, NO_X, SO_X, organics). Incomplete combustion of any fuel.	Increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling.	Control dust sources, industrial particulate emissions, wood burning stoves, and fireplaces. Reduce secondary pollutants which react to form PM_{10}. Conserve energy.
Fine Particulate Matter ($PM_{2.5}$)	Fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	Increases respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling.	Reduce combustion emissions from motor vehicles, equipment, industries and agriculture, and residential burning. Precursor controls, like those for O_3, reduce fine particle formation in the atmosphere.
Carbon Monoxide (CO)	Any source that burns fuel, such as automobiles, trucks, heavy construction equipment, farming equipment, and residential heating.	Chest pain in heart patients, headaches, reduced mental alertness.	Control motor vehicle and industrial emissions. Use oxygenated gasoline during winter months. Conserve energy.
Nitrogen Dioxide (NO_2)	Any source that burns fuel, such as automobiles, trucks, heavy construction equipment, farming equipment, and residential heating.	Lung irritation and damage. Reacts in the atmosphere to form O_3 and acid rain.	Control motor vehicle and industrial combustion emissions. Conserve energy.
Lead	Metal smelters, resource recovery, leaded gasoline, and deterioration of lead paint.	Learning disabilities, brain and kidney damage.	Control metal smelters, no lead in gasoline. Replace leaded paint with non-lead substitutes.
Sulfur Dioxide (SO_2)	Coal or oil burning power plants and industries, refineries, and diesel engines.	Increases lung disease and breathing problems for asthmatics. Reacts in the atmosphere to form acid rain.	Reduce the use of high sulfur fuels (e.g., use low sulfur reformulated diesel or natural gas). Conserve energy.
Visibility Reducing Particles	Fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	Reduces visibility (e.g., obscures mountains and other scenery), reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.
Sulfates	Produced by the reaction in the air of SO_2 (see SO_2 sources above), a component of acid rain.	Breathing difficulties, aggravates asthma, reduced visibility.	See SO_2.
Hydrogen Sulfide	Geothermal power plants, petroleum production and refining, sewer gas.	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations).	Control emissions from geothermal power plants, petroleum production and refining, sewers, and sewage treatment plants.

Source: *Air Quality Analysis*, LSA Associates, Inc. (June 2013).
ROG = reactive organic gas
NO_X = nitrogen oxides
SO_X = sulfur oxides

Climate and Meteorology. Air quality at the project site and in the SSAB is affected by various emission sources (mobile, industry, etc.) as well as atmospheric conditions such as wind speed, wind direction, temperature, rainfall, etc.

During the summer, the SSAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The SSAB is rarely influenced by cold air masses moving south from Canada and Alaska because these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south.

The SSAB averages between 3 and 7 inches of precipitation per year. The climatological station closest to the site is the Indio Fire station.[1] The monthly average maximum temperature recorded at this station from 1894 to 2012 ranged from 70.6 degrees Fahrenheit (°F) in January to 106.9°F in August, with an annual average maximum of 88.9°F. The monthly average minimum temperature recorded at this station ranged from 39.2°F in January to 77.8°F in July, with an annual average minimum of 58.2°F. January or December is typically the coldest month, and July is typically the warmest month in this area of the Basin.

The majority of annual rainfall in the Basin occurs between August and March. Summer rainfall is minimal and is generally limited to scattered thundershowers in the eastern portion of the Basin and along the side of the mountains. The Indio Fire station monitored precipitation from 1894 to 2012. Average monthly rainfall measured during that period varied from 0.64 inch in January to 0.12 inch or less between March and August, with an annual total of 3.29 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

Air Pollution Constituents and Attainment Status. Table 4.3.C summarizes the attainment status in the SSAB for the major criteria pollutants under the State and federal AAQS. The United States Environmental Protection Agency (EPA) formally designates areas as nonattainment (i.e., not meeting the national ambient air quality standards [NAAQS]), unclassifiable/attainment (i.e., meeting the NAAQS or expected to be meeting the NAAQS), or unclassifiable (i.e., insufficient data to classify). A nonattainment status can be qualified as marginal, moderate, serious, severe, or extreme based on the severity of the NAAQS exceedance.

Ozone. O_3 (smog) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases rather than being directly emitted. Ozone is a pungent, colorless gas typical of Southern California smog. Elevated ozone 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. Ozone levels peak during summer and early fall. The entire SSAB is designated as a nonattainment area for the State 1 hour and 8-hour ozone standards. The EPA has officially designated the status for the SSAB regarding the 8-hour ozone standard as "Severe-15," which means the SSAB has until 2020 to attain the federal 8-hour O_3 standard.

[1] Western Regional Climate Center, www.wrcc.dri.edu.

Table 4.3.C: Attainment Status of Criteria Pollutants in the Salton Sea Air Basin

Pollutant	State		Federal	
	Designation	Classification	Designation	Classification
O_3 1-hour	Nonattainment		No Standard	
O_3 8-hour	Nonattainment		Nonattainment	Severe-15[1]
PM_{10}	Nonattainment		Nonattainment	
$PM_{2.5}$	Attainment/Unclassified		Attainment/Unclassified	
CO	Attainment		Attainment/Unclassified	
NO_2	Attainment		Attainment/Unclassified	
SO_2	Attainment		Attainment/Unclassified	
Lead	Attainment		Attainment/Unclassified	
All others[2]	Attainment/Unclassified		No federal status	

Source: *Air Quality Analysis*, LSA Associates, Inc. (June 2013).

Note: Nonattainment: Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment: Any area (other than an area identified in clause (i)) that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable: Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

[1] Severe-15 – Area has a design value of 0.113 up to but not including 0.119 ppm.

[2] "All others" include sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

CO = carbon monoxide
NO_2 = nitrogen dioxide
O_3 = ozone
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
SO_2 = sulfur dioxide

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 impairment to central nervous system functions. The entire SSAB is in attainment for the State standards for CO. The SSAB is designated as an "Attainment/Unclassified" area under the federal CO standards.

Nitrogen Oxides. NO_2, 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). NO_2 decreases lung function and may reduce resistance to infection. The entire SSAB is designated as Attainment for the State NO_2 standard and as an "Attainment/Maintenance" area under the federal NO_2 standard.

Sulfur Dioxide. SO_2 is a colorless irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire SSAB is designated as Attainment for the State SO_2 standard and as an "Attainment/Unclassified" area under the federal SO_2 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 SSAB is designated as Attainment for the State lead standard and as an "Attainment/Unclassified" area under the federal lead standards.

Particulate Matter. Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles, PM_{10}, 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. Fine particles can also be formed in the atmosphere through chemical reactions. PM_{10} 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 PM_{10} 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 PM_{10} 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 SSAB is designated as a nonattainment area for the State PM_{10} standards. The EPA has officially designated the status for the SSAB regarding the PM_{10} standard as "Serious," which means the SSAB has until 2020 to attain the federal PM_{10} standard. The entire SSAB is designated an "Attainment/Unclassified" area under both State and federal $PM_{2.5}$ standards.

Reactive Organic Compounds. Reactive organic compounds (ROCs; also known as reactive organic gases [ROGs] and volatile organic compounds [VOCs]) are formed from combustion of fuels and evaporation of organic solvents. ROCs are not defined criteria pollutants but are a prime component of the photochemical smog reaction. Consequently, ROCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower. There is no attainment status for ROC.

Sulfates. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The entire SSAB is in attainment for the State standard for sulfates.

Hydrogen Sulfide. Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy

exploitation. In 1984, a California Air Resources Board (ARB) committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance. The entire SSAB is unclassified for the State standard for H_2S.

Visibility-Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. The entire SSAB is unclassified for the State standard for visibility-reducing particles.

4.3.4 Local Air Quality

The SCAQMD, together with the ARB, maintains ambient air quality monitoring stations in the Coachella Valley Source Receptor Area (Source Receptor Area 30). The closest monitoring station (approximately 4 miles [mi] from the project site), is the Indio air quality monitoring station, which monitors three of the criteria pollutants: O_3, PM_{10}, and $PM_{2.5}$. The closest monitoring station with CO and NO_2 data is the Palm Springs station (approximately 23 mi from the project site), and the closest with SO_2 data is the Calexico station (approximately 70 mi from the project site).

Air quality trends identified from data collected at both air quality monitoring stations from 2009 to 2011 are listed in Table 4.3.D. From the ambient air quality data listed, it can be seen that CO, NO_2, and SO_2 levels have not exceeded the relevant federal or State standards in the past 3 years. O_3 levels in the project area exceed the State and federal standards regularly, and PM_{10} and $PM_{2.5}$ levels exceeded the State standards only occasionally.

4.3.5 Regulatory Setting

Federal Policies and Regulations. Pursuant to the federal Clean Air Act of 1970 (CAA), the EPA established NAAQS for six major pollutants, termed criteria pollutants. Criteria pollutants are 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 by the EPA.

State Policies and Regulations. The ARB works with the public, the business sector, and local governments to address air pollution in California. The ARB identified particulate emissions from diesel-fueled engines (diesel particulate matter [DPM]) as toxic air contaminants (TACs) in 1998. In 2000, the ARB adopted the Diesel Risk Reduction Plan (Diesel RRP), which recommends control measures to reduce the risks associated with DPM and achieve goals of 75 percent DPM reduction by 2010 and 85 percent by 2020.

Table 4.3.D: Ambient Air Quality in the Project Vicinity

Pollutant	Standard	2010	2011	2012
Carbon Monoxide (Palm Springs-Fire Station)				
Maximum 1-hr concentration (ppm)		1.6	3.0	0.9
No. days exceeded:	State: > 20 ppm/1-hr	0	0	0
	Federal: > 35 ppm/1-hr	0	0	0
Maximum 8-hr concentration (ppm)		0.56	0.65	0.45
No. days exceeded:	State: ≥ 9 ppm/8-hr	0	0	0
	Federal: ≥ 9 ppm/8-hr	0	0	0
Ozone (Indio-Jackson Street station)				
Maximum 1-hr concentration (ppm)		0.100	0.099	0.102
No. days exceeded:	State: > 0.09 ppm/1-hr	6	3	2
Maximum 8-hr concentration (ppm)		0.087	0.090	0.089
No. days exceeded:	State: > 0.07 ppm/8-hr	45	42	45
	Federal: > 0.08 ppm/8-hr	19	19	24
Particulates (PM_{10}) (Indio-Jackson Street station)				
Maximum 24-hr concentration ($\mu g/m^3$)		107.0	375.9	270.6
No. days exceeded:	State: > 50 $\mu g/m^3$	4	3	7
	Federal: > 150 $\mu g/m^3$	0	2	2
Annual arithmetic average concentration ($\mu g/m^3$)		29.7	35.4	33.4
Exceeded:	State: > 20 $\mu g/m^3$ annual avg.	Yes	Yes	Yes
	Federal: > 50 $\mu g/m^3$ annual avg.	No	No	No
Particulates ($PM_{2.5}$) (Indio-Jackson Street station)				
Maximum 24-hr concentration ($\mu g/m^3$)		16.0	35.4	18.4
No. days exceeded:	Federal: > 35 $\mu g/m^3$	0	1	0
Annual arithmetic average concentration ($\mu g/m^3$)		6.8	7.1	7.6
Exceeded:	State: > 12 $\mu g/m^3$ annual avg.	No	No	No
	Federal: > 15 $\mu g/m^3$ annual avg.	No	No	No
Nitrogen Dioxide (Palm Springs-Fire Station)				
Maximum 1-hr concentration (ppm)		0.046	0.045	0.045
No. days exceeded:	State: > 0.25 ppm/1-hr	0	0	0
Annual average concentration (ppm)		0.009	0.008	N/A
Exceeded:	Federal: > 0.053 ppm annual avg.	No	No	N/A
Sulfur Dioxide (Calexico-Ethel Street station)				
Maximum 24-hr concentration (ppm)		0.004	0.003	0.003
No. days exceeded:	State: > 0.04 ppm/24-hr	0	0	0
	Federal: > 0.14 ppm/24-hr	0	0	0
Annual average concentration (ppm)		0.0	0.0	N/A
Exceeded:	Federal: > 0.030 ppm annual avg.	No	No	N/A

Source: *Air Quality Analysis*, LSA Associates, Inc. (June 2013).
hr = hour
N/A = Insufficient data available
ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter

Local and Regional Plans and Policies. The 1976 Lewis Air Quality Management Act established the SCAQMD 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 EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring conformity with the requirements of the CAA for the SSAB.

The ARB is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. Significant authority for air quality control within the local air basins has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan. The SCAQMD and the SCAG are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the SSAB. Every 3 years, the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon. The SCAQMD adopted the 2012 AQMP in December 2012 and forwarded it to ARB for review and approval.

The 2012 AQMP incorporated the latest scientific/technological information and planning assumptions, including the 2012 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) and updated emission inventory methodologies for various source categories. The 2012 AQMP included the new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

City of Coachella General Plan Environmental Hazards and Safety Element. The City's Environmental Hazards and Safety Element (page 177 in that General Plan Element) includes the following policies related to air quality that are applicable to the proposed project.

- Land uses that are sensitive to air pollution such as schools, child care centers, hospitals, playgrounds, retirement and convalescent homes shall be identified and isolated from air pollution sources.
- The City shall review proposed developments through the environmental and design review processes to ensure that negative impacts are mitigated.
- The City shall require all proposed developments meet the significance threshold criteria established by the SCAQMD in the most recent version of the "CEQA Air Quality Handbook."
- The City shall encourage the use of low polluting building and construction methods and materials to reduce emissions from construction activities.
- The City shall encourage developers to limit extensive grading and cut & fill operations that generate PM_{10}.

- During site preparation, the City shall require adequate watering of construction sites, construction vehicle wheel washing and adherence to SCAQMD Rule 403 to ensure the cleanup of construction related dirt on approach routes to the site to reduce PM_{10} emissions.
- During site preparation, the City shall require that grading operations be suspended during first and second stage ozone episodes or when winds exceed 30 mph.
- The City shall require any construction access roads to be paved and cleaned after each work day to reduce PM_{10} emissions.
- The City shall require that any trucks hauling dirt, sand, soil or other loose dirt material off-site during site preparation activities be covered.

4.3.6 Project Design Features

As summarized in Chapter 3.0, Project Description, the proposed Specific Plan includes components that are referred to as Project Design Features. Project Design Features related to air quality are:

- The Specific Plan development is proposed to be phased, with the initial Phase 1 grading limited to the area necessary to achieve mass balancing and proper drainage of the overall property, leaving the balance of the site in its current condition until such time the remaining phases begin to develop. This phased development would reduce the overall area being disturbed at any one time and will substantially reduce the overall annual grading emissions.
- The Specific Plan development will substantially reduce current site particulate matter emissions by the implementation of various ground cover emission controls such as plant landscaping, bark cover, asphalt and concrete cover, and home placement.
- The Specific Plan provides for a mix of residential and employment uses, as well as nonvehicular circulation such as bike and pedestrian trails, serving to reduce vehicle miles traveled (VMT) and associated air emissions.

4.3.7 Thresholds of Significance

The following thresholds of significance criteria are based on Appendix G of the *CEQA Guidelines*. Based on these thresholds, implementation of the proposed project would have a significant adverse impact related to air quality if it would:

Threshold 4.3.1: Conflict with or obstruct implementation of the applicable air quality plan;

Threshold 4.3.2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

Threshold 4.3.3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

Threshold 4.3.4: Expose sensitive receptors to substantial pollutant concentrations; or

Threshold 4.3.5: Create objectionable odors affecting a substantial number of people.

4.3.8 Project Impacts

Threshold 4.3.1: Would the project result in a significant adverse impact if it conflicts with or obstructs implementation of the applicable air quality plan

Significant Unavoidable Adverse Impact. The primary objective of the SCAQMD AQMP is to demonstrate attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the South Coast Air Basin (Basin) through adoption of all feasible measures and to update the EPA approved 8-hour ozone control plan with new measures designed to reduce reliance on the CAA Section 182 (e)(5) long-term measures for NO_X and VOC reductions.

The following are indicators of AQMP consistency:

- **Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?** The current land use designations for the project site are consistent with land use designations established by the McNaughton Specific Plan, which was previously approved for the project site and is included in the City's current General Plan and Zoning designations for the project site. The proposed project's land uses would be similar to those established by the McNaughton Specific Plan, although placed in different areas on the project site. Therefore, the existing General Plan designations are considered to be consistent with the proposed land uses; thus, the existing AQMP includes emissions for the proposed land uses.[1] However, as indicated in the analysis below, the proposed project would exceed several SCAQMD emission thresholds during both construction and operation. Thus, even though the project is consistent with the land use plans in the AQMP, it is possible that these emissions would delay timely attainment of the air quality standards. Therefore, the emissions associated with construction, occupation, and use of the project are expected to exceed the General Plan projections and could delay timely attainment of air quality standards and the interim emissions reductions specified in the AQMP.
- **Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?** As described in Section 4.13, Population and Housing, and above regarding consistency with the McNaughton Specific Plan that was previously approved for the project site, the proposed project is consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP.
- **Would the project implement all feasible air quality mitigation measures?** The proposed project would implement all feasible air quality mitigation measures as described later in Section 4.3.9.
- **Would the project be consistent with the land use planning strategies set forth in the AQMP?** The proposed project's land uses would be similar to those established by the McNaughton Specific Plan, although placed in different areas on the project site. Therefore, the existing General Plan designations are considered to be consistent with the proposed land uses; thus, the existing AQMP includes emissions for the proposed land uses.

[1] SCAQMD 2012 AQMP (February 2013), page 3-1 states, "Future emissions forecasts are primarily based on demographic and economic growth projections provided by SCAG in their RTP." SCAG's 2012–2035 RTP states on page 32 that "The RTP/SCS has been developed using a 'bottom-up' approach respecting local communities' General Plans and growth input."

General Plan Air Quality Element Policy Analysis. The City General Plan includes policies related to air quality that apply to the proposed project. The proposed project is consistent with most of the applicable General Plan policies, as shown in Table 4.3.E. However, as indicated in the analysis below, the proposed project would exceed several SCAQMD emission thresholds during both construction and operation. Therefore, the proposed project would be partially inconsistent with some of the General Plan policies. Because there is no feasible mitigation to reduce all construction and operation emissions to a less than significant level, there is no way to mitigate the partial inconsistency with the General Plan policies. Impacts related to these two policies are described in Table 4.3.E.

The emissions associated with occupation and use of the project are expected to exceed the General Plan projections and could contribute to air quality deterioration beyond current SCAQMD projections, and therefore, mitigation is required.

Threshold 4.3.2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation

Significant Unavoidable Adverse Impact.

Construction. Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. Implementation of the proposed project would include demolition of miscellaneous minor structures and old roadways, site preparation and grading operations, and construction of the new facilities that would include the application of architectural coatings and paving operations. As shown in the Conceptual Grading Plan described in Section 2.5, Grading, of the La Entrada Specific Plan and as shown earlier on Figure 3.13, the grading concept for the Specific Plan estimates that no import or export of materials is required and that grading would be balanced on site. The Specific Plan would be developed in phases, as described below. The phases are grouped to be consistent with the analysis performed in the *La Entrada Traffic Impact Analysis*. While it is not expected that construction of any phase would overlap with any other, this analysis conservatively analyzes the construction of Phases 1 and 2 concurrently, Phases 3 and 4 concurrently, and Phase 5 alone. Mitigation Measure 4.3.8 prohibits the overlapping of construction phases except as provided herein.

- **Phases 1 and 2:** Please refer to Figures 3.3 through 3.6 in Section 3.0, Project Description, for the locations of the proposed project phases and Villages. Phase 1 includes development in the western portions of Central Village and Hillside Village. Phase 2 includes the central portion of Central Village and a small portion of Hillside Village. The land use plan for Phase 1 includes open space areas on the western and southwestern boundary of the site, with a residential overlay area zone for portions of the open space areas along the southwest edge, including medium-density and high-density residential development, parks/recreation areas, and mixed uses. Land uses for Phase 2 include low-, medium- and high-density residential,

Table 4.3.E: Applicable Environmental Hazards and Safety Element Policies

General Plan Environmental Hazards and Safety Element Policies[1]	Project Consistency
Land uses that are sensitive to air pollution such as schools, child care centers, hospitals, playgrounds, and retirement and convalescent homes shall be identified and isolated from air pollution sources.	The proposed project's mixed land use plan does not place sensitive land uses in proximity to air pollution sources (industrial sites, refineries, etc.). The project site is adjacent to the I-10 freeway; however, in accordance with the Screening Health Risk Assessment of I-10 Emissions discussed below, future project residents and workers would not be significantly impacted by toxic air contaminants from I-10. The proposed project is, therefore, consistent with this policy.
The City shall review proposed developments through the environmental and design review processes to ensure that negative impacts are mitigated.	Even with available mitigation, construction equipment/vehicle emissions of ROG, NO_X, and CO would exceed the SCAQMD emission thresholds. Long-term operational activities would exceed the SCAQMD daily thresholds for ROG, NO_X CO, PM_{10} and $PM_{2.5}$. Even with feasible mitigation, the proposed project would result in significant and unavoidable air quality impacts. Therefore, the proposed project is considered partially inconsistent with this policy.
The City shall require all proposed developments meet the significance threshold criteria established by the SCAQMD in the most recent version of the "CEQA Air Quality Handbook."	As stated above, the proposed project would exceed some of the significance threshold criteria established by the SCAQMD, even with feasible mitigation, resulting in significant and unavoidable air quality impacts. Therefore, the proposed project is considered partially inconsistent with this policy.
The City shall encourage the use of low polluting building and construction methods and materials to reduce emissions from construction activities.	The proposed project would be required to utilize diesel construction equipment that complies with the EPA Tier 4–Final emissions standards and to comply with the SCAQMD Rule 1113 and any other SCAQMD rules and regulations on the use of architectural coatings or HVLP spray methods to reduce emissions associated with architectural coatings. The proposed project is, therefore, considered consistent with this policy.
The City shall encourage developers to limit extensive grading and cut & fill operations that generate PM_{10}, Particulate Matter.	With mitigation, project construction activities (including grading) would not exceed the SCAQMD daily thresholds for PM_{10}. The proposed project is, therefore, considered consistent with this policy.
During site preparation, the City shall require adequate watering of construction sites, construction vehicle wheel washing and adherence to SCAQMD Rule 403 to ensure the cleanup of construction related dirt on approach routes to the site to reduce PM_{10} emissions.	The proposed project would be required to comply with SCAQMD Rule 403 to control fugitive dust during construction. As discussed in this section, with these standard control measures, fugitive dust emissions would be below SCAQMD thresholds. The proposed project is, therefore, considered consistent with this policy.
During site preparation, the City shall require that grading operations be suspended during first and second stage ozone episodes or when winds exceed 30 mph.	The proposed project would be required to comply with SCAQMD Rule 403 to control fugitive dust during construction. As discussed in this section, with these standard control measures, fugitive dust emissions would be below SCAQMD thresholds. The proposed project is, therefore, considered consistent with this policy.
The City shall require any construction access roads to be paved and cleaned after each work day to reduce PM_{10} emissions.	The proposed project would be required to comply with SCAQMD Rule 403 to control fugitive dust during construction. As discussed in this section, with these standard control measures, fugitive dust emissions would be below SCAQMD thresholds. The proposed project is, therefore, considered consistent with this policy.
The City shall require that any trucks hauling dirt, sand, soil or other loose dirt material off-site during site preparation activities be covered.	The proposed project would be required to comply with SCAQMD Rule 403 to control fugitive dust during construction. As discussed in this section, with these standard control measures, fugitive dust emissions would be below SCAQMD thresholds. The proposed project is, therefore, considered consistent with this policy.

[1] These policies are listed on page 177 in the City of Coachella General Plan Environmental Hazards and Safety Element.

CEQA = California Environmental Quality Act
City = City of Coachella
CO = carbon monoxide
EPA = United States Environmental Protection Agency
HVLP = high volume, low pressure
mph = miles per hour
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic compounds
SCAQMD = South Coast Air Quality Management District

mixed uses, and two school sites. Community/public facilities in the mixed-use areas may include police station, fire station, places of worship, community center, and farmers market, etc.

As part of Phase 1 of the proposed development, Avenues 50 and 52 would be extended into the Specific Plan project area to serve the development. In addition, water, sewer, utilities, and drainage infrastructure (including four of the five retention basins) would be constructed. All utilities and infrastructure would be extended with each subsequent phase to support the proposed development of each future phase.

- **Phases 3 and 4:** Phase 3 is located entirely within Hillside Village and includes development of low-density and medium-density residential uses, parks/recreation areas, open space, and two school sites. Phase 4 includes the eastern portions of Central Village and Hillside Village. Land uses to be developed in these phases include very low-, low-, and medium-density residential uses, parks/recreation areas, and open space areas.
- **Phase 5:** Phase 5 encompasses the entirety of Gateway Village. This phase includes the highest-intensity commercial mixed uses, high-, medium- and low-density residential, parks/recreation areas, open space areas, and a regionally oriented special-use park. The special-use park is approximately 176.6 acres (ac) and would include a variety of regionally oriented uses. Examples of such uses could include a soccer stadium, outdoor amphitheater, community center, soccer fields, extreme sports area (skate park, BMX track, ropes course, disc golf), potential-lake/water reservoir, and passive recreation areas.

Table 4.3.F summarizes the phasing plan.

Table 4.3.F: Specific Plan Phasing

Phase	Acreage	Dwelling Units	Commercial/ Office	Grading/ Grading Duration	Construction Duration
1	480	1,471	110,000 sf/ 10.1 ac	3.5 million cy 12 months Start late 2014	2015–2020
2	270	1,393	360,000 sf/ 41.8 ac	4.5 million cy 9 months	2020–2025
3	340	1,243	--	7 million cy 18 months	2025–2030
4	340	1,031	--		2030–2034
5	550	2,662	1,040,879 sf/ 520 ac	4.1 million cy 9 months	2034–2045

Source: *Air Quality Analysis*, LSA Associates, Inc. (June 2013).
ac = acres
cy = cubic yards
sf = square feet

Because design and engineering of planning areas and/or individual tract maps have not been developed, this analysis is a conceptual worst-case analysis for emissions associated with project construction, including on-site and off-site development improvements (i.e., the extensions of Avenues 50 and 52). To provide a worst-case scenario, it is assumed that emissions from grading, construction, paving, and architectural coatings phases occur at the same time, although in reality, the phases would not occur simultaneously. Additionally, as discussed in Section 4.16, Traffic

and Circulation, off-site intersection improvements are prescribed to mitigate potential traffic impacts. The schedule under which these intersection improvements would be constructed is not known. For this analysis, it was assumed that five intersections could be under construction on the same day as the combined grading/construction/architectural coating/paving period.

Table 4.3.G lists the construction phases and estimated durations. Table 4.3.H lists representative sets of emission sources and the anticipated equipment per project plans, augmented with CalEEMod defaults, to be used during each construction phase.

Table 4.3.G: Construction Schedule

Construction Phase	Number of Months		
	Phases 1 & 2	Phases 3 & 4	Phase 5
Demolition	4	4	4
Site Preparation	7	7	7
Grading	12	12	12
Building Construction	50	50	50
Architectural Coating	33	33	33
Paving	30	30	30

Source: *Air Quality Analysis*, LSA Associates, Inc., June 2013.

Table 4.3.H: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	4	8	81	0.73
	Excavators	3	8	157	0.57
	Rubber-Tired Dozers	4	8	358	0.59
Site Preparation	Rubber-Tired Dozers	6	8	358	0.59
	Tractors/Loaders/Backhoes	6	8	75	0.55
Grading	Graders	2	8	162	0.61
	Rubber Tired Dozers	3	8	358	0.59
	Scrapers	12	8	356	0.72
	Tractors/Loaders/Backhoes	3	8	75	0.55
Building Construction	Cranes	2	7	208	0.43
	Forklifts	15	8	149	0.3
	Generator Sets	10	8	84	0.74
	Other Construction Equipment	10	8	327	0.62
	Tractors/Loaders/Backhoes	15	7	75	0.55
	Welders	10	8	46	0.45
	Air Compressors	10	6	78	0.48
Architectural Coating	Pavers	4	8	89	0.62
Paving	Paving Equipment	4	8	82	0.53
	Rollers	4	8	84	0.56
	Concrete/Industrial Saws	4	8	81	0.73

Source: *Air Quality Analysis*, LSA Associates, Inc., June 2013.

The most recent version of the CalEEMod model (Version 2011.1.1) was used to calculate construction emissions, as shown in Table 4.3.I. The emissions shown are the combination of on- and off-site emissions. This table lists emissions that represent a peak day during the various construction years. These emission calculations include standard SCAQMD-required control measures to reduce fugitive dust emissions from construction. Emissions from trenching are included in the Building Construction phase to be performed by the Tractor/Loader/Backhoe equipment. The construction of this project is expected to generate very little waste to be hauled away due to the site being undeveloped with a few old paved roadways. In addition, Mitigation Measure 4.7.7 in Section 4.7, Global Climate Change, requires the recycling or salvaging of at least 75 percent of construction waste materials. The analysis includes that only 80 tons of construction waste would be hauled off site, respectively, for Phases 1 and 2 combined, Phases 3 and 4 combined, and Phase 5, each of which would require eight or fewer haul trips. Solid waste will be taken to the Coachella Valley Transfer Station, located at 87011 Landfill Road, approximately 5 mi northeast of the project site. However, for modeling purposes, it was conservatively assumed that construction waste could be hauled an average of 20 mi from the project site. Construction workers and delivery vehicle estimates are listed in Appendix A, CalEEMod Model Printouts, in the *Air Quality Analysis*.

Table 4.3.I: Short-Term Regional Construction Emissions - Unmitigated

Construction Phase	Total Regional Pollutant Emissions (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Phases 1 and 2						
Peak Daily Emissions	285	877	742	1.5	97	49
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant Emissions?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Phases 3 and 4						
Peak Daily Emissions	405	476	638	1.7	94	27
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant Emissions?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Phase 5						
Peak Daily Emissions	570	460	709	2.1	130	26
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant Emissions?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

Source: Tables L, M, and N from the *Air Quality Analysis*, LSA Associates, Inc. (June 2013).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic compounds
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides

As shown, construction equipment/vehicle emissions of ROG, NO_X, and CO would exceed the SCAQMD emission thresholds for Phase 1 and 2 and Phase 5 of the project construction and only ROG and NO_X, during Phase 3 and 4. Details of the emission factors and other assumptions are included in the *Air Quality Analysis*.

Fugitive Dust. Fugitive dust emissions are generally associated with land clearing and exposure of soils to air/wind and cut-and-fill grading operations. Dust generated during

construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction.

Construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. The proposed project would be required to comply with SCAQMD Rule 403 to control fugitive dust, as indicated later in Section 4.3.8, Standard Conditions. As shown in Table 4.3.I, with these standard control measures, fugitive dust emissions would be below SCAQMD thresholds. No mitigation measures would be required.

Summary: Regional Construction Emissions. As shown in Table 4.3.I, peak daily construction emissions with only standard control measures and no mitigation incorporated would exceed the SCAQMD daily thresholds for ROG, NO_X, and CO, but not for SO_2, PM_{10}, or $PM_{2.5}$. Mitigation measures to reduce ROG, NO_X, and CO consist principally of the use of Tier 4 diesel equipment to reduce exhaust emissions, while measures to reduce ROG emissions include methods to increase efficiency of applying architectural coatings. These mitigation measures are discussed below. Table 4.3.J contains peak daily construction emissions with all feasible mitigation measures incorporated/applied.

Table 4.3.J: Short-Term Regional Construction Emissions – Mitigated

Construction Phase	Total Regional Pollutant Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Phase 1 and 2 (Tier 4 and architectural coating measures)						
Peak Daily Emissions	126	150	787	1.5	59	11
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant Emissions?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Phase 3 and 4 (Tier 4 and architectural coating measures)						
Peak Daily Emissions	200	140	745	1.7	79	12
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant Emissions?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Phase 5 (Tier 4 and architectural coating measures)						
Peak Daily Emissions	285	174	821	2.1	118	14
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant Emissions?	**Yes**	**Yes**	**Yes**	**No**	**No**	**No**

Source: Tables O, P, and Q from *Air Quality Analysis*, LSA Associates, Inc. (June 2013).

CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic compounds
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides

Architectural Coatings. Architectural coatings contain VOCs that are similar to ROG and are part of the O_3 precursors. The ROG threshold would be exceeded during the application of architectural coatings due to the large amount of ROG emissions that would occur as the coatings are sprayed on and cured. Based on project plans, it is estimated that the application of architectural coatings on the proposed buildings using standard application techniques (standard spray) with a 25 percent transfer efficiency would result in emissions of VOC that

would be significantly more than the SCAQMD ROG threshold of 75 pounds per day (lbs/day).

Emissions associated with architectural coatings could be reduced by using precoated/natural-colored building materials, using water-based or low-VOC coating, and using coating transfer or spray equipment with high transfer efficiency. For example, a high-volume, low-pressure (HVLP) spray method is a coating application system operated at air pressure between 0.1 and 10 pounds per square inch gauge (psig), with 65 percent transfer efficiency. The use of an HVLP spray method would increase the transfer efficiency from 25 percent with the standard spray technique to 65 percent. Therefore, Mitigation Measure 4.3.1 requires compliance with SCAQMD Rule 1113 and any other SCAQMD rules and regulations on the use of architectural coatings in order to reduce these emissions.

However, while HVLP application techniques can reduce these emissions below the level of emissions used in traditional application techniques, it is not feasible to reduce the significant ROG emissions to less than 75 lbs/day, the SCAQMD thresholds, as indicated on Table 4.3.J. There is no feasible mitigation available that would reduce this exceedance to below the thresholds. Therefore, project construction would result in significant and unavoidable short-term adverse air quality impacts related to ROG emissions. This short-term construction impact would therefore be an unavoidable significant impact of the proposed project.

Construction Equipment Emissions. The short-term NO_X and CO emissions could be reduced by requiring the use of newer construction equipment with better emissions controls, or older equipment with emissions controls retrofitted, or by reducing the amount of equipment used on any given construction day. The EPA has implemented non-road diesel emissions reductions in phases called tiers. Tier 1 emission standards were adopted in 1990. Tier 2 emission standards were phased in from 2001 to 2005. Tier 3 was implemented between 2006 and 2008. Tier 4 begins in the 2013–2015 time period. Thus, for Phases 1 and 2, Tier 4 equipment would be available. For Phases 3 and 4, Tier 4 equipment would be readily available. By the time Phase 5 is constructed, Tier 4 equipment would be all that is available.

As indicated on Table 4.3.I, the unmitigated short-term NO_X and CO emissions would be significantly more than the SCAQMD daily thresholds. Therefore, Mitigation Measure 4.3.2 has been prescribed, and requires that the proposed project utilize diesel construction equipment that complies with the EPA Tier 4–Final emissions standards during all grading and construction phases. However, even if all the construction equipment conformed to the EPA's Tier 4–Final specification (the most restrictive level of emissions controls), it is not feasible to reduce the significant levels of NO_X and CO emissions to less than the SCAQMD daily thresholds,[1] as shown on Table 4.3.J. Therefore, project construction would result in significant and unavoidable short-term adverse air quality impacts related to NO_X and CO emissions. This short-term construction impact would therefore be an unavoidable significant impact of the proposed project.

[1] Designing diesel engines involves a trade-off between NO_X, PM, and CO emissions. As combustion temperatures increase, PM and CO go down but will increase thermal NO_X formation; as temperatures decrease, NO_X levels go down but PM and CO increase due to incomplete combustion.

Operations. Long-term project operations produce air emissions from the proposed mix of residential and commercial land uses. Based on the project traffic study and including certain benefits of the PDFs and Sustainability Features that can be quantified,[1] long-term operational emissions associated with the proposed project, calculated with the CalEEMod model, are shown in Table 4.3.K. Area sources include architectural coatings, consumer products, and landscaping maintenance performed on the project site. Energy sources include natural gas consumption for heating and electricity for lighting in the buildings and outdoor areas. Mobile sources (vehicles associated with the proposed residential and commercial land uses) combine traffic volumes from the traffic study with regional data on typical trip lengths to derive VMT. Table 4.3.K shows that during operations, peak daily emissions would exceed the SCAQMD daily thresholds for ROG, NO_X, CO, PM_{10} and $PM_{2.5}$, but not for SO_X.

Table 4.3.K: Long-Term Regional Operational Emissions

Source	Pollutant Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Phases 1 and 2						
Area Sources	120	2.8	240	0.01	1.4	1.4
Energy Sources	2.1	18	8.1	0.12	1.5	1.5
Mobile Sources	480	2,000	4,200	9.3	1,000	82
Total Emissions	**600**	**2,000**	**4,400**	**9.4**	**1,000**	**85**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Phases 1 through 4						
Area Sources	230	4.9	430	0.02	2.4	2.4
Energy Sources	4.6	40	17	0.25	3.2	3.2
Mobile Sources	580	2,400	4,800	15	1,600	110
Total Emissions	**820**	**2,400**	**5,200**	**15**	**1,600**	**120**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
Phases 1 through 5						
Area Sources	360	7.5	650	0.03	4.3	4.3
Energy Sources	6.4	55	24	0.35	4.5	4.5
Mobile Sources	1,100	4,800	9,100	31	3,200	210
Total Project Emissions	**1,470**	**4,900**	**9,800**	**31**	**3,200**	**220**
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Source: *Air Quality Analysis*, LSA Associates, Inc. (June 2013).
Note: The quantifiable PDF and water and energy efficiency Sustainability Feature benefits are incorporated. All values have been rounded to two significant digits, thus some numbers would not appear to sum correctly.
CO = carbon monoxide
CO_2 = carbon dioxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROCs = reactive organic compounds
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides

[1] Based on the research done by SCAQMD for CalEEMod, the only PDF that would produce a quantifiable emissions reduction is the second bullet listed in Section 4.7.7 about photovoltaic cell use and green building techniques. This would reduce GHG emissions from electrical power plants. This PDF would reasonably reduce the project-related increase of these emissions by 5 percent. Additionally, Sustainability Features in Section 4.7.9, which include energy and water efficiency components, would reduce the project-related increase of these emissions by 10 percent.

In order to reduce stationary emissions, Mitigation Measure 4.3.7 is proposed and requires the project to comply with Title 24 of the California Code of Regulations (CCR) established by the California Energy Commission (CEC) regarding energy conservation and green buildings standards. Although this would help reduce operational emissions, the majority of the emissions causing the exceedances are from privately owned vehicles operating as a result of the project. There are no feasible mitigation measures available to the project that would have any effect on emissions from private vehicles. Reductions in operational emissions from Mitigation Measure 4.3.7 cannot be quantified because, while some of the measures indicate a quantified energy reduction amount, that does not translate into a corresponding quantified pollutant emissions reduction amount. Accordingly, this EIR analyzes and discloses the worst-case scenario impacts resulting from operations as set forth in Table 4.3.K, above.

Thus, there are no feasible mitigation measures to reduce these operational air quality impacts to a less than significant level. Therefore, ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions for all phases would be considered unavoidable significant impacts of the proposed project.

ROG and NO_X are considered ozone precursors because they contribute to ozone formation and ozone is a regional pollutant. Mitigation Measures 4.3.1 through 4.3.7 meet all SCAQMD recommendations to minimize the emissions of these ozone precursors and prevent a significant ozone impact. Thus, with implementation of these mitigation measures, the project's potential impact to ozone would be less than significant.

As described in the *Air Quality Analysis* in Section 3.1.1 and Table C, criteria pollutant concentration standards were set at levels that protect public health with an adequate margin of safety. The health effects described there would not occur unless the concentration standards are exceeded by a large margin or for a prolonged period of time. While the proposed project would result in daily emissions rates that exceed thresholds, due to the emissions sources being spread out[1] and atmospheric dispersion of the emissions, these rates would not result in concentration levels that exceed standards at any existing or planned sensitive receptor location.

Threshold 4.3.4: Expose sensitive receptors to substantial pollutant concentrations

Less than Significant Impact.

Naturally Occurring Asbestos. The proposed project is located in Riverside County, which is not among the counties that are found to have serpentine and ultramafic rock in their soils. Therefore, the potential risk for naturally occurring asbestos (NOA) during project construction is small and less than significant. No mitigation is required.

Long-Term Microscale (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 local areas as a result of the proposed project. The primary mobile source pollutant of local

[1] The emissions sources would be spread out (i.e., project-generated traffic on and off site, project building HVAC emissions, landscape maintenance and consumer products spread out) over the 2,200 ac project site.

concern is CO, which is a direct function of vehicle idling time and, thus, traffic flow conditions. CO[1] 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 unhealthful 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 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 Palm Springs station, the closest station with complete monitored CO data, showed a highest recorded 1-hour concentration of 3.0 parts per million (ppm) (State standard is 20 ppm) and a highest 8-hour concentration of 0.67 ppm (State standard is 9 ppm) during the past 3 years (see Table 4.3.D).

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 project *Traffic Impact Analysis* (provided in Appendix L), CO hot-spot analyses were conducted for:

- Existing Plus Phases 1 through 4 without Avenue 50 interchange;
- Existing Plus Full Project (Phases 1 through 5) without Avenue 50 interchange conditions;
- Existing Plus Full Project (Phases 1 through 5) with Avenue 50 interchange;
- Opening Year for Phases 1 and 2 (2020) without and with Project;
- Opening Year for Phases 3 and 4 (2030) without and with Project; and
- Opening Year for Phase 5 (2035) without and with Project.

The proposed project would contribute to increased CO concentrations at intersections in the project vicinity. The distances used for the analysis are prescribed in the CO Hotspots protocol,[2] based on intersection geometry, to insure that the CO concentrations are fully characterized. While the traffic study analyzed 83 intersections surrounding the project site, 12 of those with the highest project-related vehicle-turning movements and the worst level of service deterioration from project traffic were selected for CO modeling. As shown in the *Air Quality Analysis* under all scenarios, all 12 intersections analyzed would have 1-hour and 8-hour CO concentrations below the federal and State standards both without and with the project. As a result, the proposed project would not have a significant impact on local air quality for CO, and no mitigation measures would be required.

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1 CO was singled out by the ARB and air districts for hotspots analysis because the region was in non-attainment for CO (it is not anymore) and thus there was a potential for CO exceeding the AAQS with project traffic-related emissions increases. All of the other pollutants in vehicle exhaust have low enough ambient concentrations that there is no risk of project contributions resulting in an AAQS exceedance.

2 Caltrans Transportation Project-Level Carbon Monoxide Protocol, UCD-ITS-RR-97-21, Appendix B, Section B.4.4.

Locally Significant Pollutant Concentrations. The project site is currently vacant and undeveloped. There are no existing residences in the immediate vicinity of the project site. As shown on Figure 4.1.1 in Section 4.1, Aesthetics, there are existing residences along Avenue 51 and Avenue 52 that are all more than a mile from the nearest part of the project site that could be exposed to increased pollutant concentrations from construction emissions. Additionally, during construction of the subsequent phases of the Specific Plan, there could be residents of the earlier phases similarly exposed. However, due to the size of the construction areas, the majority of construction activities would be located 1,000 or more feet from these sensitive receptors. Thus, measurable pollutant concentration increases are very unlikely.

The SCAQMD published its *Final Localized Significance Threshold Methodology* in June 2003, recommending that all project-level air quality analyses include an assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. Because the Specific Plan for development of a new community, and the SCAQMD localized significance analysis is designed for project-level analyses, the localized significance analysis in not applicable.

Screening Health Risk Assessment of I-10 Emissions. The following health risk assessment (HRA) evaluates the health risks of air toxics from diesel trucks traveling on Interstate 10 (I-10) near the project site to future resident of the proposed project. There is no need to assess a health risk impact from the proposed project because there is not expected to be sufficient quantity of toxic pollutant emissions from the Specific Plan land uses to require examining the potential risk level to existing and future sensitive receptors.

Determining how hazardous a substance is depends on many factors, including the amount of the substance in the air, how it enters the body, how long the exposure lasts, and what organs in the body are affected. One major way these substances enter the body is through inhalation of gas or particulate substances. While many gases are harmful, very small particles penetrate deeply into the lungs, contributing to a range of health problems. Exhaust from diesel engines is a major source of these airborne particles. California's Office of Environmental Health Hazard Assessment (OEHHA) has determined that long-term exposure to DPM poses the highest cancer risk of any toxic air contaminant it has evaluated. Accordingly, the analysis of DPM impacts provided a worst-case analysis of chronic and cancer-related health impacts from diesel engines exhaust. Improvements to diesel fuel and diesel engines have already reduced emissions of some of the contaminants, which, when fully implemented, would result in an 85 percent reduction in DPM emissions from diesel-powered trucks and other equipment by 2020 (compared to 2000 levels).

There are currently no federal project-level requirements for air toxics analysis, and CEQA only requires consideration of the risks from toxics, with SCAQMD providing the *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis* (March 2003) for guidance. SCAQMD has established a maximum individual cancer risk significance threshold of 10 in 1 million (1.0×10^{-5}) and a noncarcinogenic hazard index of 1.0.

According to the ARB,[1] when conducting an HRA, the surrogate for whole diesel exhaust is DPM, which is used as the basis for the potential risk calculations. Emissions factors developed for diesel engines are published for PM_{10} rather than DPM. While not all diesel exhaust PM_{10} is DPM, for this HRA, the two were considered identical. This would slightly overstate the health risk, thus making this HRA slightly more protective of the health of the future residents of the proposed project.

When conducting an HRA, the potential cancer risk from inhalation exposure to DPM would outweigh the potential non-cancer health impacts. Therefore, inhalation cancer risk is required for every HRA. When comparing whole diesel exhaust to speciated diesel exhaust (e.g., polycyclic aromatic hydrocarbons [PAHs], metals), potential cancer risk from inhalation exposure to whole diesel exhaust would outweigh the multipathway cancer risk from the speciated components. For this reason, there would be few situations where an analysis of multipathway risk is necessary.[2]

To estimate the potential cancer risk associated with diesel engine exhaust, a dispersion model is used to translate an emission rate from a source location to a concentration at a receptor location of interest. Dispersion modeling varies from a simpler, more conservative screening-level analysis to a more complex and refined detailed analysis. This calculation was performed using the EPA-approved SCREEN3 computer model. This model provides conservative estimates of concentrations considering site and source geometry, source strength, distance to receptor, and building wake effects on plume distribution. The SCREEN3 model was developed to provide an easy-to-use method of obtaining pollutant concentration estimates where upper-bound estimates are required or where meteorological data is unavailable. It is a useful tool in proving that an impact is not significant (i.e., if a screening-level analysis demonstrates an impact is not significant, its conservative nature provides confidence in this conclusion). Screening-level modeling is less useful in concluding that an impact is significant. When a screening-level analysis indicates a potentially significant impact, this conclusion normally points to the need for a more sophisticated (and less conservative) method of analysis using a model such as the American Meteorological Society (AMS)/United States Environmental Protection Agency (EPA) Regulatory Model (AERMOD).

This screening-level analysis was conducted as recommended in the OEHHA Guidelines and by the ARB (HARP Model Documentation, Appendix K, Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Engines, ARB, February 2005). It consists of the following steps:

1. Determining the PM_{10} emission factor
2. Determining the PM_{10} emission rate
3. Determining the PM_{10} concentration at location(s) of interest

[1] HARP Model Documentation, Appendix K, *Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Engines*, ARB, http://www.arb.ca.gov/toxics/harp/docs/userguide/appendixK.pdf, accessed June 2013.

[2] OEHHA, *Air Toxics Hot Spots Program Risk Assessment Guidelines*, August 2003, Appendix D, *Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Vehicles*, Section B.

4. Translating the PM_{10} concentration(s) to health risk values
5. Comparing the health risk values to thresholds and determining significance

The PM_{10} emission factor was determined by using the ARB model, EMFAC2011, to generate PM_{10} emission factors for diesel trucks traveling on I-10. The PM_{10} emission rate was determined by using California Transportation Department (Caltrans) total average daily traffic (ADT) volumes for the I-10, shown in Table 4.3.L, and an average speed of 50 miles per hour (mph). While truck speeds vary considerably, 50 mph was chosen as a representative average and because the PM_{10} emissions rate is highest at this speed. Additionally, it was assumed that 75 percent of medium trucks and 90 percent of heavy trucks are diesel-powered.[1] This analysis assumed that these traffic volumes and emission rates are constant for 70 years[2].

Table 4.3.L: Caltrans I-10 Traffic Data

Location	Total Vehicles (ADT)	Total Trucks (ADT)	2-Axle Trucks	3-Axle Trucks	4-Axle Trucks	5+-Axle Trucks
I-10 Mainline at Dillon Road	22,000	8,716	1,140	169	96	7,311

Source: Caltrans website: http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/, accessed May 29, 2013.
ADT = average daily traffic
Caltrans = California Department of Transportation
I-10 = Interstate 10

Model Results. As described in the *Air Quality Analysis*, the inhalation cancer risk for adults and children and inhalation chronic risk (the same for people of all ages) were calculated using the peak Caltrans ADT volumes for I-10 at various distances starting at 165 feet (ft) from the center line of I-10. The data inputs for the HRA model are described in the *Air Quality Analysis* report. The results of the modeling are shown in Table 4.3.M. As shown, the cancer risk threshold of 10 in 1 million and the chronic risk threshold of 1 would not be exceeded at the location of any residence on the project site. Therefore, there would not be any significant health risks to persons living on the project site near I-10, and no mitigation measures would be required.

[1] ARB data built into the URBEMIS 2007 and CalEEMod models.

[2] This is primarily due to limitations of the air dispersion and health risk models – they are only capable of handling a single emission rate over the period of analysis. In this case, the period of analysis is the 70-year lifetime exposure.

Table 4.3.M: Results of Health Risk Assessment Modeling

Distance from Roadway Centerline (ft)	Scaled PM_{10} Concentrations		Inhalation Cancer Risk for Adults (# in 1 Million)	Inhalation Cancer Risk for Children (# in 1 Million)	Inhalation Chronic Risk Factor[1]
	1-Hour ($\mu g/m^3$)	Annual ($\mu g/m^3$)			
165	0.0000087	0.00000069	0.00016	0.000030	0.00000014
195	0.0000073	0.00000058	0.00013	0.000025	0.00000012
230	0.0000065	0.00000052	0.00012	0.000023	0.00000010
260	0.0000062	0.00000049	0.00011	0.000022	0.00000010
295	0.0000055	0.00000044	0.00010	0.000019	0.00000009

Source: *Air Quality Analysis*, LSA Associates, Inc., June 2013.
[1] Chronic Risk Factor = Estimate Exposure Level/Reference Exposure Level (A risk factor of 1 or less indicates that no adverse health effects are expected.)
ft = feet
$\mu g/m^3$ = micrograms per cubic meter
PM_{10} = particulate matter less than 10 microns in diameter

Threshold 4.3.5: Create objectionable odors affecting a substantial number of people

Less than Significant Impact with Mitigation Incorporated. SCAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."

Construction. Heavy-duty equipment on the project site during construction would emit odors. While these odors could be objectionable near the equipment, all construction operations planned are sufficient distance from existing sensitive receptors and, during later phases of development, future sensitive receptors for which the natural dissipation in the air over that distance would prevent any health risk from objectionable odors. No other sources of objectionable odors are expected during project construction. No mitigation is required.

Operations. The proposed project is a mixed-use community. These proposed residential, commercial, and mixed land uses do not include any recognized sources of long-term objectionable odors. The proposed drainage system for the Specific Plan development, as shown on the Conceptual Drainage Plan (Figure 3.10), includes up to five retention basis and drainage earthen channels through the project site. These water features have the potential to cause odors from bacteria generated by still or slow moving water and/or decaying plant materials. Mitigation Measure 4.9.2 provided in Section 4.9, Hydrology and Water Quality, would require preparation and implementation of a maintenance plan for these water features, which would minimize odors caused by standing or retained water. Therefore, objectionable odors posing a health risk to potential on-site and existing off-site uses would not occur as a result of the proposed project. No additional mitigation is required.

4.3.9 Standard Conditions

Construction Impacts. The proposed project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best-available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors.

The applicable Rule 403 measures are as follows:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least twice daily. (Locations where grading is to occur would be thoroughly watered prior to earthmoving.)
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 ft of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code (CVC) Section 23114.
- Pave construction access roads at least 100 ft onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.

4.3.10 Mitigation Measures

The following mitigation measures would reduce air quality impacts associated with construction and operation of the project, but would not eliminate or reduce those impacts to a less than significant level.

Mitigation Measure 4.3.1 **Application of Architectural Coatings.** Prior to issuance of any grading permits, the Director of the City of Coachella Public Works Department, or designee, shall verify that construction contracts include a statement specifying that the Construction Contractor shall comply with South Coast Air Quality Management District (SCAQMD) Rule 1113 and any other SCAQMD rules and regulations on the use of architectural coatings or high-volume, low-pressure (HVLP) spray methods. Emissions associated with architectural coatings would be reduced by complying with these rules and regulations, which include using precoated/natural colored building materials, using water-based or low-volatile organic compounds (VOC) coating, and using coating transfer or spray equipment with high transfer efficiency.

Mitigation Measure 4.3.2 **EPA Tier 4-Final Emissions Standards.** Prior to construction, the construction contractor shall provide the City of Coachella Public Works Director or designee a comprehensive inventory of all off-road construction equipment equal to or greater than 50 horsepower that will be used an aggregate of 40 or more hours during any portion of construction activities for the project. The inventory shall include the horsepower rating, engine production year, and certification of the specified Tier standard. A copy of each such unit's certified Tier specification, best available control technology (BACT) documentation, and California Air Resources Board (ARB) or SCAQMD operating permit shall be provided on site at the time of mobilization of each applicable unit of equipment. Off-road diesel-powered equipment that will be used an aggregate of 40 or more hours during any portion of the construction activities for the project shall meet the United States Environmental Protection Agency (EPA) Tier 4–Final emissions standards, and off-road equipment greater than 300 horsepower shall be equipped with diesel particulate filters.

Mitigation Measure 4.3.3 **Construction Equipment Maintenance.** Throughout the construction process, general contractors shall maintain a log of all construction equipment maintenance that shows that all construction equipment has been properly tuned and maintained in accordance with manufacturers' specifications. This condition shall be included in development plan specifications.

Mitigation Measure 4.3.4 **Construction Equipment Operating Optimization.** General contractors shall ensure that during construction operations, trucks and vehicles in loading and unloading queues turn their engines off when not in use. General contractors shall phase and schedule construction operations to avoid emissions peaks and discontinue operations during second-stage smog alerts. This condition shall be included in development plan specifications.

Mitigation Measure 4.3.5 **Construction Generator Use Minimization.** General contractors shall ensure that electricity from power poles is used rather than temporary diesel- or gasoline-powered generators to the extent feasible. This condition shall be included in development plan specifications.

Mitigation Measure 4.3.6 **Construction Equipment Idling Minimization.** General contractors shall ensure that all construction vehicles are prohibited from idling in excess of 5 minutes, both on site and off site. This condition shall be included in development plan specifications.

Mitigation Measure 4.3.7 **Project Operations.** Prior to issuance of any construction permits, the project applicant shall submit for review and approval by the City

of Coachella Public Works Director, building plans that incorporate measures such as, but not limited to, the following:

Operational Mitigation Measures (Transportation)

- Provide one electric car charging station for every 10 high-density residences and provisions for electric car charging stations in the garages of all medium-, low-, and ultra-low-density housing. Provide at least two designated parking spots for parking of zero emission vehicles (ZEVs) for car-sharing programs in all employee/worker parking areas.
- Provide incentives for employees and the public to use public transportation such as discounted transit passes, reduced ticket prices at local events, and/or other incentives.
- Implement a rideshare program for employees at retail/ commercial sites.
- Create local "light vehicle" networks, such as neighborhood electric vehicle (NEV) systems.
- Require the use of 2010 model year emissions-compliant diesel trucks, or alternatively fueled, delivery trucks (e.g., food, retail, and vendor supply delivery trucks) at commercial/retail sites upon project build out. If this is not feasible, consider other measures such as incentives, and phase-in schedules for clean trucks, etc.

Operational Mitigation Measures (Energy Efficiency)

- Design all structures to use passive heating, natural cooling, and reduced pavement to the extent feasible. All residences shall use either high-efficiency or solar hot water systems.
- Limit the hours of operation of outdoor lighting in publicly accessible areas.
- Install light-colored "cool" roofs on all structures and cool pavements throughout the project site.
- Require the use of electric/energy-efficient appliances (e.g., stoves) in all residences.

Operational Mitigation Measures (Other)

- Require that all Homeowner Association Covenants, Conditions, and Restrictions (CC&Rs) mandate the use of water-based or low volatile organic compound (VOC) cleaning products by all residents.

- Provide outlets for electric and propane barbecues in every residence with an outside patio.
- Require that all Homeowner Association CC&Rs mandate the use of electric lawn mowers and leaf blowers by all residents.
- Require that all Homeowner Association CC&Rs mandate the use of electric or alternatively fueled sweepers with high-efficiency particulate air (HEPA) filters by all residents.
- Require the use of electric or alternative fueled maintenance vehicles by all grounds maintenance contractors.

Mitigation Measure 4.3.8 **Construction Phase Overlap.** Prior to issuance of any construction permits, the City of Coachella Public Works Director shall restrict the timing of construction phasing such that Phases 3 and 4 do not start until the construction of Phases 1 and 2 are completed. Similarly, the construction of Phase 5 shall not start until the construction of Phases 3 and 4 is completed.

4.3.11 Cumulative Impacts

Threshold 4.3.3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)

Significant Adverse Impact. As defined in Section 15130 of the *CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probable future projects within the cumulative impact area for air quality, which would be the City and the SSAB.

Construction. During construction, the proposed project would temporarily contribute criteria pollutants to the area above the SCAQMD thresholds. Other projects in the area may be under construction at the same time as the proposed project. The concurrent construction of two or more projects would generate fugitive dust and equipment emissions that could result in substantial short-term increases in air pollutants in the local area. Each project would be required to comply with the SCAQMD's standard construction measures required in Rule 403. However, because the proposed project itself would result in a significant adverse air quality impact during construction related to ROG, NO_X, and CO that cannot be mitigated to below a level of significance, it would also potentially contribute to a significant short-term cumulative adverse air quality impact in the project area. Because there is no feasible mitigation available to reduce the construction-related ROG, NO_X, and CO impacts of the project to below a level of significance, there is no mitigation that would reduce the project contribution to cumulative short-term adverse air quality impacts to below a level of significance. Therefore, construction air quality impacts are considered cumulatively significant.

Operation. As stated in Section 4.16, Traffic and Circulation, the traffic analysis for the project is a cumulative impacts assessment because the traffic model forecasts total traffic based on known cumulative projects and the City's General Plan. Because this air quality impact analysis uses this same cumulative traffic data, it also assesses cumulative impacts. As stated in Section 4.3.6, operation of the proposed project would result in emissions of ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ that exceed SCAQMD daily thresholds. Because there is no feasible mitigation available to reduce the ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ impacts of the proposed project to below a level of significance, there is no mitigation that would reduce the project contribution to cumulative long-term adverse air quality impacts to below a level of significance. Therefore, operational air quality impacts are considered cumulatively significant.

4.3.12 Significant Unavoidable Adverse Impacts

Even with mitigation incorporated, the proposed project would result in significant unavoidable adverse air quality impacts as shown in Table 4.3.N.

Table 4.3.N: Significant Unavoidable Adverse Air Quality Impacts

Activity	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction					
Phases 1 & 2	X	X	X		
Phases 3 & 4	X	X	X		
Phase 5	X	X	X		
Operations	X	X	X	X	X

Source: *Air Quality Analysis,* LSA Associates, Inc. (June 2013).
Note: SO_X levels would be less than significant and therefore are not included in this table.
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ROG = reactive organic compounds
SO_X = sulfur oxides

Because these impacts cannot be fully mitigated, construction and operation air quality impacts are also considered cumulatively significant. In addition, because there is no feasible mitigation to reduce all construction and operation emissions to a less than significant level, there is no way to mitigate the partial inconsistency with General Plan policies. Impacts related to these two policies are, therefore, also considered unavoidable significant impacts.