5.5 AIR QUALITY

This section addresses the air emissions generated by the construction and operation of the proposed project, and the potential impacts to air quality. The analysis also addresses the consistency of the proposed project with the air quality policies set forth within the South Coast Air Quality Management District's (SCAQMD) *2012 Air Quality Management Plan*. The analysis of project-generated air emissions focuses on whether the proposed project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold. Air quality technical data is included in Appendix E, Air Quality/Greenhouse Gas Data.

5.5.1 REGULATORY SETTING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The United States Environmental Protection Agency (U.S. EPA) is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times after. The FCAA established Federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), which is a form of nitrogen oxides (NO_X), sulfur dioxide (SO_2), which is a form of sulfur oxides (SO_X), particulate matter 10 microns in diameter or less (PM_{10}), particulate matter 2.5 microns in diameter or less ($PM_{2.5}$), and lead (Pb); refer to *Table 5.5-1*, *National and California Ambient Air Quality Standards*.

CALIFORNIA AIR RESOURCES BOARD

The California Air Resources Board (CARB) administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in *Table 5.5-1*, are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates. The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for preparation of the State Implementation Plan (SIP) for the State of California.

Like the U.S. EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data show that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment.

Table 5.5-1
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m³)	**Nonattainment**	N/A[5]	N/A[5]
	8 Hour	0.070 ppm (137 μg/m³)	Unclassified	0.075 ppm (147 μg/m³)	**Nonattainment**
Particulate Matter (PM_{10})	24 Hour	50 μg/m³	**Nonattainment**	150 μg/m³	**Nonattainment**
	Annual Arithmetic Mean	20 μg/m³	**Nonattainment**	N/A[7]	**Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 μg/m³	Unclassified
	Annual Arithmetic Mean	12 μg/m³	**Nonattainment**	12 μg/m³	**Nonattainment**
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Attainment	35 ppm (40 mg/m³)	Attainment
	8 Hour	9.0 ppm (10 mg/m³)	Attainment	9 ppm (10 mg/m³)	Attainment
Nitrogen Dioxide (NO_2)[6]	1 Hour	0.18 ppm (339 μg/m³)	Attainment	100 ppb (188 μg/m³)	N/A
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	N/A	0.053 ppm (100 μg/m³)	Attainment
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm (655 μg/m³)	Attainment	75 ppb (196 μg/m³)	N/A
	3 Hour	N/A	N/A	N/A	Attainment
	24 Hour	0.04 ppm (105 μg/m³)	Attainment	0.14 ppm (for certain areas)[8]	Attainment
	Annual Arithmetic Mean	N/A	N/A	0.30 ppm (for certain areas)[8]	Attainment
Lead (Pb)	30 day average	1.5 μg/m³	Attainment	N/A	N/A
	Calendar Quarter	N/A	N/A	1.5 μg/m³ (for certain areas)	Attainment
	Rolling 3-Month Average	N/A	N/A	0.15 μg/m³	Attainment
Visibility-Reducing Particles	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 μg/m³	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m³)	Unclassified		

μg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable.

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter-PM_{10} and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, CARB identified vinyl chloride as a toxic air contaminant, but determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 ppm ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as *attainment/unclassifiable*, if: (1) it has monitored air quality data that show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over the three years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005 in all areas except the 14 8-hour ozone nonattainment Early Action Compact (EAC) areas.
6. The Nitrogen Dioxide ambient air quality standard was amended in February 22, 2007 to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm.
7. The EPA revoked the annual PM_{10} standard in 2006 (effective December 16, 2006).
8. On June 2, 2010, a 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 one 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.

Source: California Air Resources Board and U.S. Environmental Protection Agency, June 4, 2013.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The *2012 Air Quality Management Plan* (*2012 AQMP*), adopted in December 2012, proposes policies and measures to achieve Federal and State standards for improved air quality in the South Coast Air Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under the South Coast Air Quality Management District's (SCAQMD's) jurisdiction. The *2012 AQMP* relies on a regional and multi-level partnership of governmental agencies at the Federal, State, regional, and local level. These agencies (U.S. EPA, CARB, local governments, Southern California Association of Governments [SCAG] and the SCAQMD) are the primary agencies that implement the *2012 AQMP* programs. The *2012 AQMP* incorporates the latest scientific and technical information and planning assumptions, including the *2012 Regional Transportation Plan/Sustainable Communities Stra*tegy, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts.

The *2012 AQMP* addresses several State and Federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and new meteorological air quality models. The *2012 AQMP* highlights the reductions and the interagency planning necessary to identify additional strategies, especially in the area of mobile sources, to meet all Federal criteria pollutant standards within the timeframes allowed under the FCAA. The primary task of the *2012 AQMP* is to bring the Basin into attainment with Federal health-based standards.

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the Federally-designated metropolitan planning organization (MPO) for the Southern California region and is the largest metropolitan planning organization in the United States. With respect to air quality planning, SCAG has prepared the *Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future* for the region, which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the *2012 AQMP*. SCAG is responsible under the FCAA for determining conformity of projects, plans, and programs within the SCAQMD.

5.5.2 ENVIRONMENTAL SETTING

SOUTH COAST AIR BASIN

Geography

The City of Duarte is located in the South Coast Air Basin (Basin), a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area of Riverside County.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants throughout the Basin.

Climate

The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The climate consists of a semiarid environment with mild winters, warm summers, moderate temperatures, and comfortable humidity. Precipitation is limited to a few winter storms. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically 9 to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

The area in which the project site is located offers clear skies and sunshine, yet is still susceptible to air inversions. These inversions trap a layer of stagnant air near the ground, where it is then further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

LOCAL AMBIENT AIR QUALITY

The SCAQMD monitors air quality at 37 monitoring stations throughout the Basin. Each monitoring station is located within a Source Receptor Area (SRA). The communities within an

SRA are expected to have similar climatology and ambient air pollutant concentrations. The proposed project is in the City of Duarte, which is located in SRA 9 (East San Gabriel Valley). The monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations.

The monitoring station representative of this area is the Azusa station, which is located approximately 2.5 miles northeast of the project site. The air pollutants measured at the Azusa station site include Ozone (O_3), Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), and particulates (PM_{10} and $PM_{2.5}$). The air quality data monitored at the Azusa station from 2010 to 2012 are presented in *Table 5.5-2*, *Local Air Quality Levels*.

Table 5.5-2
Local Air Quality Levels

Pollutant	Primary Standard		Year	Maximum[1] Concentration	Number of Days State/Federal Std. Exceeded
	California	Federal			
Carbon Monoxide (CO) (1-Hour)[2]	20 ppm for 1 hour	35 ppm for 1 hour	2010 2011 2012	2.50 ppm 2.41 1.85	0/0 0/0 0/0
Carbon Monoxide (CO) (8-Hour)[2]	9 ppm for 8 hours	9 ppm for 8 hours	2010 2011 2012	1.38ppm 1.36 1.13	0/0 0/0 0/0
Ozone (O_3) (1-Hour)[2]	0.09 ppm for 1 hour	NA[3]	2010 2011 2012	0.104 ppm 0.111 0.134	5/0 13/0 18/1
Ozone (O_3) (8-Hour)[2]	0.070 ppm for 8 hours	0.075 ppm for 8 hours	2010 2011 2012	0.081 ppm 0.092 0.095	3/8 12/19 10/20
Nitrogen Dioxide (NO_2)[2]	0.18 ppm for 1 hour	0.100 ppm for 1 hour	2010 2011 2012	0.077 ppm 0.080 0.072	0/NA 0/NA 0/NA
Particulate Matter (PM_{10})[2,4,5]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2010 2011 2012	70.0 µg/m^3 65.0 78.0	0/0 0/0 0/0
Fine Particulate Matter ($PM_{2.5}$)[2, 5]	No Separate State Standard	35 µg/m^3 for 24 hours	2010 2011 2012	44.4 µg/m^3 94.6 39.6	NM/0 NM/0 NM/0

ppm = parts per million
µg/m^3 = micrograms per cubic meter
NM = Not Measured
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less
NA = Not Applicable

Notes:
1. Maximum concentration is measured over the same period as the California Standard.
2. Measurements taken at the Azusa Monitoring Station (located at 803 North Loren Avenue, Azusa, California 91702).
3. The United States Environmental Protection Agency revoked the Federal 1-hour Standard in June of 2005.
4. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
5. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Source: California Air Resources Board, *Aerometric Data Analysis and Measurement System (ADAM) Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html, accessed on July 15, 2013.

Carbon Monoxide. Carbon Monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions.

CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of carbon monoxide. Exposure to high levels of carbon monoxide can slow reflexes and cause drowsiness, and result in death in confined spaces at very high concentrations.

Ozone. Ozone (O_3) occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOC), Nitrogen Oxides (NO_X), and sunlight to form; therefore, VOCs and NO_X are ozone precursors. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone (in the troposphere) can adversely affect the human respiratory system and other tissues. Ozone is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of ozone. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache, and nausea.

Nitrogen Dioxide. Nitrogen oxides (NO_X) are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_2 can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. Short-term exposure to NO_2 may increase resistance to air flow and airway contraction. Continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air, may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter. Coarse Particulate Matter (PM_{10}) refers to suspended particulate matter, which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003, CARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25).

Fine Particulate Matter. Due to recent increased concerns over health impacts related to fine particulate matter ($PM_{2.5}$ [particulate matter 2.5 microns in diameter or less]), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the U.S. EPA announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the U.S. EPA, the United States Supreme Court reversed this decision and upheld the U.S. EPA's new standards.

On January 5, 2005, the U.S. EPA published a Final Rule in the Federal Register that designates the Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The following types of people are most likely to be adversely affected by air pollution, as identified by CARB: children under 14, elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases.

Locations that may contain a high concentration of these sensitive population groups are called sensitive receptors and include residential areas, hospitals, day-care facilities, elder-care facilities, elementary schools, and parks. Sensitive receptors in the project vicinity include residential uses adjacent to the north and west of the project site. Additional existing sensitive receptors located in the project vicinity include single- and multi-family residential homes, hotels, motels, schools, parks, and places of worship. Sensitive receptors are depicted below in *Table 5.5-3*, *Sensitive Receptors*.

Table 5.5-3
Sensitive Receptors

Type	Name	Distance from Project Site (feet)	Direction from Project Site
Residential	Residential Uses	70	North
		800	North (north side of I-210)
		1,170	Southwest
		430	Northeast (north side of I-210)
		30	West
Hotels/Motels	Days Inn	2,000	North
	Duarte Inn	3,100	Northwest
	Quality Inn	3,690	Northwest
Schools	Northview Intermediate School	700	North
	Duarte High School	1,000	Northwest
	Duarte Montessori School	2,135	North
	Beardslee Elementary School	2,970	Southwest
	Mt. Olive High School	3,480	Northeast
Places of Worship	Church of Christ	1,000	North
	Christian Alliance Bible Church	2,060	North
	Grace Fellowship Church	2,065	Northwest
	Church of the Foothills United Methodist Church	2,185	North
	First Baptist Church of Duarte	3,100	Northeast
	Church of Jesus Christ Latter Day Saints	3,170	North
	New Life Assembly of God	3,530	Northeast
Parks	Northview Park	400	North
	Pioneer Park	600	Southwest
	Duarte Sports Park	1,640	Northwest
	Heritage Park	1,900	Southwest
	Third Street Park	2,065	North
	Beardslee Park	3,000	Southwest
	Aloysia Moore Park	3,200	Southwest
	Otis Gordon Sports Park	3,400	Northeast
Hospitals	Royal Terrace Health Care	830	North
	Monrovia Convalescent Hospital	2,765	Northwest
	Royal Oaks Hospice	3,565	Northwest

Note:
1. Distances are measured from the exterior project boundary only and not from individual construction projects/areas within the interior of the project site.

Source: Google Earth, 2013.

5.5.3 SIGNIFICANCE THRESHOLD CRITERIA

METHODOLOGY

Regional Air Quality

In their *CEQA Air Quality Handbook* (November 1993), the SCAQMD established significance thresholds to assess the impact of project related air pollutant emissions. *Table 5.5-4*, *SCAQMD Regional Pollutant Emission Thresholds of Significance*, presents these significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. A project with daily emission rates below these thresholds is considered to have a less than significant effect on regional air quality. The SCAQMD is in the process of updating the thresholds.

Table 5.5-4
SCAQMD Regional Pollutant Emission Thresholds of Significance

Phase	Pollutant (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operation	55	55	550	150	150	55

CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook,* November 1993.

CONSTRUCTION

Mass daily combustion emissions, fugitive PM_{10} and $PM_{2.5}$, and off-gassing emissions were calculated using the California Emissions Estimator Model (CalEEMod), as recommended by the SCAQMD. CalEEMod separates the construction process into multiple phases, including demolition and site clearing, grading, trenching, paving, building construction, and architectural coating. Construction emissions account for on-site construction equipment emissions, haul truck trips, and worker commute trips. Construction activities were based upon construction scheduling and other preliminary construction details provided by the City. Where appropriate, CalEEMod defaults were utilized. CalEEMod assumptions are provided in Appendix E, Air Quality/Greenhouse Gas Data.

OPERATIONS

The CalEEMod software was also used to quantify the daily emissions from mobile and area sources that would occur during long-term operation of the proposed project. Mobile source emissions calculations in CalEEMod were supplemented with traffic trips within the *Traffic Impact Analysis*. Area source emissions were quantified using CalEEMod default emissions and exclude emissions from wood burning fireplaces and stoves.

Local Air Quality

LOCALIZED SIGNIFICANCE THRESHOLDS

Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (revised July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_X, particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$). The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors.

LOCALIZED CO

In addition, the project would result in a local air quality impact if the project results in increased traffic volumes and/or decreases in Level of Service (LOS) that would result in an exceedance of the CO ambient air quality standards of 20 ppm for 1-hour CO concentration levels, and 9 ppm for 8-hour CO concentration levels. If the CO concentrations at potentially impacted intersections with the project are lower than the standards, then there is no significant impact. If future CO concentrations with the project are above the standard, then the project would have a significant local air quality impact.

Cumulative Emissions

The SCAQMD's *2012 AQMP* was prepared to accommodate growth, meet state and federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to the SCAQMD *CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary.

If a project exceeds these emission thresholds, the SCAQMD *CEQA Air Quality Handbook* states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

CEQA SIGNIFICANCE CRITERIA

The issues presented in the Initial Study Environmental Checklist (*CEQA Guidelines* Appendix G) have been utilized as thresholds of significance in this Section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

- 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 that exceed quantitative thresholds for ozone precursors).

- Expose sensitive receptors to substantial pollutant concentrations.

- Create objectionable odors affecting a substantial number of people.

Based on these significance thresholds and criteria, the project's effects have been categorized as either "no impact," a "less than significant impact," or a "potentially significant impact." Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

The standards used to evaluate the significance of impacts are often qualitative rather than quantitative because appropriate quantitative standards are either not available for many types of impacts or are not applicable for some types of projects.

5.5.4 PROJECT IMPACTS AND MITIGATION MEASURES

SHORT-TERM CONSTRUCTION AIR EMISSIONS

■ **SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT COULD RESULT IN AIR POLLUTANT EMISSION IMPACTS OR EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.**

Impact Analysis: Short-term temporary impacts would result from project-related construction activities. Short-term air emissions would result from the following activities:

- Particulate (fugitive dust) emissions from grading and building construction; and
- Exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

Potential odors could arise from the diesel construction equipment used on-site, as well as from architectural coatings and asphalt off-gassing. Odors generated from the referenced sources are common in the man-made environment and are not known to be substantially offensive to adjacent receptors. Additionally, odors generated during construction activities would be temporary and are not considered to be a significant impact.

The project site currently consists of 313,955 square feet of warehouse/industrial uses. The project proposes the development of 475 high density multi-family residential dwelling units, 250 hotel rooms, 400,000 square feet of office uses and 12,000 square feet of retail uses. For the purposes of analysis, the proposed project is anticipated to occur over multiple years based upon market conditions and therefore, a buildout year of 2020 is utilized.

Project-related construction would require excavators, graders, scrapers, and tractors during grading and clearing; pavers, rollers, and paving equipment during paving; tractors, and forklifts during building construction; and air compressors during architectural coating. Emissions for

each construction phase have been quantified based upon the phase durations and equipment types. The analysis of daily construction emissions has been prepared utilizing CalEEMod. Refer to Appendix E, Air Quality/Greenhouse Gas Data, for the CalEEMod outputs and results. *Table 5.5-5*, *Maximum Daily Pollutant Emissions During Construction*, presents the anticipated daily short-term construction emissions. A conservative approach was used for the analysis with a compressed construction schedule occurring over several years. Should the construction schedule extend beyond the three years assumed in the model, any emissions would be less than shown in *Table 5.5-5* due to improved equipment and technology, and other factors assumed in the model.

Table 5.5-5
Maximum Daily Pollutant Emissions During Construction

Emissions Source	Daily Pollutant Emissions (lbs/day)[1]					
	ROG[2]	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Year 1						
Unmitigated	25.09	81.52	90.04	0.15	26.51	12.88
Mitigated[3]	25.09	81.45	90.02	0.15	21.45	8.08
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***
Year 2						
Unmitigated	72.36	55.31	93.29	0.17	12.22	5.10
Mitigated[2]	72.36	55.28	93.27	0.17	12.22	5.10
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***
Year 3						
Unmitigated	70.34	51.02	86.61	0.17	11.99	4.89
Mitigated[2]	70.34	50.99	86.59	0.17	11.99	4.88
SCAQMD Construction Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Mitigated Emissions Exceed Thresholds?	***No***	***No***	***No***	***No***	***No***	***No***

CO = carbon monoxide; VOC = volatile organic compounds; NO_X = nitrogen oxides; PM_{10} = particulate matter smaller than 10 microns; $PM_{2.5}$ = particulate matter smaller than 2.5 microns

Notes:

1. Emissions were calculated using CalEEMod, as recommended by the SCAQMD.
2. ROG emissions are calculated with low VOC coatings. CalEEMod does not include this as a mitigation option for construction.
3. The reduction/credits for construction emission mitigations are based on mitigation included in the CalEEMod model and as typically required by the SCAQMD through Rule 403. The mitigation includes the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces twice daily; cover stock piles with tarps; water all haul roads twice daily; limit speeds on unpaved roads to 15 miles per hour; and use CARB certified engines.

Refer to Appendix E, Air Quality/Greenhouse Gas Data, for assumptions used in this analysis.

Air pollutants would be emitted by construction equipment and fugitive dust would be generated during demolition of the existing structures and improvements, as well as during grading of the site. Emissions during the primary phases of construction were calculated using the CalEEMod program. The equipment modeled during each phase was based on the defaults in CalEEMod modified as needed to represent the project specifics. All fugitive dust calculations accounted for watering and other dust control methods required to be implemented per SCAQMD Rule 403

Fugitive Dust Emissions

Fugitive dust (PM_{10} and $PM_{2.5}$) from grading and construction is expected to be short-term and would cease following completion of the proposed project improvements. Most of this material is composed of inert silicates, which are less harmful to health than the complex organic particulates released from combustion sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. The greatest amount of fugitive dust generated is expected to occur during site grading and excavation. Dust generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular concern is the amount of PM_{10} generated as a part of fugitive dust emissions.

The CalEEMod computer model calculates PM_{10} and $PM_{2.5}$ fugitive dust as part of the site earthwork activity emissions; refer to *Table 5.5-5*. Maximum particulate matter emissions would occur during the initial stages of construction, when grading activities would occur. Mitigation Measure AQ-1 requires that construction activities comply with SCAQMD Rule 403, such that excessive fugitive dust emissions shall be controlled by regular watering or other dust prevention measures. In addition, SCAQMD Rule 402 is required for implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site and after implementation would reduce short-term fugitive dust impacts on nearby sensitive receptors. With adherence to Mitigation Measures AQ-1, AQ-2 and other dust control techniques, the maximum mitigated particulate matter concentration would be 21.45 pounds per day (lbs/day) for PM_{10} and 8.08 lbs/day for $PM_{2.5}$ in construction Year 1. Therefore, emissions in each year are below SCAQMD thresholds of 150 lbs/day for PM_{10} and 55 lbs/day for $PM_{2.5}$. Although the unmitigated particulate matter levels are below the SCAQMD thresholds in the absence of specific dust reduction measures, Mitigation Measures AQ-1 and AQ-2 have been recommended to ensure impacts remain at less than significant levels as the Basin is nonattainment for PM_{10} and $PM_{2.5}$.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. As required, all architectural coatings for the proposed project structures would comply with SCAQMD Regulation XI, Rule 1113 – *Architectural Coating*.[1] Rule 1113 provides specifications on painting practices as well as regulates the ROG content of paint. In addition to Rule 1113, Mitigation Measure AQ-3 requires the use of high-pressure-low-volume (HPLV) paint applicators with a minimum transfer efficiency of at least 50 percent and using pre-painted construction materials. Mitigation Measure AQ-3 also limits the ROG/VOC content of architectural coatings (paints) to 50 grams per liter or less. Compliance with Mitigation Measure AQ-3 would ensure that emissions would be at less than significant levels.

Construction Exhaust Emissions

Exhaust emissions would be generated by the operation of vehicles and equipment on the construction site, such as tractors, dozers, backhoes, cranes, and trucks. The majority of construction equipment and vehicles would be diesel powered, which tends to be more efficient than gasoline-powered equipment. Diesel-powered equipment produces lower carbon monoxide and hydrocarbon emissions than gasoline equipment, but produces greater amounts

[1] South Coast Air Quality Management District, http://www.aqmd.gov/rules/reg/reg11_tofc.html.

of NO_X, SO_X, and particulates per hour of activity. The transportation of machinery, equipment and materials to and from the project site, as well as construction worker trips, would also generate vehicle emissions during construction. As depicted in *Table 5.5-5*, construction exhaust emissions would be below SCAQMD thresholds. Mitigation Measure AQ-4 would be required to ensure that construction equipment is maintained to be consistent with the emissions calculated in *Table 5.5-5*.

Asbestos

Pursuant to guidance issued by the Governor's Office of Planning and Research, State Clearinghouse, lead agencies are encouraged to analyze potential impacts related to naturally occurring asbestos (NOA). Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a toxic air contaminant by the CARB in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (dated August 2000), the proposed project is not located in an area where NOA is likely to be present. Therefore impacts would be considered less than significant.

It is also possible that asbestos-containing materials may exist within older existing buildings that may be modified or demolished. Therefore, the possibility exists that asbestos fibers may be released into the air should no asbestos assessment or removal (if needed) take place prior to demolition. Standard practice pursuant to SCAQMD Rule 1403 is to conduct an asbestos assessment for candidate buildings to determine the presence of asbestos. If identified, an asbestos abatement contractor would be retained to develop an abatement plan and remove the asbestos containing materials, in accordance with local, State, and Federal requirements. After removal, demolition may proceed without significant concern to the release of asbestos fibers into the air. Also refer to Section 5.8, Hazards and Hazardous Materials, for an additional discussion of asbestos and asbestos containing materials.

Total Daily Construction Emissions

In accordance with the SCAQMD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Construction would occur over several years, with the greatest emissions being generated during the first year of construction.

CalEEMod allows the user to input mitigation measures such as watering the construction area to limit fugitive dust and applying soil stabilizers to the project area. Mitigation measures selected within CalEEMod allow for certain reduction credits and result in a decrease of pollutant emissions. Reduction credits are based upon studies developed by CARB, SCAQMD, and other air quality management district's throughout California, and were programmed within the CalEEMod model. As indicated in *Table 5.5-5*, CalEEMod calculates the reduction associated with recommended mitigation measures.

Implementation of Mitigation Measures AQ-1 through AQ-4 would lessen construction-related impacts by requiring measures to reduce air pollutant emissions from construction activities. These measures call for the maintenance of construction equipment, the use of non-polluting and non-toxic building equipment, and minimizing fugitive dust. With implementation of Mitigation Measures AQ-1 through AQ-4, emissions from future development and infrastructure projects associated with implementation of the proposed Specific Plan are not anticipated to exceed SCAQMD thresholds. Therefore, construction emissions are either at or can be mitigated to less than significant levels.

Mitigation Measures:

AQ-1 Prior to issuance of a Grading Permit, the City Engineer and the Chief Building Official shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, in compliance with SCAQMD Rule 403, excessive fugitive dust emissions shall be controlled by regular watering or other dust prevention measures, as specified in the SCAQMD's Rules and Regulations. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Implementation of the following measures would reduce short-term fugitive dust impacts on nearby sensitive receptors:

- All active portions of the construction site shall be watered every three hours during daily construction activities and when dust is observed migrating from the project site to prevent excessive amounts of dust.
- Pave or apply water every three hours during daily construction activities or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas. More frequent watering shall occur if dust is observed migrating from the site during site disturbance.
- Any on-site stockpiles of debris, dirt, or other dusty material shall be enclosed, covered, or watered twice daily, or non-toxic soil binders shall be applied.
- All grading and excavation operations shall be suspended when wind speeds exceed 25 miles per hour.
- Disturbed areas shall be replaced with ground cover or paved immediately after construction is completed in the affected area.
- Track-out devices such as gravel bed track-out aprons (3 inches deep, 25 feet long, 12 feet wide per lane and edged by rock berm or row of stakes) shall be installed to reduce mud/dirt trackout from unpaved truck exit routes. Alternatively a wheel washer shall be used at truck exit routes.
- On-site vehicle speed shall be limited to 15 miles per hour.
- All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust prior to departing the job site.
- Reroute construction trucks away from congested streets or sensitive receptor areas.

AQ-2 All trucks that are to haul excavated or graded material on-site shall comply with State Vehicle Code Section 23114 (Spilling Loads on Highways), with special attention to Sections 23114(b)(F), (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads. Prior to the issuance of grading permits, each project applicant shall demonstrate to the City Engineer how the project operations subject to that specification during hauling activities shall comply with the provisions set forth in Sections 23114(b)(F), (e)(4).

AQ-3 The following measures shall be implemented by the contractor to reduce ROG emissions resulting from application of architectural coatings:

- Use high-pressure-low-volume (HPLV) paint applicators with a minimum transfer efficiency of at least 50 percent;
- Use pre-painted construction materials; and
- VOC content of architectural coatings shall not exceed 50 grams per liter.

AQ-4 Prior to issuance of any Grading Permit, the City Engineer and the Chief Building Official shall confirm that the Grading Plan, Building Plans, and specifications stipulate that, in compliance with SCAQMD Rule 403, O_3 precursor emissions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City Engineer. Maintenance records shall be provided to the City. The City Inspector shall be responsible for ensuring that contractors comply with this measure during construction.

Level of Significance: Less Than Significant Impact.

LONG-TERM OPERATIONAL AIR EMISSIONS

■ **IMPLEMENTATION OF THE PROPOSED PROJECT COULD FACILITATE THE CONSTRUCTION OF NEW LAND USES THAT COULD GENERATE DUST AND EQUIPMENT EMISSIONS.**

Impact Analysis: Operational emissions generated by both stationary and mobile sources would result from normal daily activities on the project site after occupation (i.e., increased concentrations of O_3, PM_{10}, and CO). Stationary area source emissions would be generated by the consumption of natural gas for space and water heating devices, the operation of landscape maintenance equipment, and the use of consumer products. Stationary energy emissions would result from energy consumption associated with the proposed project. Mobile emissions would be generated by the motor vehicles traveling to and from the project site. Emissions associated with each of these sources were calculated and are discussed below.

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod. This model predicts ROG, NO_X, PM_{10}, and $PM_{2.5}$ emissions from motor vehicle traffic associated with new or modified land uses; refer to Appendix E, Air Quality and Greenhouse Gas Data. According to the *Traffic Impact Analysis*, the proposed project would generate 7,259 net new daily trips at buildout. *Table 5.5-6*, *Long-Term Operational Air Emissions*, presents the anticipated mobile source emissions.

Table 5.5-6
Long-Term Operational Air Emissions

Emissions Source	Pollutant (pounds/day)[1, 2]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Emissions						
Area	8.21	0.00	0.03	0.00	0.00	0.00
Energy	0.10	0.92	0.77	0.00	0.07	0.07
Mobile	32.37	28.62	107.30	0.21	15.68	4.47
Total Existing Emissions	***40.69***	***29.54***	***108.11***	***0.22***	***15.75***	***4.55***
Proposed Unmitigated Emissions						
Area[3]	156.47	3.63	278.97	0.38	36.50	36.49
Energy	0.54	4.81	3.55	0.03	0.37	0.37
Mobile	136.40	120.92	469.89	0.88	64.18	18.33
Total Proposed Unmitigated Emissions	***293.41***	***129.36***	***752.41***	***1.29***	***101.05***	***55.19***
Proposed Mitigated Emissions						
Area[3]	32.83	0.48	40.26	0.00	0.79	0.78
Energy	0.54	4.81	3.55	0.03	0.37	0.37
Mobile	80.07	71.64	310.52	0.48	34.00	9.74
Total Proposed Mitigated Emissions	***113.44***	***76.93***	***354.33***	***0.51***	***35.16***	***10.90***
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Mitigated Net Increase Over Existing Emissions	***72.75***	***47.39***	***246.22***	***0.29***	***19.41***	***6.35***
Is Threshold Exceeded? (Significant Impact?)	***Yes***	*No*	*No*	*No*	*No*	*No*

Notes:
1. Based on CalEEMod results, worst-case seasonal emissions for area and mobile emissions have been modeled.
2. Totals may be slightly off due to rounding.
3. Area sources include natural gas burning fireplaces and exclude the use of wood burning fireplaces and wood burning stoves per SCAQMD Rule 445 (Wood-Burning Devices).
4. Refer to Appendix E, Air Quality and Greenhouse Gas Data, for assumptions used in this analysis.

Stationary Source Emissions

Stationary source emissions would be generated due to an increased demand for electrical energy and natural gas with implementation of proposed project; refer to *Table 5.5-6*. This assumption is based on the supposition that those power plants supplying electricity to the site are utilizing fossil fuels. Electric power generating plants are distributed throughout the Basin and western United States, and their emissions contribute to the total regional pollutant burden. The primary use of natural gas by the proposed land uses would be for combustion to produce

space heating, water heating, other miscellaneous heating, or air conditioning, consumer products, and landscaping.

Impact Conclusion

Modeled area source emissions include the natural gas burning fireplaces and exclude the use of wood burning fireplaces per SCAQMD Rule 445. Additionally, mobile source emissions would be reduced as the proposed project includes retail, office, hotel, and residential uses adjacent to a Gold Line Station. These land use attributes that are inherent in the project design and location were incorporated into the mitigation module of CalEEMod. It should be noted that although the CalEEMod results depict these emissions as "mitigated" emissions, they are part of the project design. Therefore, no additional mitigation measures are available to reduce ROG emissions that can be quantified in CalEEMod. In addition, the proposed Duarte Station Specific Plan sets forth goals and objectives for sustainable development practices that would further reduce area source and mobile source emissions. These include adherence to the City's *Development Code* on Levels of Sustainable Development Practices, and City regulations and standards on disposal of construction and demolition waste. Additional objectives include considering building layout, siting and design to not inhibit alternative energy production on-site, maximizing energy efficiency through local and state standards and LEED principles, and incorporating water-efficient design features and drought-tolerant landscaping to reduce heat island effects within the Plan Area. As shown in *Table 5.5*-6, the operational mitigated emissions would remain above SCAQMD thresholds for ROG. Therefore, impacts in this regard would be significant and unavoidable. Impacts related to NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ emissions are below the SCAMD thresholds and are concluded to be less than significant.

Mitigation Measures: No feasible mitigation measures are available.

Level of Significance: Significant Unavoidable Impact for ROG emissions. Less Than Significant Impact for NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$.

LOCALIZED EMISSIONS

■ **DEVELOPMENT ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT COULD RESULT IN LOCALIZED EMISSIONS IMPACTS OR EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.**

Impact Analysis:

Localized Significance Thresholds

Localized Significance Thresholds (LSTs) were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one, two, and five acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The SCAQMD recommends that any project over five acres should perform air quality dispersion modeling to assess impacts to nearby sensitive receptors. The project site is located within Sensitive Receptor Area (SRA) 9, East San Gabriel Valley.

The closest sensitive receptors to the Plan Area are the residential uses adjacent to the northern project boundary; there are within 25 meters of the Plan Area. If receptors are within 25 meters of the site, the methodology document states that the threshold for the 25-meter distance should be used. *Table 5.5-7*, *Localized Significance of Emissions*, depicts the mitigated construction-related emissions for NO_X, CO, PM_{10}, and $PM_{2.5}$ compared to the LSTs for SRA 9, East San Gabriel Valley. It should be noted that *Table 5.6-7* uses the 5-acre LST threshold for screening purposes. Additionally, for proposed project operations, the five-acre threshold was conservatively used for receptors of 25 meters away. The LST analysis only includes on-site sources; therefore, the operational emissions shown include area sources. As shown in *Table 5.5-7*, construction emissions would not exceed the LSTs. Additionally, operational emissions would not exceed the LSTs for SRA 9. Therefore, localized significance impacts for proposed project operations would be less than significant.

Table 5.5-7
Localized Significance of Emissions

On-Site Sources	Pollutant (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
CONSTRUCTION				
Year 1				
Total Mitigated On-Site Emissions	80.64	51.53	10.85	7.13
Localized Significance Threshold	*203*	*2,022*	*14*	*8*
Thresholds Exceeded?	***No***	***No***	***No***	***No***
Year 2				
Total Mitigated On-Site Emissions	30.00	18.72	2.11	1.98
Localized Significance Threshold	*203*	*2,022*	*14*	*8*
Thresholds Exceeded?	***No***	***No***	***Yes***	***No***
Year 3				
Total Mitigated On-Site Emissions	22.37	14.80	1.26	1.16
Localized Significance Threshold	*203*	*2,022*	*14*	*8*
Thresholds Exceeded?	***Yes***	***No***	***Yes***	***Yes***
OPERATIONS				
Area Source Emissions	0.48	40.26	0.79	0.78
Localized Significance Threshold	*203*	*2,022*	*4*	*2*
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Note:
1. The Localized Significance Threshold was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold conservatively uses the 5 acre threshold, the distance to sensitive receptors (25 meters), and the source receptor area (SRA 9).

Carbon Monoxide Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affect residents, school children, hospital patients, the elderly, etc.). The SCAQMD requires a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service LOS D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hotspots are typically produced at intersections.

Table 5.5-8, *Project Buildout Carbon Monoxide Concentrations*, provides the CO hotspot analysis results for the study intersections that warranted a CO hotspot analysis.

Table 5.5-8
Project Buildout Carbon Monoxide Concentration

Intersection	1-hour CO (ppm)[1]		8-Hour CO (ppm) [1]	
	1-hour Standard	Future + Project	8-hour Standard	Future + Project
Buena Vista Street and Three Ranch Road	20 ppm	2.1	9 ppm	1.28
Buena Vista Street and Duarte Road	20 ppm	2.1	9 ppm	1.28
Highland Avenue and Evergreen Street	20 ppm	2.0	9 ppm	1.22
Mount Olive Drive and Huntington Drive	20 ppm	2.2	9 ppm	1.34

Note:
1. As measured at a distance of 10 feet from the corner of the intersection predicting the highest value. Presented 1 hour CO concentrations include a background concentration of 1.85 ppm. Eight-hour concentrations are based on a persistence of 0.61 of the 1-hour concentration. Refer to Appendix E, Air Quality/Greenhouse Gas Data.

The projected traffic volumes were modeled using the BREEZE ROADS dispersion model. The resultant values were then added to an ambient concentration. A receptor height of 1.8 meters was used in accordance with the EPA's recommendations. The calculations assume a meteorological condition of almost no wind (0.5 meters/second), a flat topological condition between the source and the receptor and a mixing height of 1,000 meters. A standard deviation of five degrees was used for the deviation of wind direction. The suburban land classification was used for the aerodynamic roughness coefficient. This follows the BREEZE ROADS user's manual definition of suburban as "regular coverage with large obstacles, open spaces roughly equal to obstacle heights, villages, mature forests." All of the above parameters are based on the standards stated in the *Transportation Project-Level Carbon Monoxide (CO Protocol)*, December 1997.

For the purposes of this analysis, the ambient concentration used in the modeling was the highest one-hour measurement (the highest concentration of the last three years data was available) of SCAQMD monitoring data at the Azusa Monitoring Station. Actual future ambient CO levels may be lower due to emissions control strategies that would be implemented between now and the proposed project buildout date. Due to changing meteorological conditions over an eight-hour period which diffuses the local CO concentrations, the eight-hour CO level concentrations have been found to be typically proportional and lower than the one-hour concentrations, where it is possible to have stable atmospheric conditions last for the entire hour. Therefore, eight-hour CO levels were calculated using the locally derived persistence factor as stated in the CO Protocol. The local persistence factor is derived by calculating the highest ratio of eight-hour to one-hour maximum locally measured CO concentrations from the most recent three years of data. Of the most recent three years of data, the highest eight-hour to one-hour ratio was 0.61.

The intersections listed in *Table 5.5-8* would operate at LOS D or worse and implementation of the proposed project would increase the volume-to-capacity ratio by 0.02 (two percent), thus requiring a CO hotspot analysis. As indicated in *Table 5.5-8*, CO concentrations would be well below the State and Federal standards. The modeling results are compared to the CAAQS for CO of 9 ppm on an eight-hour average and 20 ppm on a one-hour average. Neither the one-

hour average nor the eight-hour average would be equaled or exceeded. Impacts with respect to CO hotspots are considered less than significant.

Mitigation Measures: No mitigation measures are required.

Level of Significance: Less Than Significant Impact.

AIR QUALITY PLAN

■ **IMPLEMENTATION OF THE PROPOSED PROJECT COULD CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN.**

Impact Analysis: On December 7, 2012, the SCAQMD Governing Board approved the *2012 AQMP*, which outlines its strategies for meeting the NAAQS for $PM_{2.5}$ and ozone. The *2012 AQMP* was forwarded to CARB for inclusion into the California *State Implementation Plan* (*SIP*) on January 2013. Subsequently, the *2012 AQMP* was submitted to the U.S. EPA on February 13, 2013 as the 24-hour $PM_{2.5}$ *SIP* addressing the 2006 $PM_{2.5}$ NAAQS and as a limited update to the approved 8-hour ozone *SIP*. The 1-hour ozone attainment demonstration and vehicle miles traveled (VMT) emissions offset demonstration will also be submitted through CARB to the EPA. According to the SCAQMD's *2012 AQMP*, two main criteria must be addressed.

Criterion 1

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) Would the project result in an increase in the frequency or severity of existing air quality violations?

Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of a project's pollutant emissions relative to localized pollutant concentrations is used as the basis for evaluating project consistency.

As previously discussed, localized concentrations of CO, NO_X, PM_{10}, and $PM_{2.5}$ would be less than significant during proposed project operations. Therefore, the proposed project would not result in an increase in the frequency or severity of existing air quality violations. Because ROGs are not a criteria pollutant, there is no ambient standard or localized threshold for ROGs. Due to the role ROG plays in ozone formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established.

b) Would the project cause or contribute to new air quality violations?

As previously discussed, proposed project operations would result in emissions that would exceed the SCAQMD operational thresholds. Therefore, the proposed project would have the potential to cause or affect a violation of the ambient air quality standards.

c) *Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?*

The proposed project would result in less than significant impacts with regard to localized concentrations during operations. As such, the proposed project would not delay the timely attainment of air quality standards or 2012 AQMP emissions reductions.

Criterion 2

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the Basin focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the proposed project exceeds the assumptions utilized in preparing the forecasts presented in the *2012 AQMP*. Determining whether or not a project exceeds the assumptions reflected in the *2012 AQMP* involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) *Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?*

In the case of the *2012 AQMP*, three sources of data form the basis for the projections of air pollutant emissions: the *Comprehensive General Plan of the City of Duarte* (*General Plan*), *SCAG's Growth Management Chapter of the Regional Comprehensive Plan (*RCP), and SCAG's *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy* (*2012-2035 RTP/SCS*). The *2012-2035 RTP/SCS* also provides socioeconomic forecast projections of regional population growth.

The project site is designated Gold Line Station Area Development Specific Plan by the *General Plan.* The project proposes the adoption of a specific plan/zone change as Duarte Station Specific Plan, a mixed use "transit village" development, consisting of residential, office, hotel, commercial/retail, and open space land uses. The proposed Specific Plan establishes the following land use designations: Mixed Use (MU) Station Plaza Mixed Use (SPMU), High Density Residential (HDR) and Recreation/Open Spaces (OS/REC). The proposed Specific Plan would allow for retail shops, boutiques, restaurants, small-scale entertainment amenities, and an outdoor plaza, all placed around the Gold Line Station. The MU designation incorporates a mixed use approach that allows for a full range of high density residential, office, hotel, and commercial uses. The HDR designation is anticipated to include condominiums and apartment units. The OS/REC designation provides green spaces throughout the Plan Area.

The proposed project is consistent with the *General Plan* designation as the project involves the preparation of a Specific Plan with a mix of retail and commercial uses. Thus, the proposed project is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the *RCP*. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City; these are used by SCAG in all phases of implementation and review. Additionally, as the SCAQMD has incorporated these same projections into the *2012 AQMP*, it can be concluded that the proposed project would be consistent with the projections.

b) Would the project implement all feasible air quality mitigation measures?

The proposed project would be required to comply with applicable emission reduction measures identified by the SCAQMD. These measures have been included as Mitigation Measures AQ-1 through AQ-4. As such, the proposed project meets this AQMP consistency criterion.

c) Would the project be consistent with the land use planning strategies set forth in the AQMP?

The proposed project would serve to implement various City and SCAG policies. The proposed project is located within a developed portion of the City, and is considered to be an infill development. The project site is located along Duarte Road and Highland Avenue in the vicinity of a mix of uses including residential, industrial, and institutional.

In conclusion, the determination of *2012 AQMP* consistency is primarily concerned with the long-term influence of a project on air quality in the Basin. The proposed project would be consistent with the goals and policies of the AQMP for control of fugitive dust. As discussed above, the proposed project's long-term influence would also be consistent with the SCAQMD and SCAG's goals and policies and is, therefore, considered consistent with the *2012 AQMP*.

However, the proposed project would potentially result in a long-term impact on the region's ability to meet State and Federal air quality standards due to the exceedance of operational ROG thresholds. Therefore, impacts would be significant and unavoidable with respect to ROG emissions, and less than significant for all other pollutant criterion emissions.

Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-4. No additional mitigation measures are available.

Level of Significance: Significant Unavoidable Impact for Plan Consistency – ROG Emissions. Less Than Significant Impact for Plan Consistency for All Other Pollutant Criterion Emissions.

ODOR IMPACTS

■ **CONSTRUCTION AND OPERATION ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT COULD CREATE OBJECTIONAL ODORS AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE**

Impact Analysis: According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with implementation of the proposed project may generate detectable odors from heavy-duty equipment exhaust. Construction-related odors would be short-term in nature and cease upon construction completion. Any impacts to existing adjacent land uses would be short-term and are considered less than significant.

Mitigation Measures*:* No mitigation measures are required.

Level of Significance: Less Than Significant Impact.\

5.5.5 CUMULATIVE IMPACTS

Table 4-1, *Cumulative Projects List*, identifies the related projects and other possible development in the area determined as having the potential to interact with the proposed project to the extent that a significant cumulative effect may occur. The following discussions are included per topic area to determine whether a significant cumulative effect would occur.

SHORT-TERM CONSTRUCTION AIR EMISSIONS

■ **SHORT-TERM CONSTRUCTION ACTIVITIES ASSOCIATED WITH IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN AIR POLLUTANT EMISSION IMPACTS OR EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS.**

Impact Analysis: The SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor does it provide separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts. Therefore, individual development projects that generate construction-related or operational emissions that exceed the SCAQMD recommended daily thresholds for project-specific impacts would also cause a cumulative considerable increase in emissions for those pollutants for which the Basin is nonattainment.

Of the projects that have been identified within the project study area, there are a number of related projects that have not been built or are currently under construction. Since a project applicant has no control over the timing or sequencing of the related projects, any quantitative analysis to ascertain the daily construction emissions that assumes multiple, concurrent construction would be speculative. Based on the projects identified in Section 4.0, Basis of Cumulative Analysis, the cities of Duarte, Irwindale, Monrovia, and Azusa anticipate several development projects.

With respect to the proposed project's construction-period air quality emissions and cumulative Basin conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the *2012 AQMP* pursuant to FCAA mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements, and implement all feasible mitigation measures. In addition, the proposed project would comply with adopted *2012 AQMP* emissions control measures. Per SCAQMD rules and mandates, as well as the *CEQA* requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted 2012 AQMP emissions control measures) would also be imposed on construction projects throughout the Basin, which would include each of the related projects listed in Section 4.0, Basis of Cumulative Analysis.

Compliance with SCAQMD rules and regulations would reduce construction-related impacts to a less than significant level during construction. Thus, it can be reasonably inferred that the project-related construction activities, in combination with those from other projects in the area, would not deteriorate the local air quality. Cumulative construction-related impacts would be less than significant.

Mitigation Measures: Refer to Mitigation Measures AQ-1 through AQ-4. No additional mitigation measures are required.

Level of Significance: Less Than Significant Impact With Mitigation Incorporated.

LONG-TERM OPERATIONAL AIR EMISSIONS

■ **IMPLEMENTATION OF THE PROPOSED PROJECT AND OTHER RELATED CUMULATIVE PROJECTS COULD RESULT IN SIGNIFICANT IMPACTS PERTAINING TO OPERATIONAL AIR EMISSIONS.**

Impact Analysis: Due to the Basin's nonattainment status for O_3, $PM_{2.5}$, and PM_{10}, additional emissions in excess of SCAQMD thresholds under a long-term condition for ROG, NO_X, $PM_{2.5}$, and PM_{10} would be considered significant and unavoidable for cumulative impacts. ROG emissions are projected to be above the significance thresholds for buildout conditions. Despite the fact that the proposed project is a transit-oriented development, proposed project-related operational emissions would still be significant and unavoidable for ROG. Thus, it can be reasonably inferred that the project-related operational activities, in combination with those from other projects in the area, would deteriorate the local air quality and lead to cumulative operational-related significant and unavoidable impacts.

Mitigation Measures: No feasible mitigation measures are available.

Level of Significance: Significant Unavoidable Impact for ROG emissions. Less Than Significant Impact for NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$.

5.5.6 SIGNIFICANT UNAVOIDABLE IMPACTS

With implementation of the proposed Duarte Station Specific Plan, significant unavoidable impacts would occur for:

- Project- and cumulative project-related operational emissions for ROG
- Plan Consistency - exceedance of operational ROG thresholds

All other air quality impacts associated with implementation of the proposed Duarte Station Specific Plan are either at less than significant levels or can be mitigated to less than significant levels.

If the City of Duarte approves the proposed Duarte Station Specific Plan, the City shall be required to cite their findings in accordance with *CEQA Guidelines* Section 15091 and prepare a Statement of Overriding Considerations in accordance with *CEQA Guidelines* Section 15093.

5.5.7 SOURCES CITED

California Air Resources Board, *Aerometric Data Analysis and Measurement System* (*ADAM) Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html, accessed on July 15, 2013.

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