4.1 AIR QUALITY

A. INTRODUCTION

This section addresses the air emissions generated by construction and operation of the proposed Project. 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 (SCAQMD)'s Air Quality Management Plan (AQMP) and the City of Pasadena General Plan. The analysis of Project-generated air emissions focuses on whether the Project would cause an exceedance of an ambient air quality standard or SCAQMD significance threshold. Calculation worksheets, assumptions, and model outputs used in the analysis are included in Appendix C of this Draft EIR.

B. ENVIRONMENTAL SETTING

1. Air Quality Background

The Project is located within the South Coast Air Basin ("Air Basin"), an approximately 6,745-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 Air Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The regional climate within the Air Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the Air Basin is primarily influenced by meteorology and a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry.

Air pollutant emissions within the Air Basin are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways.

Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment such as when high winds suspend fine dust particles.

Both the federal and State governments have established ambient air quality standards (AAQS) for outdoor concentrations of various pollutants to protect the public health and welfare. These pollutants

are referred to as "criteria air pollutants" (CAPs) as a result of the specific standards, or criteria, that have been adopted for them. The national and State standards have been set at levels considered safe to protect public health, including the health of sensitive populations, such as asthmatics, children, and the elderly, with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

2. Air Pollution and Potential Health Effects

a. Criteria Air Pollutants

As noted, the pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State law. CAPs are categorized into primary and secondary pollutants. Primary air pollutants are those emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOCs), nitrogen oxides (NOx), sulfur dioxide (SO2), coarse inhalable particulate matter (PM10), fine inhalable particulate matter (PM2.5), and lead (Pb) are primary air pollutants. VOCs and NOx are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O3) and nitrogen dioxide (NO2) are the principal secondary pollutants.

A brief description of the CAPs follows.

- **Carbon Monoxide (CO).** CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and motor vehicles operating at slow speeds are the primary source of CO in the Air Basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- **Volatile Organic Compounds (VOCs)**. VOCs are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs that form secondary air pollutants, including O3. VOCs are also referred to as reactive organic compounds (ROCs) or reactive organic gases (ROGs). VOCs themselves are not criteria pollutants; however, they contribute to formation of O3.
- **Sulfur Dioxide (SO2).** SO2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly from the burning high-sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO2 oxidizes in the atmosphere, it forms sulfates (SO4).
- **Respirable Particulate Matter (PM10).** PM10 consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM10 is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.

- **Fine particulate Matter (PM2.5)**. PM2.5 refers to particulate matter that is 2.5 microns or smaller in size. Sources of PM2.5 include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles, such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, NOx, and VOCs are transformed in the air by chemical reactions.
- **Lead (Pb).** Pb occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Air Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so most such combustion emissions are associated with off-road vehicles, such as racecars, that use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries; paint; ink; ceramics; ammunition; and secondary lead smelters.
- **Ozone (O3)**. O3 is a gas formed when VOCs and NOx, both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. O3 concentrations are generally highest during the summer months, when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- **Nitrogen Dioxide (NO2).** NO2 is a reddish-brown, highly reactive gas formed in the ambient air through the oxidation of nitrogen monoxide (NO). NO2 is also a byproduct of fuel combustion. The principle form of NO2 produced by combustion is NO, but NO reacts quickly to form NO2, creating the mixture of NO and NO2 referred to as NOx. NO2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NOx is only potentially irritating. NO2 absorbs blue light, which results in a brownish-red cast to the atmosphere and reduced visibility.

At the federal level, the United States Environmental Protection Agency (USEPA) is responsible for the implementation of portions of the Clean Air Act of 1970 (CAA) dealing with certain mobile sources of air emissions and other requirements. Charged with handling global, international, national, and interstate air pollution issues and policies, the USEPA sets national vehicle and stationary source emission standards; oversees approval of all State Implementation Plans;[1] provides research and guidance for air pollution programs; and sets National Ambient Air Quality Standards (NAAQS).[2] The NAAQS for six common air pollutants (O3, particulate matter PM10 and PM2.5, NO3, CO, Pb, and SO2) were identified from the provisions of the CAA of 1970.

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the State to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practicable date. The California Air Resources Board (CARB), a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and State air pollution control programs within California. In this capacity, the CARB conducts research, sets the CAAQS, compiles

1 A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain National Ambient Air Quality Standards.

2 The NAAQS were set to protect public health, including that of sensitive individuals, and for this reason; the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. The primary NAAQS define the air quality considered necessary, with an adequate margin of safety, to protect the public health.

emission inventories, develops suggested control measures, and provides oversight of local programs. The CARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The NAAQS and CAAQS for each of the monitored pollutants and their effects on health are summarized in **Table 4.1-1, Ambient Air Quality Standards.**

b. Toxic Air Contaminants

In addition to monitoring CAP thresholds, the SCAQMD periodically assesses levels of toxic air contaminants (TACs) in the Air Basin. California Health and Safety Code, Section 39655 provides:

> *"Toxic air contaminant" means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal act (42 U.S.C. Sec. 7412(b)) is a toxic air contaminant.*

SCAQMD conducted the Multiple Air Toxics Exposure Study IV (MATES IV), which is a follow-up to previous MATES I, II, and III air toxics studies conducted in the Air Basin. SCAQMD issued the MATES IV Final Report in May 2015.

The MATES IV study, based on actual monitored data throughout the Air Basin, consisted of several elements. These included a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize carcinogenic risk across the Air Basin from exposure to TACs. The MATES IV study applied a 2-kilometer (1.24-mile) grid over the Air Basin and reported carcinogenic risk within each grid space (covering an area of 4 square kilometers or 1.54 square miles). The study concluded the average of the modeled air toxics concentrations measured at each of the monitoring stations in the Air Basin equates to an estimated population-weighted risk of 367 per million. The population-weighted risk was approximately 57 percent lower compared to the MATES III period (2005). The ambient air toxics data from the 10 fixed monitoring locations also demonstrated a similar reduction in air toxic levels and risks.[3] The reductions were attributed to air quality control regulations and improved emission control technologies.

3 South Coast Air Quality Management District (SCAQMD), *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES IV)—Final Report* (May 2015). Executive Summary.

Table 4.1-1
Ambient Air Quality Standards

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
Ozone	0.09 ppm, 1-hour 0.070 ppm, 8-hour	0.070 ppm, 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage
Nitrogen dioxide	0.18 ppm, 1-hour 0.030 ppm, annual	100 ppb, 1-hour 0.053 ppm, annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Carbon monoxide	20 ppm, 1-hour 9.0 ppm, 8-hour	35 ppm, 1-hour 9 ppm, 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses
Sulfur dioxide	0.25 ppm, 1-hour 0.04 ppm, 24-hour	75 ppb, 1-hour 0.14 ppm, 24-hour	Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Respirable particulate matter	50 µg/m^3, 24-hour 20 µg/m^3, annual	150 µg/m^3, 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature birth
Fine particulate matter	12 µg/m^3, annual	35 µg/m^3, 24-hour 12 µg/m^3, annual	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature birth
Lead	1.5 µg/m^3, 30-day	1.5 µg/m^3, Calendar Quarter 0.15 µg/m^3, 3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction
Visibility-reducing particles	In sufficient amount such that the extinction coefficient is greater than 0.23 inverse kilometers	N/A	Visibility impairment on days when relative humidity is less than 70 percent

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (CAAQS)	Federal Primary Standard (NAAQS)	
	at relative humidity less than 70 percent, 8-hour average (10 AM–6 PM)		
Sulfates	25 µg/m^3, 24-hour	N/A	(a) Decrease in lung function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardiopulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Hydrogen sulfide	0.03 ppm, 1-hour	None	Odor annoyance
Vinyl chloride	0.01 ppm, 24-hour	None	Known carcinogen

Source: California Air Resources Board, Ambient Air Quality Standards (AAQS), http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.
Note: µg/m^3 = microgram per cubic meter; NAAQS = National Ambient Air Quality Standards; ppm = parts per million by volume.

c. Regional Air Quality

The USEPA is the federal agency responsible for overseeing the country's air quality and setting the NAAQS for the CAPs. The NAAQS were devised based on extensive modeling and monitoring of air pollution across the country, and are designed to protect public health and prevent the formation of atmospheric ozone. Air quality of a region is considered to be in attainment of the NAAQS if the measured ambient air pollutant levels do not exceed the applicable concentration threshold. **Table 4.1-1** above presents the federal and State AAQS.

As noted previously, the CARB is the State agency responsible for setting the CAAQS. Air quality of a region is considered to be in attainment of the CAAQS if the measured ambient air pollutant levels for ozone, CO, NO2, SO2, PM10, PM2.5, and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive 3-year period. The CAAQS are also presented in **Table 4.1-1**.

For evaluation purposes, the SCAQMD territory is divided into 38 source receptor areas (SRAs). These SRAs are designed to provide a general representation of the local meteorological, terrain, and air quality conditions within the particular geographical area.

The Project Site is within SRA 8, West San Gabriel Valley.[4] The nearest SCAQMD-operated air monitoring station is located at 752 S. Wilson Avenue, Pasadena, approximately 1.1 miles southeast of the Project Site. This station monitors emission levels of O3, NO2, CO, and PM2.5. This station does not monitor SO2

4 SCAQMD, *General Forecast Areas & Air Monitoring Areas* (1999). Map. http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf.

or PM10. The station located in SRA 9 (East San Gabriel Valley) in the City of Azusa was used to represent PM10 concentration because it is the nearest station in the same geographical region (i.e., the San Gabriel Valley) that monitors PM10. **Table 4.1-2**, **Air Quality Monitoring Summary**, summarizes published monitoring data from 2013 through 2015, the most recent 3-year period available. The data show that during the past few years, the region has exceeded the O3 and PM2.5 standards.

Table 4.1-2
Air Quality Monitoring Summary

Air Pollutant	Average Time (Units)	2013	2014	2015
Ozone (O3)	State Max 1 hour (ppm)	0.099	0.124	0.111
	Days > CAAQS threshold (0.09 ppm)	2	6	12
	National Max 8 hour (ppm)	0.075	0.096	0.084
	Days > NAAQS threshold (0.075 ppm)	0	7	7
	State Max 8 hour (ppm)	0.075	0.096	0.085
	Days > CAAQS threshold (0.07 ppm)	2	3	18
Carbon monoxide (CO)*		—	—	—
Nitrogen dioxide (NO)	National Max 1 hour (ppm)	0.067	0.075	0.075
	Days > NAAQS threshold (0.100 ppm)	0	0	0
	State Max 1 hour (ppm)	0.066	0.075	0.074
	Days > CAAQS threshold (0.18 ppm)	0	0	0
Respirable particulate matter (PM10)	National Max (µg/m^3)	76.0	96.0	101.0
	National Annual Average (µg/m^3)	33.0	44.1	37.1
	Days > NAAQS threshold (150 µg/m^3)	0	0	0
	State Max (µg/m^3)	74.0	94.0	99.0
	State Annual Average (µg/m^3)	32.3	43.0	36.2
	Days > CAAQS threshold (50 µg/m^3)	20	38	30
Fine particulate matter (PM2.5)	National Max (µg/m^3)	25.7	32.5	48.5
	National Annual Average (µg/m^3)	—	—	9.8
	Days > NAAQS threshold (35 µg/m^3)	0	0	2
	State Max (µg/m^3)	25.7	32.5	48.5
	State Annual Average (µg/m^3)	—	—	9.8

Source: South Coast Air Quality Management District, "Historical Data by Year," http://www.aqmd.gov/home/library/air-quality-data-studies/historical-data-by-year.

Notes: > = exceeds; CAAQS = California Ambient Air Quality Standard; max = maximum; mean = annual arithmetic mean;µg/m^3 = micrograms per cubic meter; ND = no data; NAAQS = National Ambient Air Quality Standard; ppm = parts per million.
** Data not available.*

The USEPA and the CARB designate air basins where AAQS are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. Basins for which there is inadequate

or inconclusive data to make a definitive attainment designation, are considered "unclassified." Federal nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards.

The current attainment designations for the South Coast Air Basin are shown in **Table 4.1-3, South Coast Air Basin Attainment Status**. The Air Basin is currently designated as nonattainment at the State level for ozone, PM10, and PM2.5; and at the federal level for ozone and PM2.5. In addition, the Los Angeles County portion of the Air Basin was designated in 2010 by the USEPA as in nonattainment for the federal lead standard.

d. Sensitive Receptors

The SCAQMD considers a sensitive receptor to be a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. Sensitive receptors are identified near sources of air pollution to determine the potential for health hazards. Locations evaluated for exposure to air pollution include but are not limited to residences, schools, hospitals, and convalescent facilities.

Sensitive land uses that surround the Project Site include the residential units along N. Oakland Avenue to the east and the Westin Pasadena hotel to the southwest. The residences to the east represent the nearest sensitive receptors who may be impacted by emissions of air pollutants from Project implementation.

Table 4.1-3
South Coast Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone (O3)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Unclassified/Attainment
Nitrogen Dioxide (NO2)	Attainment	Unclassified/Attainment
Sulfur Dioxide (SO2)	Attainment	Attainment
Respirable particulate matter (PM10)	Nonattainment	Attainment
Fine particulate matter (PM2.5)	Nonattainment	Nonattainment
Lead	Attainment	Nonattainment (partial)

Source: California Air Resources Board (CARB) Area Designation Maps/State and National, http://www.arb.ca.gov/desig/adm/adm.htm (last reviewed May 5, 2016).

e. Existing Operational Emissions

The estimated operational emissions are based on the existing development within the Project Site and are presented in **Table 4.1-4, Existing Operational Air Quality Emissions.** The most current CARB-approved, SCAQMD-recommended air quality modeling software, California Emissions Estimator Model (CalEEMod, version 2016.3.1), was used to estimate existing air quality operation generation.

Table 4.1-4
Existing Operational Air Quality Emissions

Source	VOCs	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
Maximum existing operational emissions	9.1	12.1	66.6	0.1	8.6	2.6

*Notes: Refer to Air Quality Modeling Data in **Appendix C, Air Quality and Greenhouse Gas Modeling.***
CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; VOCs = volatile organic compounds; SOx = sulfur oxides.

C. REGULATORY FRAMEWORK

Air quality management and protection responsibilities exist at the federal, State, regional, and local levels of government. The CAA and CCAA are the primary statutes that establish AAQS and establish regulatory authorities to enforce regulations designed to attain those standards.

1. Federal

As noted previously, the USEPA is responsible for the implementation of portions of the CAA, which regulates certain stationary and mobile sources of air emissions and other requirements, and sets NAAQS.

The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA which are most applicable to the proposed Project include Title I, Nonattainment Provisions, and Title II, Mobile Source Provisions.

The NAAQS were also amended in July 1997 to include an 8-hour standard for ozone and to adopt a NAAQS for PM2.5. The NAAQS were amended in September 2006 to include an established methodology for calculating PM2.5, as well as revoking the annual PM10 threshold. The CAA includes the following deadlines for meeting the NAAQS within the South Coast Air Basin: (1) PM2.5 by the year 2014, and (2) 8-hour ozone by the year 2023. Although the deadline for the federal 1-hour ozone standard has

passed, the Air Basin has yet to attain those standards, but is continuing to implement the 2007 AQMP to attain these standards as soon as possible.

2. State

The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. As noted previously, the CARB, a part of CalEPA, is responsible for the coordination and administration of both State and federal air pollution control programs within California. In this capacity, the CARB sets the CAAQS currently in effect for each of the criteria pollutants, as well as for other pollutants recognized by the State. The CAAQS include more stringent standards than the NAAQS.

3. Regional

a. South Coast Air Quality Management District

The SCAQMD shares responsibility with CARB for ensuring that all State and federal AAQS are achieved and maintained over an area of approximately 10,743 square miles. This area includes all of Orange County and Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County.

The proposed Project lies within the SCAQMD's jurisdiction, and compliance with SCAQMD rules and guidelines is required. SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the South Coast Air Basin. SCAQMD, in coordination with the Southern California Association of Governments (SCAG), is also responsible for developing, updating, and implementing the AQMP for the Air Basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as "nonattainment" of the national and/or California AAQS. The term "nonattainment area" is used to refer to an air basin in which one or more AAQS are exceeded.

SCAQMD adopted the 2003 AQMP on August 1, 2003. The purpose of the 2003 AQMP was to lead the South Coast Air Basin and portions of the Salton Sea Air Basin under SCAQMD jurisdiction into compliance with the 1-hour ozone and PM10 national standards.[5]

The 2003 AQMP replaced the 1997 attainment demonstration for the federal CO standard and provided a basis for a maintenance plan for CO for the future, and updated the maintenance plan for the federal nitrogen dioxide standard that the South Coast Air Basin has met since 1992.[6] A subsequent AQMP for

5 SCAQMD, *2003 Air Quality Management Plan*.
6 Management Plan, www.aqmd.gov/aqmp/AQMD03AQMP.htm, p. 1-1.

the Air Basin was adopted by the SCAQMD on June 1, 2007. The goal of the 2007 AQMP was to lead the South Coast Air Basin into compliance with the national 8-hour ozone and PM2.5 standards. The 2007 AQMP outlined a detailed strategy for meeting the national health-based standards for PM2.5 by 2015 and 8-hour ozone by 2024 while accounting for and accommodating future expected growth. The 2007 AQMP incorporated significant new emissions inventories, ambient measurements, scientific data, control strategies, and air quality modeling. Most of the reductions were to be from mobile sources, which are currently responsible for about 75 percent of all smog and particulate forming emissions.

The SCAQMD approved the 2012 AQMP, which replaces the 2007 AQMP, on December 7, 2012. The 2012 AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories. The 2012 AQMP outlines a comprehensive control strategy that meets the requirement for expeditious progress towards attainment with the 24-hour PM2.5 federal ambient air quality standard with all feasible control measures and demonstrates attainment of the standard by 2014. The 2012 AQMP is also an update to the 8-hour ozone control plan, with new emission reduction commitments from a set of new control measures that implements the 2007 AQMP's Section 182 (e)(5) commitments. The goal of the Final 2012 AQMP is to lead the Air Basin into compliance with the national 8-hour 03 and PM2.5 standards.[7] In addition, a supplement to the 2012 AQMP was prepared and approved in February 2015 ("Final 2015 Supplement to the 2012 AQMP").[8] The Final 2015 Supplement to the 2012 AQMP was prepared to demonstrate attainment of the 24-hour PM2.5 standards by 2015. The 2016 AQMP was approved on March 3, 2017, and includes the integrated strategies and measures needed to meet the NAAQS. Furthermore, the 2016 AQMP demonstrates attainment of the 1-hour and 8-hour ozone NAAQS, as well as the latest 24-hour and annual PM standards.

The SCAQMD is responsible for limiting the amount of emissions that can be generated throughout the Air Basin by various stationary, area, and mobile sources. Specific rules and regulations have been adopted by the SCAQMD Governing Board limiting the emissions that can be generated by various uses/activities and identifying specific pollution reduction measures that must be implemented in association with various uses and activities. These rules not only regulate the emissions of the federal and State criteria pollutants, but also TACs and acutely hazardous materials. The rules are also subject to ongoing refinement by SCAQMD.

7 SCAQMD, *Final 2012 Air Quality Management Plan* (2013). http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan.

8 SCAQMD), "Final Supplement to the 24-hour PM2.5 State Implementation Plan for the South Coast Air Basin" (February 2015).

Among the SCAQMD rules applicable to the proposed Project are Rule 403 (Fugitive Dust), Rule 1113 (Architectural Coatings), and Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities). Rule 403 requires the use of stringent Best Available Control Measures (BACMs) to minimize PM10 emissions during grading and construction activities. Rule 1113 requires reductions in the VOC content of coatings, with a substantial reduction in the VOC content limit for flat coatings. Compliance with SCAQMD Rule 1403 requires that the owner or operator of any demolition or renovation activity to have an asbestos survey performed prior to demolition and provide notification to the SCAQMD prior to commencing demolition activities. Stationary emissions sources subject to these rules are regulated through SCAQMD's permitting process. Through this permitting process, SCAQMD also monitors the amount of stationary emissions being generated and uses this information in developing AQMPs. The proposed Project would be subject to SCAQMD rules and regulations to reduce specific emissions and to mitigate potential air quality impacts.

Pursuant to the CAA, the SCAQMD has adopted federal attainment plans for O3 and PM10. The SCAQMD reviews projects to ensure that they would not (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan.

b. Southern California Association of Governments

SCAG is the authorized regional agency for the intergovernmental review of programs proposed for federal financial assistance and direct development activities. SCAG consists of local governments from Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial Counties. SCAG is also responsible for the designated Regional Transportation Plan (RTP), including its Sustainable Communities Strategy (SCS) component pursuant to SB 375. The SCS has been formulated to reduce air quality and greenhouse gas (GHG) emissions from passenger vehicles by 8 percent per capita by 2020 and 13 percent per capita by 2035, and 21 percent per capita by 2040 when compared to 2005, exceeding the reductions that CARB currently requires.

SCAG's 2016–2040 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socioeconomic, geographic and commercial limitations.

4. Local

a. City of Pasadena General Plan

The City of Pasadena General Plan contains policies to guide the future growth of the City. The specific policies related to air quality in the 2015 Land Use Element are as follows:

- **Goal 10—City Sustained and Renewed:** Development and infrastructure practices that sustain natural environmental resources for the use of future generations and, at the same time, contribute to the reduction of greenhouse gas emissions and impacts on climate change.
    - **Policy 10.1—Environmental Quality and Conversation**: Establish Pasadena as a leader on environmental stewardship efforts, including air quality protection, energy and water efficiency, renewable energy standards, natural resource conservation, and greenhouse gas emission standards in the areas of energy, water, air and land.

D. ENVIRONMENTAL IMPACTS

1. Methodology

Construction activities produce combustion emissions from various sources, such as on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Grading activities produce fugitive dust emissions (PM10 and PM2.5) from soil-disturbing activities. Exhaust emissions from construction activities on site would vary daily as construction activity levels change. Short-term emissions of criteria air pollutants (e.g., CO, SOx, PM10, and PM2.5) generated by Project construction and ozone precursors (e.g., VOCs and NOx) were assessed using SCAQMD-recommended methods. These emissions were modeled using the CARB-approved CalEEMod computer program as recommended by SCAQMD. CalEEMod is designed to model construction emissions for land use development projects and allows for the input of project-specific information. The program contains default settings specific to the air district, county, air basin, or State level using approved vehicle emissions factors (EMFAC2014), established methodologies, and the latest survey data.

Compliance with Rule 403 is mandatory for all construction projects in SCAQMD jurisdiction. Based on the CalEEMod model, the emission calculations take into account compliance with Rule 403 by incorporating the watering of exposed surfaces and unpaved roads three times daily, reducing speed on unpaved roads to less than 15 mph, and sweeping loose dirt from paved site access roadways. These measures are estimated to reduce fugitive dust emissions of both PM10 and PM2.5 by a maximum of 61 percent and 44 percent, respectively, per guidance from SCAQMD.[9] Rule 403 contains other BACMs to minimize fugitive dust emissions, but the model is not able to account for reductions.

9 SCAQMD, California Emissions Estimator Model (CalEEMod), v. 2016.3.1 (2016).

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities of the Project Site. Source emissions would be generated by the consumption of natural gas and landscape maintenance. Mobile emissions would be generated by the motor vehicles traveling to and from the Project Site.

Project-generated, regional area- and mobile-source emissions of criteria air pollutants and ozone precursors were also modeled using the CalEEMod computer program. CalEEMod allows land use selections that include project location specifics and trip generation rates. CalEEMod accounts for area-source emissions from the use of natural gas, landscape maintenance equipment, and consumer products, and for mobile-source emissions associated with vehicle trip generation.

The analysis of daily operational emissions associated with the Project have been prepared using the data and methodologies identified in SCAQMD's *CEQA Air Quality Handbook* ("Handbook") and current motor vehicle emission factors in CalEEMod. Trip rates for these land uses were obtained from the traffic impact study for the Project (**Appendix C**).

The following assumptions were made in the CalEEMod computer program:

a. Land Uses

- Construction of a 307-dwelling unit mid-rise apartment complex
- Construction of an approximately 521-space enclosed parking structure
- Demolition of existing structures and removal of construction debris

b. Construction

Information needed to parameterize the Project in CalEEMod was obtained from the Project Applicant. Construction of the Project is anticipated to begin July 2018 and last approximately 2 years. **Table 4.1-5, Project Construction Schedule,** lists the construction phases and duration of each of the activities that will be take place during construction, as well as a brief description of the scope of work. These dates represent approximations based on the general Project timeline and are subject to change pending unpredictable circumstances that may arise. In addition, **Table 4.1-5** lists the varying levels of intensity and number of construction personnel. Construction traffic is generated by the hauling of exported soil, vendor deliveries of construction materials, and construction worker daily trips to the Project Site.

Table 4.1-5
Project Construction Schedule

Construction Phase	Duration	Worker Trips (per day)	Total Vendor/ Hauling Trips (per phase)	Description
Demolition	5 to 6 weeks	15	24	Demolition of approximately 240 tons of existing material
Site Preparation	1 week	18	—	Clearing of debris and preparation for grading
Grading	7 to 8 weeks	95	11,000	Export of 88,000 cubic yards of soil
Building Construction	14 months	309	67	Construction of foundation and structure for apartment building and parking garage
Paving	1 month	20	—	Paving of asphalt surfaces
Architectural Coating	3 months	62	—	Application of architectural coatings to building materials and parking facilities

Architectural coating will be taking place intermittently throughout the latter stages of building construction.
*Refer to **Appendix C4** through **C6,** Section 3.0—Construction Detail.*

An assessment of air quality emissions was prepared utilizing the construction schedule in **Table 4.1-5,** design features obtained from the Project Applicant, and the expected construction equipment inventory. **Table 4.1-6, Project Construction Diesel Equipment Inventory**, displays the construction equipment that would be required for each construction phase. It was assumed that all construction activities would adhere to the SCAQMD Rule 403 (Fugitive Dust) and Rule 1113 (Architectural Coatings).

Table 4.1-6
Project Construction Diesel Equipment Inventory

Phase	Off-Road Equipment Type	Amount	Daily Hours	Horsepower [HP] (Load Factor)
Demolition	Dumpers/Tenders	2	6	16 (0.38)
	Excavators	2	8	158 (0.38)
	Pressure washers	1	6	13 (0.3)
	Tractors/Loaders/Backhoes	1	6	97 (0.37)
Site Preparation	Rubber-tired dozer	3	8	247 (0.4)
	Tractors/Loaders/Backhoes	4	8	97 (0.37)
Grading	Dumpers/Tenders	31	6	16 (0.38)
	Excavators	3	8	158 (0.38)
	Forklifts	1	6	89 (0.2)
	Pressure washers	1	6	13 (0.3)
	Pumps	1	6	84 (0.74)
	Rubber-tire loaders	1	6	203 (0.36)
Building Construction	Cranes	1	1	231
	Forklifts	1	3	89 (0.2)
Paving	Cement and mortar mixers	2	6	9 (0.56)
	Pavers	1	8	130 (0.42)
	Paving equipment	2	6	132 (0.36)
	Rollers	2	6	80 (0.38)
	Tractors/Loaders/Backhoes	1	8	97 (0.37)
Architectural Coating	Air compressors	1	6	78 (0.48)

*Refer to **Appendix C4** through **C6,** Section 3.0—Construction Detail, for equipment inventory information.*

c. Localized Significance Thresholds

The Localized Significance Threshold (LST) Methodology uses lookup tables based on site acreage to determine the significance of emissions for CEQA purposes. However, CalEEMod does not allow the user to mitigate construction emissions by directly modifying acreage disturbed. CalEEMod calculates construction emissions (off-road exhaust and fugitive dust) based on the number of equipment hours and the maximum daily soil-disturbance activity possible for each piece of equipment.

LSTs are based on the ambient concentrations of that pollutant within the project SRA and the distance to the nearest sensitive receptor. If the Project's emissions exceed the LSTs for NOx, CO, PM10, and/or PM2.5, then additional dispersion modeling will be conducted. Because the amount of localized emissions was less than the LST screening thresholds, no additional modeling was required.

Other air quality impacts (i.e., CO, TACs, odors) were assessed in accordance with methodologies recommended by SCAQMD.

2. Significance Thresholds

The Project is considered to have a significant impact to air quality, if it would:

Threshold 4.1-1: **Conflict with or obstruct implementation of the applicable air quality plan.**

Threshold 4.1-2: **Violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

Threshold 4.1-3: **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).**

Threshold 4.1-4: **Expose sensitive receptors to substantial pollutant concentrations.**

Threshold 4.1-5: **Create objectionable odors affecting a substantial number of people.**

SCAQMD has identified thresholds to determine the significance of both local air quality impacts and impacts to regional air quality for construction activities and project operation, as shown in **Table 4.1-7, Mass Daily Emissions Thresholds**. Lead was not included in the analysis for this Project because the proposed construction and land uses are not sources of atmospheric lead. As noted previously, sources of lead include manufacturing activities for products such as batteries; paint; ink; ceramics; and ammunition.

Table 4.1-7
Mass Daily Emissions Thresholds

Pollutant	Construction (pounds/day)	Operational (pounds/day)
Volatile organic compounds (VOCs)	75	75
Nitrogen dioxide (NOx)	100	100
Carbon monoxide (CO)	550	550
Sulfur dioxide (SOx)	150	150
Respirable particulate matter (PM10)	150	150
Fine particulate matter (PM2.5)	55	55

Source: SCAQMD, SCAQMD Air Quality Significance Thresholds (March 2015). http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf.

SCAQMD has identified thresholds to determine the significance of both local air quality impacts and impacts to regional air quality. The LSTs used in this analysis address whether there are potential impacts to sensitive receptors near the Project Site. The LST Methodology uses lookup tables based on site acreage to determine significance of emissions. In CalEEMod, the number of pieces of equipment and length of activity determine the maximum amount of acreage disturbed each day. The initial review of potential local impacts involves a determination of whether emissions from the Project would exceed the LST screening thresholds identified by SCAQMD. Analysis for LST use a 1, 2 or 5-acre standard. LST values were interpolated between the 2-acre and 5-acre values accordingly. Screening thresholds for each criteria pollutant for construction activity and project operation of a 3.53-acre Project Site in SRA 8 are listed in **Table 4.1-8, LST Screening Thresholds.**

Table 4.1-8
LST Screening Thresholds

Pollutant	Construction Emissions (pounds/day)	Operational Emissions (pounds/day)
Nitrogen dioxide (NO_2)	123.50	123.50
Carbon monoxide (CO)	1,183.28	1,183.28
Respirable particulate matter (PM10)	9.06	2.51
Fine particulate matter (PM2.5)	5.53	1.51

Note: Based on a distance to sensitive receptors of 25 meters (82 feet). The Localized Significance Threshold Methodology for CEQA evaluations provides that projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.
Analysis for Thresholds for LST thresholds use a 1- 2,- or 5-acre standard. The Project Site is 3.53 acres. LST values were interpolated between a 2- and 5-acre values accordingly.

In addition to the regional impact of construction and vehicle emissions, the potential for local CO "hotspots" at locations where traffic is congested is considered. The significance of localized project impacts depends on whether ambient CO levels near the proposed project are above or below State and federal CO standards. If the project causes an exceedance of either the State 1-hour or 8-hour CO concentrations, the project would be considered to have a significant local impact. If ambient levels already exceed a State or federal standard, then project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 parts per million (ppm) or more, or 8-hour CO concentrations by 0.45 ppm or more, pursuant to SCAQMD Rule 1303(b). The South Coast Air Basin is designated as a CO attainment area; therefore, only projects that are likely to worsen air quality necessitate further analysis. Projects that worsen traffic conditions at signalized intersections to level of service (LOS) E or F, or worsen conditions at intersections that currently operate at LOS E or F, should be further examined.

The SCAQMD Handbook identifies several methods to determine the cumulative significance of land use projects (i.e., whether the contribution of a project is cumulatively considerable). However, SCAQMD no longer recommends the use of these methodologies. Instead, SCAQMD recommends that any construction-related emissions and operational emissions from individual development projects that exceed the project-specific mass daily emissions thresholds identified previously also can be considered cumulatively considerable.[10] SCAQMD neither recommends quantified analyses of the emissions generated by a set of cumulative development projects nor provides thresholds of significance to be used to assess the impacts associated with these emissions.

3. Project Impacts

Threshold 4.1-1: Would the project conflict with implementation of the applicable air quality plan?

The 2016 AQMP was prepared to accommodate growth, reduce the high levels of pollutants within the areas under the SCAQMD's jurisdiction, return clean air to the region, and minimize the impact on the economy. Projects considered to be consistent with the AQMP do not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP. As noted above, the Draft Final 2016 AQMP was submitted for approval at the Governing Board Meeting on February 3, 2017.

The Air Basin is designated by the USEPA and CARB as nonattainment at the State level for ozone, PM10, and PM2.5; and at the federal level for ozone, PM2.5, and lead. SCAQMD developed regional emissions thresholds, as shown in **Table 4.1-7** to determine whether a project would contribute to air pollutant violations. If a project exceeds the regional air pollutant thresholds, then it would significantly contribute to air quality violations in the Air Basin.

As shown in **Table 4.1-9** later in this Section, temporary emissions associated with construction of the Project would fall below SCAQMD thresholds for regional emissions for the Project.

As shown in **Table 4.1-10** later in this Section, long-term emissions associated with the Project would not exceed SCAQMD thresholds for criteria pollutants.

10 SCAQMD, *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution,* (August 2003), Appendix D

The Project's maximum potential NOx, CO, PM10, and PM2.5 daily emissions during construction and operation were analyzed to determine potential effects on localized concentration and to determine if the potential exists for such emissions to cause or affect a violation of an applicable ambient air quality standard. As shown in **Table 4.1-11** later in this Section, emissions would not exceed the SCAQMD localized significance thresholds.

Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment), developed by SCAG for their 2016 RTP were used to estimate future emissions within the 2016 AQMP (refer to the 2016 AQMP, Chapter 3). Projects that are consistent with the growth projections are considered consistent with the AQMP. The Project would result in population growth for the region. According to the SCAG estimates, the 2012 population within the City was 140,300 residents and 58,900 households[11]. Based on the SCAG data, the population projections used to estimate emissions in the 2016 AQMP for year 2040 anticipated a population of 150,700 residents and 62,400 households. Based on the City's reported average household size of 2.42 persons per household, the existing 173 units could accommodate 418 residents while the proposed 307 units could accommodate 743 residents, for an increase of 134 units and 325 residents.[12] This would account for 3.1 percent of the projected increase in the City's population and 3.8 percent of the projected increase in the number of households. These increases would be consistent with SCAG's projections.

The planned uses would also be consistent with the land use and zoning designation of the Project Site. The Project Site is within a high-quality transit area and is adequately served by existing public transit (i.e., Metro Gold Line and local bus lines). The Project is in the Central District Specific Plan area, which requires pedestrian-oriented uses. Therefore, impacts would be less than significant.

Threshold 4.1-2: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction

The estimated maximum daily emissions for the Project during construction are listed in **Table 4.1-9, Construction Emissions**. These estimates are based on the expected location, size, and development of the Project. The analysis assumes that all construction activities and operation of construction equipment would occur continuously over the day, and that activities would overlap. In reality, this would not occur

11 Southern California Association of Governments, *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy,* Demographics & Growth Forecast.

12 City of Pasadena, *General Plan EIR*, "Section 5.10 Population and Housing" (certified August 2015).

because most equipment operates only a fraction of each workday, and many of the activities would not overlap on a daily basis. Therefore, this analysis of construction emissions is considered conservative.

The primary source of NOx, CO, and SOx emissions is from construction equipment exhaust and on-road haul-truck trips, while the majority of particulate matter emissions would occur as a result of fugitive dust emissions generated during grading and excavation activities. Primary sources of PM10 and PM2.5 emissions would be clearing activities, excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth surfaces. As shown in **Table 4.1-9**, construction activities associated with the development of the Project would not exceed regional VOC, NOx, CO, SOx, PM10, and PM2.5 concentration thresholds. Accordingly, emissions generated during construction of the Project would result in less than significant impacts.

Table 4.1-9
Construction Emissions

Source	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
2018	3.8	72.6	42.9	0.1	7.4	4.6
2019	3.6	70.4	42.1	0.1	6.2	3.3
2020	35.1	46.9	50.7	0.1	6.4	2.9
Maximum	35.1	72.6	50.7	0.1	7.4	4.6
SCAQMD Threshold	75	100	550	150	150	55
Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

*Source: Refer to the data sheets in **Appendix C5** through **C6.***

Operation

The estimated operational emissions based on the development of the Project are presented in **Table 4.1-10, Operational Emissions**, and are compared to the SCAQMD-established operational significance threshold. Note that the results reflect the net difference between the existing operational emissions generated by uses that would be removed from the Project Site. The level of emissions estimated per dwelling unit is affected by the age of the units and the assumed features incorporated into the buildings. The existing units are older and do not include current efficient features or systems, whereas the new building would comply with current code standards. As shown in **Table 4.1-10**, air quality impacts during operation of the Project would remain less than significant.

Threshold 4.1-3: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors?)

According to SCAQMD, if an individual project results in air emissions of criteria pollutants that exceed SCAQMD's recommended daily thresholds for project-specific impacts, then the project would also result in a cumulatively considerable net increase of these criteria pollutants. By applying SCAQMD's cumulative air quality impact methodology, implementation of the Project would not result in exceedance of any of the criteria pollutant listed. Therefore, the Project would not result in a cumulatively considerable net increase in criteria pollutant. Accordingly, impacts would be less than significant.

Table 4.1-10
Operational Emissions

Source	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
Area	12.1	4.6	27.3	<0.1	0.5	0.5
Energy	0.1	0.9	0.4	<0.1	0.1	0.1
Mobile	4.6	7.1	40.2	0.1	8.3	2.3
Total	16.8	12.7	67.9	0.1	8.9	2.9
Existing	*(9.1)*	*(12.1)*	*(66.6)*	*(0.1)*	*(8.6)*	*(2.6)*
Net Total	7.7	0.6	1.3	0.0	0.3	0.3
SCAQMD Threshold	55	55	550	150	150	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Threshold 4.1-4: Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Threshold Analysis

The construction and operation analysis for localized significance thresholds for the Project are shown in **Table 4.1-11, LST Emissions**. These estimates assume the maximum area that would be disturbed during construction on any given day during Project buildout. Note that the results for operational emissions reflect the net difference between the existing operational emissions generated by uses that would be removed from the Project Site. As shown in **Table 4.1-11**, Project-related construction and operational emissions would not exceed the LST screening thresholds for the nearest sensitive receptors (i.e., the residences located to the east of the Project Site). Accordingly, impacts would be less than significant.

Table 4.1-11
LST Emissions

Source	NOx	CO	PM10	PM2.5
	On-Site Emissions (pounds/day)			
Construction				
Total maximum on-site emissions	52.3	34.1	7.2	4.6
LST Screening Threshold	123.5	1,183.3	9.1	5.5
Threshold Exceeded?	***No***	***No***	***No***	***No***
Operational				
Project area/energy emissions	5.6	27.7	0.6	0.6
Existing area/energy emissions	*(3.3)*	*(16.3)*	*(0.3)*	*(0.3)*
Net area/energy emissions	2.3	11.4	0.3	0.3
LST Screening Threshold	123.50	1,183.28	2.51	1.51
Threshold Exceeded?	***No***	***No***	***No***	***No***

*Source: Refer to modeling in **Appendix C5** through **C6.***

Localized Carbon Monoxide Hotspots Analysis

Motor vehicles are a primary source of pollutants within the Project vicinity. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed State and/or federal standards are termed CO "hotspots." Such hotspots are defined as locations where the ambient CO concentrations exceed the State or federal AAQS. CO is produced in greatest quantities from vehicle combustion and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere. As a result, potential air quality impacts to sensitive receptors are assessed through an analysis of localized CO concentrations. Areas of vehicle congestion have the potential to create CO hotspots that exceed the State ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9 ppm. The federal levels are less stringent than the State standards. Thus, an exceedance condition would occur based on the State standards prior to exceedance of the federal standard.

As previously discussed, projects that worsen traffic conditions at signalized intersections to LOS E or F, or worsen conditions at intersections that currently operate at LOS E or F, will be analyzed. Based on the traffic analysis performed by the City of Pasadena Department of Transportation, the Project would not cause any intersection to operate at LOS E or F, and would not increase delays at any intersection currently operating at LOS E or F. The increase in traffic volumes at the analyzed intersections would result in a minimal increase in background CO concentrations, which would not result in CO levels higher than the 20 ppm 1-hour standard or the 9.0 ppm 8-hour CO. As a result, no significant Project-related impacts would occur relative to future CO concentrations.

Toxic Air Emissions

The Project is not anticipated to use hazardous materials in appreciable quantities. Hazardous substances currently are regulated under the California Accidental Release Prevention (CalARP) Program. The CalARP Program satisfies the requirements of the Federal Risk Management Plan Program and contains additional State requirements. The CalARP Program applies to regulated substances in excess of specific quantity thresholds. The majority of the substances have thresholds in the range of 100 to 10,000 pounds. The residential land uses associated with the Project may contain small, if any, amounts of these hazardous substances in commercial cleaners and other products. However, typical use of these products would not result in quantities at any one location that exceed the thresholds. Moreover, significant amounts of hazardous substances would typically be expected at industrial, manufacturing, and complex water or wastewater treatment land uses. Accordingly, the Project would not result in a significant impact with respect to hazardous materials.

Threshold 4.1-5: Create objectionable odors affecting a substantial number of people?

Construction

During the Project's construction phase, activities associated with the operation of construction equipment, the application of asphalt, the application of architectural coatings and other interior and exterior finishes, and roofing may produce discernible odors typical of most construction sites. SCAQMD Rule 1113 limits the amount of VOCs in architectural coatings and solvents to further reduce the potential for odiferous emissions. Although these odors could be a source of nuisance to adjacent uses, they would be temporary and intermittent in nature, and would not affect a substantial number of people. As construction-related emissions dissipate away from the construction area, the odors associated with these emissions would also decrease and would be quickly diluted. Accordingly, impacts would be less than significant.

Operation

Land uses associated with the Project operation are not expected to be a source of persistent odors. Refuse associated with operation of the Project would be disposed of in accordance with all applicable regulations. Trash receptacles on the Project Site would be enclosed to minimize the generation of odors. As discussed previously, residential units are located to the east of the Project. Additionally, the adjacent land uses are such that the Project would not be subjected to substantial sources of objectionable odors from any surrounding land use.

Any unforeseen odors generated by the Project will be controlled in accordance with SCAQMD Rule 402 (Nuisance). Rule 402 prohibits the discharge of air contaminants that cause "injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort,

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."[13] Failure to comply with Rule 402 could subject the offending facility to possible fines and/or operational limitations in an approved odor control or odor abatement plan. Consequently, no significant impacts from odors are anticipated.

E. CUMULATIVE IMPACTS

The SCAQMD Handbook identifies possible methods to determine the cumulative significance of land use projects.[14] All of SCAQMD's methods are based on performance standards and emission reduction targets necessary to attain the federal and State air quality standards identified in the AQMP. This Draft EIR evaluates whether the Project is consistent with the AQMP and thus, would not jeopardize attainment of State and federal AAQS in the Air Basin.

In addition to the cumulative significance methodologies contained in the SCAQMD Handbook, SCAQMD staff has suggested that the emissions-based thresholds be used to determine if a project's contribution to regional cumulative emissions is cumulatively considerable. Individual projects that exceed SCAQMD-recommended daily thresholds for project-specific impacts would be considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Air Basin is in nonattainment. As presented previously in **Tables 4.1-9** through **4.1-11**, construction and operation of the Project would result in daily emissions that fall below the thresholds of significance recommended by SCAQMD. Therefore, the contribution of these emissions to the air quality within the Air Basin is not considered to be cumulatively considerable, and thus a less than significant cumulative impact.

F. MITIGATION MEASURES

No mitigation measures are required.

G. LEVEL OF SIGNIFICANCE AFTER MITIGATION

As shown in **Tables 4.1-9** and **4.1-10**, construction and operation emissions would not exceed the SCAQMD thresholds for NOx, CO, SOx, PM10, and PM2.5. The Project would incorporate numerous regulatory compliance measures to further meet State and federal air quality standards. Therefore, the Project's short- and long-term influence would be considered consistent with the AQMP.

As shown in **Table 4.1-11**, construction and operational activities associated with Project development would not exceed localized concentration thresholds.

Cumulative impacts were identified to be less than significant.

13 SCAQMD, Rule 402, Adopted May 7, 1976.

14 SCAQMD, *CEQA Air Quality Handbook* (1993), p. 9-12.