4.1 AIR QUALITY

INTRODUCTION

This section of the EIR evaluates potential air quality impacts that will be generated by construction and operation of the proposed Project. The ambient air quality of the local and regional area is provided, along with the federal, State, and local air pollutant regulations. In addition, sources of air emissions near the Project Site are discussed. Plans and policies developed to improve air quality, and regulatory measures are identified. The Air Quality Study for the proposed Project is provided in **Appendix B**.

ENVIRONMENTAL SETTING

Regulatory Framework

Air quality within the South Coast Air Basin (Basin) is addressed through the efforts of various federal, State, regional, and local government agencies. These agencies work jointly as well as individually to improve air quality through legislation, regulations, planning, policy making, enforcement, education, and a variety of programs. The agencies primarily responsible for improving the air quality within the Basin are discussed in the following paragraphs along with their individual responsibilities.

a. Federal

Clean Air Act

The United Stated Environmental Protection Agency (USEPA) is responsible for the implementation of portions of the Clean Air Act (CAA) of 1970,[1] which regulates certain stationary and 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 the approval of all State Implementation Plans;[2] provides research and guidance for air pollution programs; and sets National Ambient Air Quality Standards (NAAQS).[3] NAAQS for the seven common air pollutants, Ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter (PM10), fine particulate matter (PM2.5), and lead (Pb), are identified in the CAA.

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

1 US Environmental Protection Agency, "Clean Air Act Text," https://www.epa.gov/clean-air-act-overview/clean-air-act-text.

2 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.

3 The NAAQS were set to protect public health, including that of sensitive individuals; for this reason, the standards continue to change as more medical research becomes 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.

attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA that 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 O3 and to adopt a NAAQS for PM2.5. The NAAQS were amended in September 2006 to include an established methodology for calculating PM2.5 and to revoke the annual PM10 threshold. The CAA includes the following deadlines for meeting the NAAQS within the Basin: (1) PM2.5 by the year 2014, which has not been met due to extreme drought conditions; and (2) 8-hour O3 by the year 2023.

b. State

California Clean Air Act

The California Clean Air Act,[4] 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.[5] The California Air Resources Board (CARB), a part of the California EPA (CaLEPA), is responsible for the coordination and administration of both State and federal air pollution control programs within California. In this capacity, CARB conducts research, sets State ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. 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 and the CAAQS currently in effect for each of the criteria pollutants, as well as for other pollutants recognized by the State. The CAAQS are more stringent than the NAAQS.

Air Quality and Land Use Handbook

CARB published the *Air Quality and Land Use Handbook*[6] on April 28, 2005, to serve as a general guide for considering health effects associated with siting sensitive receptors proximate to sources of toxic air contaminant (TAC) emissions. The recommendations provided therein are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, acutely ill, and chronically ill persons, from exposure to TAC emissions.

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4 California Air Resources Board (CARB), "California Clean Air Act" (1988), https://arb.ca.gov/bluebook/bb05/HEA[14]16/HEA_[14]_16.htm.

5 CARB, "CAAQS" (August 10, 2017), https://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm.

6 CARB, *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005), https://www.arb.ca.gov/ch/handbook.pdf.

Some examples of CARB's siting recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural road with 50,000 vehicles per day; (2) avoid siting sensitive receptors within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 50 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week); and (3) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene and within 500 feet of operations with two or more machines.

California Motor Vehicle Code

The vehicle programs are a critical component in the State Implementation Plan (SIP) for achieving national ambient air quality standards in the South Coast and San Joaquin Valley.[7] They are also integral in CARB's Scoping Plan[8] to achieve the GHG reduction goals that were established through California legislation and Executive Orders.

California Advanced Clean Cars Program

In 2012, CARB adopted the California Advanced Clean Cars (ACC) Program which has regulations and standards that combine the control of criteria pollutants and GHG emissions into a single coordinated set of requirements for vehicle model years 2015 through 2025. ACC ensures the development of environmentally superior passenger cars and other vehicles that would continue to deliver the performance, utility, and safety vehicle owners have come to expect, all while saving the consumer money through significant fuel savings. The components of the ACC program are the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (i.e., battery electric and fuel-cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[9]

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13 of the California Code of Regulations, Section 2485)

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling[10] measure includes regulations that pertain to air quality emissions. Specifically, Section 2485 states that during

7 CARB, "California State Implementation Plans" (last reviewed September 21, 2018), https://www.arb.ca.gov/planning/sip/sip.htm.
8 CARB, "AB 32 Scoping Plan" (January 8, 2018), https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.
9 CARB, "The Advanced Clean Cars Program" (January 18, 2018), https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program.
10 CARB, Section 2485 in Title 13 of the CCR, https://www.arb.ca.gov/msprog/truck-idling/13ccr2485_09022016.pdf.

construction, the idling of all diesel-fueled commercial vehicles weighing more than 10,000 pounds shall be limited to 5 minutes at any location. In addition, Section 93115 in Title 17 of the California Code of Regulations (CCR)[11] states that operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

California Air Resources Board (CARB)

CARB Rule 2449, General Requirements for In-Use Off-Road Diesel-Fueled Fleets

Requires off-road diesel vehicles to limit nonessential idling to no more than 5 consecutive minutes.[12]

CARB Rule 2480 Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools

CARB Rule 2480 requires school busses, transit busses, and commercial vehicles (gross vehicle weight greater than 10,001 pounds except for pickup trucks and zero emission vehicles) to limit nonessential idling to no more than 5 consecutive minutes when within 100 feet of a school.[13]

CARB Rule 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

CARB Rule 2485 requires commercial vehicles weighing more than 10,001 pounds to limit nonessential idling to no more than 5 consecutive minutes.[14]

California Building Standards Code

2016 California Energy Code (CCR, Title 24, Part 6)

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission in June 1977 and are updated triennially in the California Building Standards Code (CBSC). Title 24, Part 6, requires the design of building shells and building components to conserve energy.[15] The standards are updated periodically to allow for consideration and possible incorporation of new energy-efficient technologies and methods.

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11 CARB, *Final Regulation Order: Amendments to the Airborne Toxic Control Measure For Stationary Compression Ignition Engines* (May 19, 2011), https://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf.

12 CARB, *Final Regulation Order: Regulation For In-Use Off-Road Diesel-Fueled Fleets,* https://www.arb.ca.gov/msprog/ordiesel/documents/finalregorder-dec2011.pdf.

13 CARB, Section 2480 in Title 13 of the CCR, California Administrative Code (December 24, 2010), https://www.arb.ca.gov/toxics/sbidling/SBVIdling.pdf.

14 CARB, CARB Rule 2485, https://www.arb.ca.gov/msprog/truck-idling/13ccr2485_09022016.pdf.

15 California Energy Commission, *2016 Building Energy Efficiency Standards For Residential And Nonresidential Buildings* (June 2015), http://www.energy.ca.gov/2015publications/CEC-400-2015-037/CEC-400-2015-037-CMF.pdf.

On January 1, 2010, the California Energy Commission adopted the 2008 Non-residential Compliance Manual, while the 2008 Residential Compliance Manual was adopted on December 17, 2008. The 2008 Code provides California with an adequate, reasonably priced, and environmentally sound supply of energy in response to AB 32, acts on the findings from the Integrated Energy Policy Report, and meets the Executive Order in the Green Building Initiative to improve the energy efficiency of nonresidential buildings through aggressive standards.[16]

On May 31, 2012, the California Energy Commission adopted the 2013 Building Energy Efficiency Standards, which went into effect on January 1, 2014. Buildings constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.[17]

The 2016 update to the Building Energy Efficiency Standards focuses on several key areas to improve the energy efficiency of newly constructed buildings and additions and alterations to existing buildings. The most significant improvements to nonresidential standards include alignment with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers 90.1 2013 standards, and efficiency for elevators and direct digital controls.[18]

California Green Building Code (California Code of Regulations, Title 24, Part 11)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (CALGreen) was adopted as part of the California Building Standards Code (Title 24).[19] CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011.

The 2016 CALGreen Code went into effect on January 1, 2017. TA number of important updates are included in the 2016 CALGreen Code, such as increased requirements for electrical vehicle charging infrastructure and a new universal waste code section.

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16 California Energy Commission, *2008 Building Energy Efficiency Standards for Residential and Nonresidential Buildings* (January 2010), http://www.energy.ca.gov/2008publications/CEC-400-2008-001/CEC-400-2008-001-CMF.PDF

17 California Energy Commission, *2013 Building Energy Efficiency Standards for Residential and Nonresidential Buildings* (May 2012), https://www.energy.ca.gov/2012publications/CEC-400-2012-004/CEC-400-2012-004-CMF-REV2.pdf.

18 California Energy Commission, 2016 Building Energy Efficiency Standards For Residential And Nonresidential Buildings.

19 California Buildings Standards Commission, "California Green Buildings Standards Code" (2017), http://www.bsc.ca.gov/Home/CALGreen.aspx.

The State and national ambient air quality standards for each of the criteria pollutants and their effects on health are summarized in **Table 4.1-1: Ambient Air Quality Standards**. **Table 4.1-1** also sets forth the State ambient air quality standards and health effects applicable to sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride, even though such pollutants are generally not applicable to the uses within the Project site.

Table 4.1-1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
O3	1 hour	0.09 ppm (180 µg/m^3)	Ultraviolet photometry	—	Same as primary standard	Ultraviolet photometry
	8 hour	0.07 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
PM10	24 hour	50 µg/m^3	Gravimetric or beta attenuation	150 µg/m^3	Same as primary standard	Inertial separation and gravimetric analysis
	Annual arithmetic mean	20 µg/m^3		—		
PM2.5	24 hours	No separate State standard		35 µg/m^3	Same as primary standard	Inertial separation and gravimetric analysis
	Annual arithmetic mean	12 µg/m^3	Gravimetric or beta attenuation	12 µg/m^3		
CO	8 hours	9.0 ppm (10 mg/m^3)	Nondispersive infrared photometry (NDIR)	9 ppm (10 mg/m^3)	None	NDIR
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
NO2	Annual arithmetic mean	0.03 ppm (57 µg/m^3)	Gas phase chemilumi-nescence	0.053 ppm (100 µg/m^3)	Same as primary standard	Gas phase chemilumines cence
	1 hour	0.18 ppm (339 µg/m^3)		0.100 ppm (188 µg/m^3)		

Source: California Air Resources Board website at: https://www.arb.ca.gov/research/aaqs/aaqs2.pdf (accessed January 2018).
Note: ppm = parts per million.

c. Regional

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) shares responsibility with CARB for ensuring that all State and federal ambient air quality standards 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.

Air Quality Management Plan

The Project site lies within the jurisdiction of the SCAQMD, 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 Basin. In coordination with the Southern California Association of Governments (SCAG), SCAQMD is also responsible for developing, updating, and implementing the Air Quality Management Plan (AQMP) for the 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 ambient air quality standards.

SCAQMD approved a Final 2016 AQMP on March 3, 2017.[20] The 2016 AQMP includes transportation control measures developed by SCAG from the *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy* (2016 RTP/SCS), as well as the integrated strategies and measures needed to meet the NAAQS. The 2016 AQMP demonstrates attainment of the 1-hour and 8-hour ozone NAAQS as well as the latest 24-hour and annual PM2.5 standards.

Under the Federal CAA, 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 the timely attainment of any air quality standard or any required interim emission reductions or other milestones of any federal attainment plan.

Local governments have the authority and responsibility to reduce air pollution through their police power and land use decision-making authority. Specifically, local governments are responsible for the mitigation of emissions resulting from land use decisions and for the implementation of transportation control measures as outlined in the AQMP.[21] The AQMP assigns local governments certain responsibilities to

20 South Coast Air Quality Management District (SCAQMD), "Final 2016 Air Quality Management Plan" (2016), http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp.

21 SCAQMD, *CEQA Air Quality Handbook* (April 2003), p. 2-2.

assist the Basin in meeting air quality goals and policies. The General Plans for local governments should include in their Air Quality Elements goals, policies, and implementation measures that provide the regulatory framework needed to assist the Basin in meeting the AQMP's goals and policies. Through capital improvement programs, local governments can fund infrastructure that contributes to improved air quality by requiring such improvements as bus turnouts, energy-efficient streetlights, and synchronized traffic signals.

Criteria Pollutants

Air pollutant emissions within the region are primarily generated 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 at an individual facility. Area sources are widely distributed over a geographic area and are made up of multiple sources, such as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, parking lots, and some consumer products.

Air quality of a region is considered to be in attainment of the NAAQS if the measured ambient air pollutant levels are not exceeded more than once per year, except for O3, PM10, PM2.5. The NAAQS for O3, PM10, and PM2.5 are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. With respect to the CAAQS, a region's air quality is considered to be in attainment if the measured ambient air pollutant levels for O3, CO, NO2, SO2, PM10, PM2.5, and Pb are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive 3-year period. CARB is the State agency responsible for setting the CAAQS.

A brief description of the criteria pollutants is provided in the following paragraphs, with related health effects summarized in **Table 4.1-2: Common Sources of Health Effects for Criteria Air Pollutants**.

O3 is a gas formed when volatile organic compounds (VOCs) and oxides of nitrogen (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.

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, which are not "criteria" pollutants per se, but rather by the reactions of VOCs to form secondary air pollutants, including O3. VOCs are also referred to as reactive organic compounds (ROCs) or reactive organic gases (ROGs).

Table 4.1-2
Common Sources of Health Effects for Criteria Air Pollutants

Pollutants	Sources	Primary Effects
Ozone (O3)	Formed when VOC and oxides of nitrogen (NOx) react in the presence of sunlight; VOC sources include any source that burns fuels (e.g., gasoline, natural gas, wood, oil), solvents, petroleum processing, and storage and pesticides	Breathing difficulties, lung tissue damage, damage to rubber and some plastics
Volatile Organic Compounds (VOC)	Fuel combustion and/or released through evaporation of organic compounds, internal combustion associated with motor vehicle usage is the major source of hydrocarbons, as are architectural coatings	Headaches, dizziness, light-headedness, drowsiness, nausea, and eye and respiratory irritation
Respirable Particulate Matter (PM10)	Road dust, windblown dust (agriculture), construction and fireplaces; also formed from other pollutants (e.g., acid rain, NOx, oxides of sulfur [SOx], organics) and from incomplete combustion of any fuel	Increased respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling
Fine Particulate Matter (PM2.5)	Fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning; also formed from reaction of other pollutants (e.g., acid rain, NOx, SOx, organics)	Increases respiratory disease, lung damage, cancer, premature death, reduced visibility, surface soiling
Carbon Monoxide (CO)	Any source that burns fuel, such as automobiles, trucks, heavy construction equipment, farming equipment, and residential heating	Chest pain in heart patients, headaches, reduced mental alertness
Nitrogen Dioxide (NO2)	This would include motor vehicle exhaust; high temperature stationary combustion; atmospheric reactions	Lung irritation and damage
Lead (Pb)	Metal smelters, resource recovery, leaded gasoline, deterioration of lead paint	Learning disabilities, brain and kidney damage
Sulfur Dioxide (SO2)	Coal- or oil-burning power plants and industries, refineries, diesel engines	Increases lung disease and breathing problems for asthmatics; reacts in the atmosphere to form acid rain

Source: California Air Resources Board, "ARB Fact Sheet: Air Pollution and Health" (last reviewed December 2, 2009), accessed March 2017, http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm.

NO2 is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (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 into 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, the result of which is a brownish-red cast to the atmosphere and reduced visibility.

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 because motor vehicles operating at slow speeds are the primary source of CO in the basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

SO2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of the burning of 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).

PM10 consists of extremely small, suspended particles or droplets 10 micrometers (µm) 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, the abrasion of tires and brakes, and construction activities.

PM2.5 is to fine particulate matter that is 2.5 µm or smaller in size. The 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 SO_2, NOx, and VOCs are transformed in the air by chemical reactions.

Pb occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the 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 race cars that use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries, sanding or removal of lead-based paint, ink, ceramics, ammunition, and secondary lead smelters.

TACs are a diverse group of noncriteria air pollutants that can affect human health but for which ambient air quality standards have not been established. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. TACs are classified as carcinogenic and noncarcinogenic; carcinogenic TACs can cause cancer, and noncarcinogenic TAC can cause acute and chronic impacts to different target organ systems (e.g., eyes, respiratory, reproductive, developmental, nervous, and cardiovascular).

CARB and the California Office of Environmental Health Hazard Assessment (OEHHA) determine if a substance should be formally identified as a TAC in California. Diesel particulate matter (DPM), which is emitted in the exhaust from diesel engines, was listed by the State as a TAC in 1998. DPM has historically been used as a surrogate measure of exposure for all diesel exhaust emissions. DPM consists of fine particles (diameter less than 2.5 µm), including a subgroup of ultrafine particles (diameter less than 0.1 µm). Collectively, these particles have a large surface area, making them an excellent medium for absorbing organics. The visible emissions in diesel exhaust include carbon particles or soot. Diesel exhaust also contains a variety of harmful gases and carcinogens. Exposure to DPM may be a health hazard, particularly to children, whose lungs are still developing, and to the elderly, who may have other health problems. DPM levels and resultant potential health effects may be higher near heavily traveled roadways with substantial truck traffic or near industrial facilities. CARB has determined that of the top 10 inhalation risk contributors, DPM contributes approximately 80 percent of the total potential cancer risk.[22]

SCAQMD Rules

The following SCAQMD rules relate to a specific type of operation or source of pollution. Because knowledge of air pollution is constantly growing, these rules and regulations are in a dynamic state and are constantly changing.

Rule 201, Permit to Construct

Rule 201 requires a permit for installation of any equipment which releases air pollutants.[23]

Rule 402, Nuisance Odors

Rule 402 prohibits the discharge of odors that cause injury, detriment, nuisance, or annoyance to a considerable number of people.[24]

Rule 403, Fugitive Dust

Rule 403 requires the use of stringent best available control measures to minimize PM10 emissions during grading and construction activities.[25]

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22 SCAQMD, *Multiple Air Toxics Exposure Study in the South Coast Air Basin: Final Report MATES-IV* (May 2015), http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf.

23 SCAQMD, "Rule 201: Permit to Construct" (amended December 3, 2004), http://www.aqmd.gov/docs/default-source/rule-book/reg-ii/rule-201.pdf.

24 SCAQMD, "Rule 402: Nuisance" (adopted May 7, 1976), http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf.

25 SCAQMD," Rule 403: Fugitive Dust" (amended June 3, 2005), http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.

Rule 1113, Architectural Coatings

Rule 1113 requires reductions in the volatile organic compounds (VOCs) content of coatings, with a substantial reduction in the VOC content limit for flat coatings.[26]

Rule 1186, PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations

Rule 1186 requires control measures to reduce fugitive dust from paved and unpaved roads in addition to livestock operations.[27]

Rule 1401, New Source Review of Toxic Air Contaminants

Rule 1401 specifies limits for specific maximum individual cancer risk, cancer burden, and noncancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants.[28]

Rule 1403, Asbestos Emissions from Demolition/Renovation Activities

Rule 1403 requires the owner or operator of any demolition or renovation activity to have an asbestos survey performed prior to demolition and to provide notification to the SCAQMD prior to commencing demolition activities.[29]

Existing Conditions

Regional Setting

South Coast Air Basin

The City of South Pasadena within the South Coast Air Basin (Basin) which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent, high-pressure zone of the eastern Pacific.

The USEPA and the CARB designate air basins where air pollution levels exceed the State or federal ambient air quality standards as "nonattainment" areas. If standards are met, the area is designated as

26 SCAQMD, "Rule 1113 Architectural Coatings" (amended February 5, 2016), http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf.
27 SCAQMD, "Rule 1186: PM10 Emissions From Paved and Unpaved Roads, and Livestock Operations" (amended July 11, 2008), http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1186.pdf.
28 SCAQMD, "Rule 1401: New Source Review of Toxic Air Contaminants" (amended September 1, 2017), http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1401.pdf.
29 SCAQMD, "Rule 1403: Asbestos Emissions From Demolition/Renovation Activities" (amended October 5, 2007), http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1403.pdf.

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

Transportation conformity for nonattainment and maintenance areas is required under the federal CAA to ensure federally supported highway and transit projects conform to the SIP. The USEPA approved California's SIP revisions for attainment of the 1997 8-hour O3 National AAQS for the Basin in March 2012. Findings for the new 8-hour O3 emissions budgets for the Basin and consistency with the recently adopted 2016 RTP/SCS were submitted to the USEPA for approval.[30]

The current attainment designations for the Basin are shown in **Table 4.1-3: South Coast Air Basin Attainment Status**. Under the federal standards, the Basin is currently designated as nonattainment for the ozone, lead, and PM2.5 thresholds. Under the State standards the Basin is currently designated as nonattainment for the ozone, PM10, and PM2.5 thresholds.

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
Lead (Pb)	Attainment	Nonattainment
Respirable Particulate Matter (PM10)	Nonattainment	Attainment
Fine Particulate Matter (PM2.5)	Nonattainment	Nonattainment

Source: CARB, "Area Designations Maps/State and National," http://www.arb.ca.gov/desig/adm/adm.htm (last reviewed October 18, 2017).

30 Southern California Association of Governments (SCAG), *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy [Final 2016 RTP/SCS]* (April 2016), http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf.

Source Receptor Areas

SCAQMD has divided its jurisdictional territory of the Basin into 38 Source Receptor Areas (SRAs), most of which have monitoring stations that collect air quality data.[31] These SRAs are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within the particular geographical area. These qgeographical areas include urbanized regions, interior valleys, coastal areas, and mountains.

The Project site is located in the West San Gabriel Valley SRA (SRA 8).[32] The monitoring station for this area is located at 752 South Wilson Avenue, approximately 1.91 miles northeast of the Project site.[33] This station presently monitors pollutant concentrations of O3, CO, NO2, and PM2.5.

Table 4.1-4: Air Quality Monitoring Summary Update lists the ambient pollutant concentrations registered and the violations of State and federal standards that have occurred at the abovementioned monitoring stations from 2014 through 2016, the most recent years for which data are available. As shown, the monitoring stations have registered values above State and federal standards for O3, the State standard for PM10, and the federal standard for PM2.5. Concentrations of NO2 have not been exceeded anywhere within the Basin for several years. Values for state SO2 and PM10 are not presented in the table because the station does not monitor these pollutants.

31 SCAQMD, Map of Monitoring Areas, accessed November 2017, http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf.

32 SCAQMD, Map of Monitoring Areas.

33 CARB, Quality Assurance Air Monitoring Site Information, accessed November 2017, https://www.arb.ca.gov/qaweb/site.php?s_arb_code=70112.

Table 4.1-4
Air Quality Monitoring Summary Update

Air Pollutant	Averaging Time (Units)	2014	2015	2016
O3	Max 1 hour (ppm)	0.094	0.091	0.098
	Days > CAAQS threshold (0.09 ppm)	0	0	1
	Max 8 hours (ppm)	0.082	0.073	0.071
	Days > CAAQS threshold (0.070 ppm)	4	1	1
	Days > NAAQS threshold (0.070 ppm)	4	1	1
CO	Max 1 hour (ppm)	6.0	4.4	4.4
	Days > CAAQS threshold (20 ppm)	0	0	0
	Days > NAAQS threshold (35 ppm)	0	0	0
	Max 8 hours (ppm)	3.8	3.3	3.9
	Days > CAAQS threshold (9.0 ppm)	0	0	0
	Days > NAAQS threshold (9.0 ppm)	0	0	0
NO2	Max 1 hour (ppb)	68.2	73.6	63.7
	Days > CAAQS threshold (0.18 ppm)	0	0	0
	Days > NAAQS threshold (0.0534 ppm)	0	0	0
PM2.5	State Annual Average (µg/m^3)	N/A	N/A	N/A
	Federal Annual Average (µg/m^3)	N/A	11.7	11.0
	24 hours (µg/m^3)	35.8	41.3	36.3
	Days > CAAQS threshold	N/A	N/A	N/A
	Days > NAAQS threshold (35 µg/m^3)	1	3	1

Sources: California Air Resources Board, Top 4 Summary (2014-2016), https://www.arb.ca.gov/adam/topfour/topfour1.php; CO data found at SCAQMD, Historical Data By Year, http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year.

Notes: > = exceed; CAAQS = California Ambient Air Quality Standard; ppm = parts per million; max = maximum; mean = annual arithmetic mean; NAAQS = National Ambient Air Quality Standard.

Multiple Air Toxics Exposure Study III

In 2000, SCAQMD conducted a study[34] on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,400 in a million. The largest contributor to this risk was diesel exhaust, accounting for 71 percent of the air toxics risk. In 2008, SCAQMD conducted its third update to its study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in one million. The largest contributor to this risk was diesel exhaust, accounting for approximately 84 percent of the air toxics risk.[35] Excess cancer risk within the District boundaries can range from 175 to 1,850 in a million.[36]

Topography, Climate, and Meteorology

The Basin is a coastal plain, with connecting broad valleys and low hills that are bounded by the Pacific Ocean to the southwest and by high mountains around the rest of its perimeter. The general region lies in the semi-permanent, high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. Los Angeles County, including the City of South Pasadena, is known to be in a local steppe climate, which is the region between the tropic and polar regions in the middle latitudes associated with cool winters and warm summers. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

The potential for atmospheric pollution in an area depends largely on winds, atmospheric stability, solar radiation, and terrain. The combination of low wind speeds and low inversions produces the greatest concentration of air pollutants. The warm sunny weather in the Basin associated with a persistent high-pressure system is conducive to the formation of O3 and other oxidative pollutants, commonly referred to as smog. The problem is further aggravated by the surrounding mountains, frequent low inversion heights, and stagnant air conditions. All of these factors act together to trap pollutants in the Basin. On days without inversions or on days when winds average more than 15 miles per hour (mph), smog potential is greatly reduced.

The vertical dispersion of air pollutants in the Basin is hampered by the presence of persistent temperature inversions. High-pressure systems, such as the semi-permanent, high-pressure zone in which the Basin is located, are characterized by an upper layer of dry air that warms as it descends, restricting

34 SCAQMD, *Multiple Air Toxics Exposure Study III Model Estimated Carcinogenic Risk,* map, accessed January 2014, http://www3.aqmd.gov/webappl/matesiii/.

35 SCAQMD, *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III).*

36 SCAQMD, *Multiple Air Toxics Exposure Study III Model Estimated Carcinogenic Risk*.

the mobility of cooler, marine-influenced air near the ground surface and resulting in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The Basin-wide occurrence of inversions at 3,500 feet above mean sea level (amsl) or less averages 191 days per year usually in the summer months with the formation of the marine layer.

Predominant meteorological conditions in the region include light winds and shallow vertical mixing due to low-altitude temperature inversion. Long-term diurnal wind patterns in the general vicinity of the Project site are dominated by higher velocity, on-shore daytime winds of 4 to 12 mph from the southwest. Nocturnal winds exhibit more directional variability and commonly result in low-velocity, on-shore flow at speeds of 2 to 5 mph from the west and southwest, and less commonly in 2 to 20 mph winds from the northwest and east. Nocturnal winds are created when air along the mountain slopes cools and descends into the lower elevations of the Basin toward the ocean. These diurnal and nocturnal wind patterns play an important role in dispersing air pollutants and moderating the temperatures throughout the Basin and the Project vicinity.

Average temperatures in the Project vicinity range from highs in the upper 70s to low 80s Fahrenheit (°F) to lows in the upper 40s to lower 50s °F. The warmest periods tend to be from June to October, with an average temperature above 78°F. The cold season lasts from November to April, with an average temperature below 69°F. Rarely does the temperature fall below 42°F and above 88°F.[37]

The average annual rainfall for the Project area ranges from 12 to 16 inches. The majority of precipitation occurs from November through March and is usually caused by an upper level trough pattern in the jet stream and low-pressure systems.[38] The infrequent summer rainfall consists of periodic and short-term scattered thundershowers dominated by an extension southwest monsoon pattern that extends over the southwestern United States.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive

37 Western Regional Climate Center, "Downey Fire Station: Period of Record Monthly Climate Summary" (period of record 03/01/1906-09/30/2012), https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2494.

38 Western Regional Climate Center, "Downey Fire Station: Period of Record Monthly Climate Summary."

receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, because the majority of the workers tend to stay indoors most of the time. In addition, the workforce is generally the healthiest segment of the population.

Sensitive receptors near the Project site consist of multifamily residential units are located to the south across El Centro Street. The El Centro School is located adjacent to the west across Fairview Avenue. **Figure 4.1-1: Location of Sensitive Receptors**, provides a detailed image of the proximal land uses and identifies the sensitive receptor locations closest to the Project site. These residences represent the nearest sensitive receptors that may be impacted by emissions of air pollutants from Project implementation.

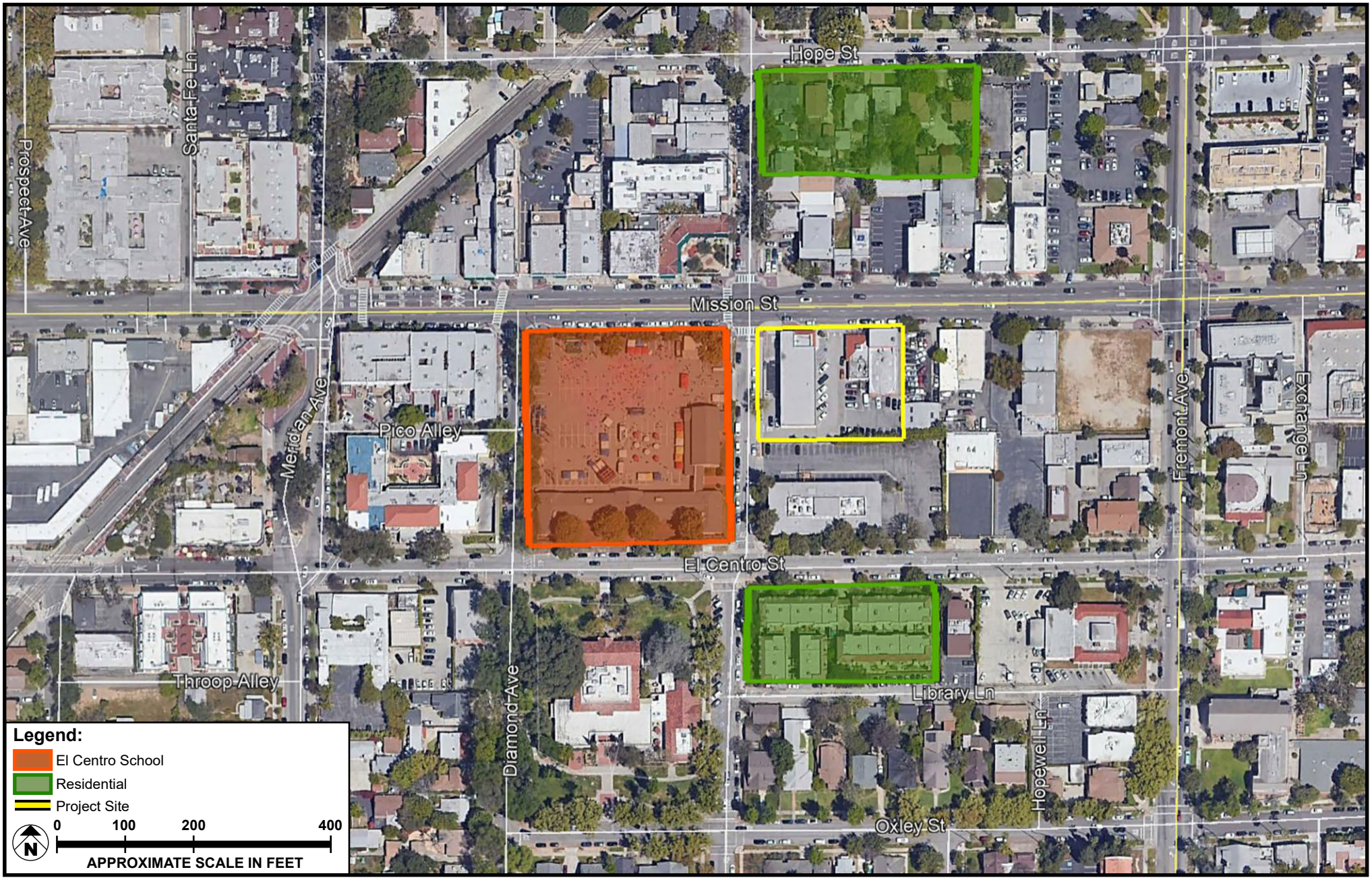
Existing Operational Emissions

The Project site is currently developed with retail and restaurant uses. The current site usage generates existing vehicle trips and air quality emissions from operations related to these uses. **Table 4.1-5: Existing Operational Air Quality Emissions**, identifies the emissions from the existing uses on site. The most current CARB-approved, SCAQMD-recommended air quality modeling software, the California Emissions Estimator Model (CalEEMod version 2016.3.2), was used to estimate existing air quality operational emissions.

Table 4.1-5
Existing Operational Air Quality Emissions

	VOC	NOx	CO	SOx	PM10	PM2.5
Source	**pounds/day**					
Maximum	1	4	10	<1	2	1

*Source: Refer to the data sheets in **Appendix B.2 (Existing Summer)** and **Appendix B.3 (Existing Winter)**.*
Note: Totals may not add up exactly due to rounding in the modeling calculations.



SOURCE: Google Earth - 2019; Meridian Consultants - 2019

FIGURE **4.1-1**

Meridian Consultants

Location of Sensitive Receptors

234-001-18

ENVIRONMENTAL IMPACTS

Methodology

The SCAQMD requires that emissions of air pollutants that will be generated by implementation of a proposed project are quantified and compared to applicable regulatory thresholds. Emissions of CAPs, VOCs, and DPM that will be generated by project implementation were quantified using CalEEMod. Various assumptions are made within the modeling software based on land use type and project scale.

Construction Emissions

General Construction Emissions

Under CEQA, SCAQMD is a commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the federal CAA, SCAQMD has adopted federal attainment plans for O3 and PM10. SCAQMD reviews projects to ensure that they would not: (1) cause or contribute to any new violation of any 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.

The thresholds for determining the significance of impacts are set forth by the SCAQMD for both construction and operational emissions. These thresholds are described below.

Construction Emission Thresholds

The proposed Project will have a significant impact if it exceeds the construction thresholds listed in **Table 4.1-6**: **Construction Thresholds**.

Table 4.1-6
Construction Thresholds

Pollutant	Emissions (pounds/day)
Volatile Organic Compounds (VOCs)	75
Nitrogen dioxide (NO2)	100
Carbon monoxide (CO)	550
Sulfur dioxide (SO2)	150
Respirable particulate matter (PM10)	150
Fine particulate matter (PM2.5)	55

Construction and Operational Local Significance Thresholds

The local significance thresholds are based on the SCAQMD's *Localized Significance Threshold Methodology for CEQA Evaluations* for short-duration construction activities. The SCAQMD recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the Project site because of construction activities. The SCAQMD provides voluntary guidance on the evaluation of localized air quality impacts to public agencies conducting environmental review of projects located within its jurisdiction. Localized air quality impacts are evaluated by examining the on-site generation of pollutants and their resulting downwind concentrations. For construction, pollutant concentrations are compared to significance thresholds for particulates (PM10 and PM2.5), CO, and NO2. The significance threshold for PM10 represents compliance with SCAQMD Rule 403 (Fugitive Dust). The threshold for PM2.5 is designed to limit emissions and to allow progress toward attainment of the ambient air quality standard. Thresholds for CO and NO2 represent the allowable increase in concentrations above background levels that would not cause or contribute to an exceedance of their respective ambient air quality standards.

The *Localized Significance Threshold (LST) Methodology for CEQA Evaluations* guidance document provides lookup tables of emissions that are based on construction projects of up to 5 acres in size. These LST lookup tables were developed to assist lead agencies with a simple tool for evaluating the impacts from small typical projects. Ambient conditions for the Western San Gabriel Valley area, as recorded in SRA 8 by the SCAQMD, were used for ambient conditions in determining appropriate threshold levels. Thresholds for each criteria pollutant for construction activity and Project operation of a 0.71-acre Project site in SRA 8 are listed in **Table 4.1-7**: **LST Thresholds**.

Table 4.1-7
LST Thresholds

	Construction	Operational
Pollutant	**pounds/day**	
Nitrogen dioxide (NO2)	61	61
Carbon monoxide (CO)	455	455
Respirable particulate matter (PM10)	3	0.71
Fine particulate matter (PM2.5)	3	1

Notes:
Based on a distance to sensitive receptors of 25 meters (82 feet). SCAQMD's LST Methodology for CEQA Evaluations *guidance document provides that projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters.*
LST values for 0.71-acre site.

Operational Thresholds

Based on the SCAQMD *CEQA Air Quality Handbook*, thresholds for each criteria pollutant for the operations of the proposed Project are provided in **Table 4.1-8**: **Operational Thresholds**.

Table 4.1-8
Operational Thresholds

Pollutant	Operational Emissions (pounds/day)
Volatile Organic Compounds (VOCs)	55
Nitrogen dioxide (NO2)	55
Carbon monoxide (CO)	550
Sulfur dioxide (SO2)	150
Respirable particulate matter (PM10)	150
Fine particulate matter (PM2.5)	55

Microscale CO Hotspot Thresholds

The significance of localized project impacts depends on whether the project would cause substantial concentrations of CO. A project is considered to have significant impacts if project-related, mobile-source emissions result in an exceedance of the California 1-hour and 8-hour CO standards, which include the following:

- 1-hour = 20 ppm
- 8-hour = 9 ppm

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.

Health Risk Thresholds

A health risk assessment is required by the SCAQMD when a project would require the use of chemical compounds that have been identified in SCAQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the USEPA's National Emissions Standards for Hazardous Air Pollutants. Residential, commercial, and office uses do not use substantial quantities of toxic air contaminants (TACs), as such thresholds are typically applied to new industrial projects. Although not officially adopted by SCAQMD, the following thresholds are commonly used to determine air quality land-use compatibility of a project with major sources of TACs within 1,000 feet of a sensitive receptor:

- Maximum Incremental Cancer Risk: greater than or equal to 10 in 1 million; and
- Hazard Index (project increment): greater than or equal to 1.0

Consistency with Applicable Air Quality Plans

Section 15125 of the State *CEQA Guidelines* requires an analysis of project consistency with applicable governmental plans and policies. In accordance with the SCAQMD *CEQA Air Quality Handbook*, the following criteria were used to evaluate the proposed Project's consistency with SCAQMD and SCAG regional plans and policies, including the AQMP:

- Will the project result in any of the following:
  - Increase the frequency or severity of existing air quality violations?
  - Cause or contribute to new air quality violations?
  - Delay the timely attainment of the air quality standards or the interim emission reductions specified in the AQMP?
- Will the project exceed the assumptions utilized in preparing the AQMP?
  - Is the project consistent with the population and employment growth projections upon which AQMP forecasted emission levels are based?
  - Does the project include air quality mitigation measures?
  - To what extent is project development consistent with the AQMP land use policies?

Cumulative Threshold

SCAQMD recommends that a project be considered to result in a cumulatively considerable impact to air quality if any construction-related emissions and operational emissions from individual development projects exceed the mass daily emissions thresholds for individual projects.[39]

The 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.

A project is also considered to result in a cumulatively considerable contribution to significant impacts if the population and employment projections for the project exceed the rate of growth defined in SCAQMD's AQMP.

Operation Emissions

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

39 *White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions*, SCAQMD Board Meeting, Agenda No. 29 (September 5, 2003), Appendix D, p. D-3.

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 from mobile-source emissions associated with vehicle trip generation.

The analysis of daily operational emissions associated with the proposed Project have been prepared using the data and methodologies identified in SCAQMD's *CEQA Air Quality Handbook*[40] and current motor vehicle emission factors in CalEEMod. Trip rates for these land uses were obtained from the traffic impact study for the proposed Project (**Appendix G**).

Thresholds of Significance

To assist in determining whether the proposed Project would have a significant effect on the environment, the District finds the proposed Project may be deemed to have a significant impact related to air quality if it would:

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

Threshold AQ-2: **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.**

Threshold AQ-3: **Expose sensitive receptors to substantial pollutant concentrations.**

Threshold AQ-4: **Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.**

Please refer to **Section 7.0: Effects Found Not to Be Significant** for an evaluation of those topics that were determined to be less than significant or have no impact and do not require further analysis in the EIR**.**

40 SCAQMD, CEQA Air Quality Handbook (November 1993).

Project Impact Analysis

Threshold AQ-1: Conflict with or obstruct implementation of the applicable air quality plan

Consistency with AQMP

The Basin is designated by the USEPA and State as nonattainment for ozone and PM2.5. SCAQMD developed regional emissions thresholds, as shown in **Table 4.1-10** and **Table 4.1-11** below, 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 Basin.

As shown in **Table 4.1-10** below, temporary emissions associated with construction of the proposed Project would fall below SCAQMD thresholds for VOC, NOx, CO, SOx, PM10, and PM2.5.

As shown in **Table 4.1-11** below, long-term emissions associated with the proposed Project would not exceed SCAQMD thresholds for VOC, NOx, CO, SOx, PM10, and PM2.5.

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

The proposed Project is also located in an urban area that would reduce vehicle trips and VMT due to the urban infill characteristic and proximity to public transit stops. These measures and features are consistent with existing recommendations to reduce air emissions. As such, it would not conflict with the AQMP. Impacts would be less than significant.

Consistency with 2016 RTP/SCS

The proposed Project is consistent with regional strategies to reduce passenger VMT to achieve the per capita GHG emissions reduction targets of SB 375 for the SCAG region. 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 South Pasadena Station Metro Gold Line station is located approximately 0.13 miles to the west on the corner of Meridian Avenue between Mission Street and El Centro Street. Consequently, the proposed Project would not conflict with the strategies with the 2016 RTP/SCS to reduce per capita passenger vehicle GHG emissions. As such, it would not conflict with the 2016 RTP/SCS. Impacts would be less than significant.

Threshold AQ-2: 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.

Emissions of air pollutants and GHGs were estimated for construction and operation of the proposed Project. In California, the California Air Pollution Control Officer's Association (CAPCOA) recommends the use of CalEEMod to calculate and organize emissions data for new development projects. CalEEMod is a program that relies on project-specific information pertaining to geographic setting, utility service provision, construction scheduling and equipment inventory, and operational design features to generate estimates of air pollutant and GHG emissions.

Information needed to parameterize the proposed Project in CalEEMod was obtained from the construction engineer and the Project architect. Construction of the proposed Project is anticipated to begin early 2020 and mid-2022, when the proposed Project will become operational. **Table 4.1-9**: **Project Construction Schedule**, provides the dates and durations of each of the activities that will 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.

As part of the proposed Project, the following practices are included:

- The pursuit of already established sustainable best management practices, such as the WELL Building Standard certification, will be utilized throughout the Project site.
- Water conservation features such as installation of low-flow toilets, low-flow shower heads, low-flow kitchen faucets, low-flow bathroom faucets, and water-efficient irrigation systems will be used within the Project site.

Construction traffic is generated by the hauling of exported soil, vendor deliveries of construction materials, and construction worker daily trips to the Project site. Each phase of construction would result in varying levels of intensity and number of construction personnel. The construction workforce would consist of approximately 10 worker trips per day during demolition; 5 worker trips per day and 2,963 total hauling trips[41] during grading; 50 worker trips per day and 13 total vendor trips during building construction; 18 worker trips per day during paving; and 10 worker trips per day during architectural coating.

41 Export of 23,700 cubic yards of soil. Export of material is assumed to have an arrival trip in an empty truck and loaded departure truck.

Table 4.1-9
Project Construction Schedule

Construction Activity	Start Date	End Date	Duration (Days)	Description
Demolition	1/01/2020	1/11/2020	8	Clearing of debris (9,480 square feet) and preparation for grading.
Grading	1/12/2020	4/4/2020	60	Export of 23,700 cubic yards of dirt.
Building Construction	4/5/2020	4/8/2022	525	Construction of foundations and structures for apartment buildings and parking garage.
Architectural Coating	2/4/2022	4/8/2022	46	Application of architectural coatings to building materials and parking facilities.
Paving	3/4/2022	4/8/2022	26	Paving of asphalt surfaces.

[a] *Architectural coating will be taking place intermittently throughout building construction.*
*Refer to **Appendix B.4** through **B.6,** Section 3.0 Construction Detail.*

An assessment of air pollutant and GHG emissions was prepared utilizing the construction schedule in **Table 4.1-9** and design features obtained from the Project architect. It was assumed that all heavy-duty diesel equipment engines would meet Tier 3 standards in accordance with CARB fleet requirements. **Table 4.8-10**: **Project Construction Diesel Equipment Inventory**, displays the construction equipment that would be required for each activity described in **Table 4.1-9**. It was assumed that all construction activities would adhere to the SCAQMD Rule 403 for Fugitive Dust and 1113 for Architectural Coatings.

Construction

Maximum daily emissions of air pollutants during construction and operation of the proposed Project were calculated using CalEEMod. **Table 4.1-11: Maximum Construction Emissions,** identifies daily emissions that are estimated for peak construction days for each construction year. Based on the modeling, construction of the proposed Project would not exceed regional VOC, NOx, CO, SOx, PM10, and PM2.5 concentration thresholds. All Criteria Air Pollutants would be below SCAQMD construction thresholds. Construction of the proposed Project would not generate any significant environmental impacts associated with air quality compliance.

Table 4.1-10
Project Construction Diesel Equipment Inventory

Phase	Off-Road Equipment Type	Amount	Daily Hours	Horsepower [HP] (Load Factor)
Demolition	Concrete/Industrial Saws	1	8	81 (0.73)
	Rubber Tired Dozers	1	1	247 (0.4)
	Tractors/Loaders/Backhoes	2	6	97 (0.37)
Grading	Excavators	1	8	158 (0.38)
	Rubber Tired Dozers	1	1	247 (0.40)
Building Construction	Forklifts	2	6	89 (0.2)
	Tractors/Loaders/Backhoes	2	8	97 (0.37)
Architectural Coating	Air Compressors	1	6	78 (0.48)
Paving	Cement and Mortar Mixers	4	6	9 (0.56)
	Pavers	1	7	125 (0.42)
	Rollers	1	7	80 (0.38)
	Tractors/Loaders/Backhoes	1	7	97 (0.37)

*Refer to **Appendix B.4** through **B.6,** Section 3.0 Construction Detail for equipment inventory information.*

Table 4.1-11
Maximum Construction Emissions

Source	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
Unmitigated Maximum	8	18	18	<1	2	1
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod

CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; VOC = volatile organic gas; SOx = sulfur oxides.

*Refer to **Appendix B.5 (Proposed Summer)** through **B.6 (Proposed Winter),** Sections 3.2 through 3.7 for maximum on-site plus off-site emissions during both the summer and winter seasons.*

Operation

The results presented in **Table 4.1-12: Maximum Operational Emissions** are compared to the SCAQMD-established operational significance thresholds. Operational emissions will result primarily from passenger vehicles traveling to and from the Project site. As shown in **Table 4.1-12**, the operational emissions would not exceed the regional VOC, NOx, CO, SOx, PM10, and PM2.5 concentration thresholds.

Table 4.1-12
Maximum Operational Emissions

	VOC	NOx	CO	SOx	PM10	PM 2.5
Source			**pounds/day**			
Area	1	1	3	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	1	3	9	<1	3	1
Total	2	4	12	<1	3	1
Existing	*1*	*4*	*10*	*<1*	*2*	*1*
Net Total	*1*	<1	2	<1	1	<1
SCAQMD Mass Daily Threshold	55	55	550	150	150	55
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2016.3.1.
Totals in table may not appear to add exactly due to rounding in the computer model calculations.
*Refer to **Appendix B.5 (Proposed Summer)** through **B.6 (Proposed Winter),** Section 2.2 for maximum operational emissions during both the summer and winter seasons.*
(-) = results are negligible.

Localized Significance Thresholds

The result of the LST analysis are provided in **Table 4.1-13: LST Threshold and Maximum Project Emissions**. These estimates assume the maximum area that would be disturbed during construction on any given day during Project buildout. Construction would comply with the SCAQMD's Rule 403 (Fugitive Dust), which requires watering of the site during dust-generating construction activities, stabilizing disturbed areas with water or chemical stabilizers, and preventing track-out dust from construction vehicles. As shown in **Table 4.1-13** below, emissions would not exceed the localized significance construction and operational thresholds.

Table 4.1-13
Localized Construction and Operational Emissions

Source	NOx	CO	PM10	PM2.5
	On-Site Emissions (pounds/day)			
Construction				
Total maximum emissions	8	8	2	1
LST threshold	61	455	3	3
Threshold Exceeded?	**No**	**No**	**No**	**No**
Operational				
Project area/energy emissions	1	3	<0.1	<0.1
Existing area/energy emissions	0.1	0.1	<0.1	<0.1
Net total area/energy emissions	1	3	<0.1	<0.1
LST threshold	61	455	0.71	1
Threshold Exceeded?	**No**	**No**	**No**	**No**

Totals in table may not appear to add exactly due to rounding in the computer model calculations.
CO = carbon monoxide; NOx = nitrogen oxide; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns.
*Refer to **Appendix B.5 (Proposed Summer)** through **B.6 (Proposed Winter),** Sections 3.2 through 3.7 for maximum on-site emissions during both the summer and winter seasons.*

The proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or state ambient air quality standard. As such, impacts would be less than significant.

Threshold AQ-3: Expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds

The result of the LST analysis are provided in **Table 4.1-14: Maximum Construction Emissions** and **Table 4.1-15: Maximum Operational Emissions**. These estimates assume the maximum area that would be disturbed during construction on any given day during Project buildout. Construction would comply with the SCAQMD's Rule 403 (Fugitive Dust), which requires watering of the site during dust-generating construction activities, stabilizing disturbed areas with water or chemical stabilizers, and preventing track-out dust from construction vehicles. As shown in **Table 4.1-14** and **Table 4.1-15** below, emissions would not exceed the localized significance construction and operational thresholds. As such, impacts would be less than significant.

Table 4.1-14
Maximum Construction Emissions

Source	VOC	NOx	CO	SOx	PM10	PM2.5
	pounds/day					
Unmitigated Maximum	8	18	18	<1	2	1
SCAQMD Mass Daily Threshold	75	100	550	150	150	55
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod

CO = carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter less than 10 microns; PM2.5 = particulate matter less than 2.5 microns; VOC = volatile organic gas; SOx = sulfur oxides.

*Refer to **Appendix A.5 (Proposed Summer)** through **A.6 (Proposed Winter),** Sections 3.2 through 3.7 for maximum on-site plus off-site emissions during both the summer and winter seasons.*

Table 4.1-15
Maximum Operational Emissions

Source	VOC	NOx	CO	SOx	PM10	PM 2.5
	pounds/day					
Area	1	1	3	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	1	3	9	<1	3	1
Total	2	4	12	<1	3	1
Existing	*1*	*4*	*10*	*<1*	*2*	*1*
Net Total	*1*	<1	2	<1	1	<1
SCAQMD Mass Daily Threshold	55	55	550	150	150	55
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2016.3.1.

Totals in table may not appear to add exactly due to rounding in the computer model calculations.

*Refer to **Appendix A.5 (Proposed Summer)** through **A.6 (Proposed Winter),** Section 2.2 for maximum operational emissions during both the summer and winter seasons.*

(-) = results are negligible.

Threshold AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

As shown in **Table 16,** the construction of the proposed Project would result in emissions below the LSTs. According to SCAQMD, while almost any source may emit objectionable odors, some land uses will be more likely to produce odors because of their operation. Land uses that are more likely to produce odors include agriculture, chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rendering plants, rail yards, and wastewater treatment plants. The proposed Project does not contain any active manufacturing activities and would not convert current agricultural land to residential land uses. Therefore, objectionable odors would not be emitted by the residential uses.

Any unforeseen odors generated by the proposed Project will be controlled in accordance with SCAQMD Rule 402. 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."[42] 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. As such, impacts would be less than significant.

CUMULATIVE IMPACTS

Cumulative

Development of the proposed Project in conjunction with the related projects in the vicinity of the Project site would result in an increase in construction and operational emissions in an already urbanized area of the City of South Pasadena. However, cumulative air quality impacts from construction, based on SCAQMD guidelines, are not analyzed in a manner similar to project-specific air quality impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed utilizing the same significance criteria as those for project-specific impacts. According to the SCAQMD, individual development projects that generate construction or operational emissions that exceed the SCAQMD-recommended daily regional or localized thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

With the implementation of Regulatory Compliance Measures for the proposed Project, which includes SCAQMD Rule 403—Fugitive Dust and Rule 1113—Architectural Coating, , the proposed Project's

42 South Coast Air Quality Management District, "Rule 402—Nuisance," http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf.

construction and operational emissions are not expected to significantly contribute to cumulative emissions for VOC, NOx, CO, PM10, and PM2.5. As such, the proposed Project's contribution to cumulative air quality emissions in combination with the related projects would not be cumulatively considerable.

As set forth previously, the proposed Project would not jeopardize the attainment of air quality standards in the 2012 AQMP for the South Coast Air Basin and the Los Angeles County portion of the Basin. As such, the proposed Project would not have a cumulatively considerable contribution to a potential conflict with, or obstruction of, the implementation of the AQMP regional reduction plans.

MITIGATION MEASURES

No mitigation is required.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Air quality impacts would be less than significant.