5.1 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Wedgeworth K-8 Elementary School and Residential Development Project (proposed project) to impact air quality in a local and regional context. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (SCAQMD). The analysis focuses on air pollution from regional emissions and localized pollutant concentrations. In this chapter, "emissions" refers to the actual quantity of pollutant, measured in pounds per day (lbs/day), and "concentrations" refers to the amount of pollutant material per volumetric unit of air. Concentrations are measured in parts per million (ppm), parts per billion (ppb), or micrograms per cubic meter ($\mu g/m^3$). Criteria air pollutant emissions modeling for the proposed project is in Appendix C of this DEIR. Transportation-sector impacts are based on trip generation provided in Section 5.8, *Transportation* (see also Appendix C). Cumulative impacts related to air quality are based on the regional boundaries of the South Coast Air Basin (SoCAB).

5.1.1 Environmental Setting

5.1.1.1 AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants.

A description of each of the primary and secondary criteria air pollutants and its known health effects is presented below.

- **Carbon Monoxide** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. 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. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005; USEPA 2019a). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2017).

- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high

temperature and/or high pressure. The principal form of NO_X produced by combustion is NO, but NO reacts quickly with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO_2 concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (SCAQMD 2005; USEPA 2019a). The SoCAB is designated an attainment area for NO_2 under the National and California AAQS (CARB 2017).

- **Sulfur Dioxide** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (SCAQMD 2005; USEPA 2019a). The SoCAB is designated attainment under the California and National AAQS (CARB 2017).

- **Suspended Particulate Matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤10 millionths of a meter or 0.0004 inch). Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤2.5 millionths of a meter or 0.0001 inch). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (SCAQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), have

human health implications, because their toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (SCAQMD 2013). However, the EPA and the California Air Resources Board (CARB) have not yet adopted AAQS to regulate these particulates. Diesel particulate matter is classified by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,[1] environmental damage,[2] and aesthetic damage[3] (SCAQMD 2005; USEPA 2019a). The SoCAB is a nonattainment area for $PM_{2.5}$ under the California and National AAQS, and a nonattainment area for PM_{10} under the California AAQS (CARB 2017).[4]

- **Ozone**, or O_3, is a key ingredient of "smog" and is a gas that is formed when VOCs and NO_X, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (SCAQMD 2005; USEPA 2019a). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2017).

- **Volatile Organic Compounds** are composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of VOCs. Other sources include evaporative emissions from paints and solvents, asphalt paving, and household consumer products such as aerosols (SCAQMD 2005). There are no AAQS for VOCs. However, because they contribute to the formation of O_3, SCAQMD has established a significance threshold of 75 pounds per day. The health effects for ozone, which VOC contributes to the formation of, are described above.

- **Lead** is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current

[1] $PM_{2.5}$ is the main cause of reduced visibility (haze) in parts of the United States.

[2] Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

[3] Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

[4] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM_{10} standards from 2004 to 2007. The EPA approved the State of California's request to redesignate the South Coast PM_{10} nonattainment area to attainment of the PM_{10} National AAQS, effective on July 26, 2013.

populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (SCAQMD 2005; USEPA 2019a). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[5] As a result of these violations, the Los Angeles County portion of the SoCAB is designated as nonattainment under the National AAQS for lead (SCAQMD 2012; CARB 2017). There are no lead-emitting sources associated with this project, and therefore, lead is not a pollutant of concern for the proposed project.

Table 5.1-1, *Criteria Air Pollutant Health Effects Summary*, summarizes the potential health effects associated with the criteria air pollutants.

Table 5.1-1 Criteria Air Pollutant Health Effects Summary

Pollutant	Health Effects	Examples of Sources
Carbon Monoxide (CO)	• Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Ozone (O_3)	• Cough, chest tightness • Difficulty taking a deep breath • Worsened asthma symptoms • Lung inflammation	Atmospheric reaction of organic gases with nitrogen oxides in sunlight
Nitrogen Dioxide (NO_2)	• Increased response to allergens • Aggravation of respiratory illness	Same as carbon monoxide sources
Particulate Matter (PM_{10} & $PM_{2.5}$)	• Hospitalizations for worsened heart diseases • Emergency room visits for asthma • Premature death	Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction
Sulfur Dioxide (SO_2)	• Aggravation of respiratory disease (e.g., asthma and emphysema) • Reduced lung function	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes
Lead (Pb)	• Behavioral and learning disabilities in children • Nervous system impairment	Contaminated soil

Source: CARB 2009; SCAQMD 2005.

[5] Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (SCAQMD 2012).

Toxic Air Contaminants

People exposed to toxic air pollutants (TAC) at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2019b). By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most relevant to the project being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified diesel particulate matter as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs. Long-term (chronic) inhalation of diesel particulate matter is likely a lung cancer risk. Short-term (i.e., acute) exposure can cause irritation and inflammatory systems and may exacerbate existing allergies and asthma systems (USEPA 2002).

5.1.1.2 REGULATORY BACKGROUND

AAQS have been adopted at the state and federal levels for criteria air pollutants. In addition, both the state and federal government regulate the release of TACs. The proposed project is in the SoCAB and is subject to the rules and regulations imposed by the SCAQMD as well as the California AAQS adopted by CARB and National AAQS adopted by the EPA. Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized in this section.

Federal and State

Ambient Air Quality Standards

The Clean Air Act was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The Clean Air Act allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act, signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

5. Environmental Analysis
AIR QUALITY

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 5.1-2, *Ambient Air Quality Standards for Criteria Pollutants*. These pollutants are O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 5.1-2 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	

Table 5.1-2 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	*	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	*	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	*	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.
Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
1 California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2 National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
4 On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a number of other regulations that reduce criteria pollutant emissions, including:

- **AB 1493: Pavley Fuel Efficiency Standards.** Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025.

- **SB 1078 and SB 107: Renewables Portfolio Standards.** A major component of California's Renewable Energy Program is the renewables portfolio standard (RPS) established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010.

- **California Code of Regulations (CCR), Title 20: Appliance Energy Efficiency Standards.** The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the California Energy Commission (CEC) on October 11, 2006 and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances.

- **24 CCR, Part 6: Building and Energy Efficiency Standards.** Energy conservation standards for new residential and nonresidential buildings adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977.

- **24 CCR, Part 11: Green Building Standards Code.** Establishes 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.[6]

Tanner Air Toxics Act and Air Toxics Hots Information and Assessment Act

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California legislature enacted a program to identify the health effects of TACs and reduce exposure to them. The California Health and Safety Code defines a TAC as "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" (17 CCR § 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code § 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act set up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control

[6] The green building standards became mandatory in the 2010 edition of the code.

measure" for sources that emit that TAC. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate "toxics best available control technology" to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- **13 CCR Chapter 10 § 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.** Generally restricts on-road diesel-powered commercial motor vehicles with a gross vehicle weight rating of greater than 10,000 pounds from idling more than five minutes.
- **13 CCR Chapter 10 § 2480: Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.** Generally restricts a school bus or transit bus from idling for more than five minutes when within 100 feet of a school.
- **13 CCR § 2477 and Article 8: Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate.** Regulations established to control emissions associated with diesel-powered TRUs.

Air Quality Management Planning

SCAQMD is the agency responsible for improving air quality in the SoCAB and ensuring that the National and California AAQS are attained and maintained. SCAQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2016 AQMP

On March 3, 2017, SCAQMD adopted the 2016 AQMP, which serves as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031
- 2012 National annual $PM_{2.5}$ standard by 2025[7]
- 2006 National 24-hour $PM_{2.5}$ standard by 2019
- 1997 National 8-hour ozone standard by 2023
- 1979 National 1-hour ozone standard by year 2022

[7] The 2016 AQMP requests a reclassification from moderate to serious nonattainment for the 2012 National $PM_{2.5}$ standard.

It is projected that total NO_X emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022 (SCAQMD 2017), which requires reducing NO_X emissions in the SoCAB to 250 tpd. This means approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard.

Reducing NO_X emissions would also reduce $PM_{2.5}$ concentrations in the SoCAB. However, because the goal is to meet the 2012 federal annual $PM_{2.5}$ standard no later than year 2025, SCAQMD is seeking to reclassify the SoCAB from "moderate" to "serious" nonattainment under this federal standard. A "moderate" nonattainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (SCAQMD 2017).

Lead Implementation Plan

In 2008, the EPA designated the Los Angeles County portion of the SoCAB as a nonattainment area under the federal lead classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in the City of Vernon and the City of Industry that exceeded the new standard in the 2007-to-2009 period. The remainder of the SoCAB, outside the Los Angeles County nonattainment area, remains in attainment of the new 2008 lead standard. On May 24, 2012, CARB approved the State Implementation Plan (SIP) revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to the EPA for approval.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of activity, including:

- **Rule 401, Visible Emissions.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than three minutes in any one hour that is as dark as or darker than designated No. 1 on the Ringelmann Chart, as published by the US Bureau of Mines.

- **Rule 402, Nuisance.** This rule is intended to prevent the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of persons or the public, or that cause, or have a natural

tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

- **Rule 403, Fugitive Dust.** This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust and requires best available control measures to be applied to earth moving and grading activities. In general, the rule prohibits new developments from the installation of wood-burning devices.

- **Rule 445, Wood-Burning Devices.** This rule is intended to reduce the emission of particulate matter from wood-burning devices and applies to manufacturers and sellers of wood-burning devices, commercial sellers of firewood, and property owners and tenants that operate a wood-burning device.

- **Rule 1113, Architectural Coatings.** This rule serves to limit the VOC content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the SCAQMD must comply with the current VOC standards set in this rule.

- **Rule 1403, Asbestos Emissions from Demolition/Renovation Activities.** The purpose of this rule is to specify work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM). The requirements for demolition and renovation activities include asbestos surveying, notification, ACM removal procedures and time schedules, ACM handling and clean-up procedures, and storage, disposal, and landfilling requirements for asbestos-containing waste materials. All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

5.1.1.3 EXISTING CONDITIONS

South Coast Air Basin

The project site is in the SoCAB, which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB 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. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (SCAQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less

variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site with temperature data is the Montebello Monitoring Station (ID No. 045790). The lowest average temperature is reported at 47.2°F in December, and the highest average temperature is 89.7°F in August (WRCC 2019).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall historically averages 14.78 inches per year in the project area (WRCC 2019).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 2005).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (SCAQMD 2005).

SoCAB Nonattainment Areas

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the SIP. Areas are classified as attainment or nonattainment areas for particular pollutants depending on whether they meet the ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- ***Unclassified.*** A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- ***Attainment.*** A pollutant is in attainment if the AAQS for that pollutant was not violated at any site in the area during a three-year period.
- ***Nonattainment.*** A pollutant is in nonattainment if there was at least one violation of an AAQS for that pollutant in the area.
- ***Nonattainment/Transitional.*** A subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 5.1-3, *Attainment Status of Criteria Pollutants in the South Coast Air Basin.*

Table 5.1-3 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM_{10}	Serious Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Nonattainment (SR-60 Near Road only)[1]	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only)[2]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2017.

[1] On February 21, 2019, CARB/'s Board is considering approving the separation of the area that runs along the CA-60 corridor through portions of Riverside, San Bernardino, and Los Angeles Counties from the remainder of the South Coast Air Basin for designation purposes. The Board is proposing to designate this corridor as nonattainment. The remainder of the South Coast Air Basin would remain in attainment for NO_2.

[2] In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

Multiple Air Toxics Exposure Study IV

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In 2008, SCAQMD conducted its third update, MATES III, based on the Office of Environmental Health Hazards Assessment's

(OEHHA) 2003 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (2003 HRA Guidance Manual). 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 a million. The largest contributor to this risk was diesel exhaust, which accounted for 84 percent of the cancer risk (SCAQMD 2008a).

SCAQMD recently released the fourth update, MATES IV, which was also based on OEHHA's 2003 HRA Guidance Manual. The results showed that the overall monitored risk for excess cancer from a lifetime exposure to ambient levels of air toxics decreased to approximately 418 in one million. Compared to the 2008 MATES III, monitored excess cancer risks decreased by approximately 65 percent. Approximately 90 percent of the risk is attributed to mobile sources, and 10 percent is attributed to TACs from stationary sources, such as refineries, metal processing facilities, gas stations, and chrome plating facilities. The largest contributor to this risk was diesel exhaust, which accounted for approximately 68 percent of the air toxics risk. Compared to MATES III, MATES IV found substantial improvement in air quality and associated decrease in air toxics exposure. As a result, the estimated basin-wide population-weighted risk decreased by approximately 57 percent since MATES III (SCAQMD 2015a).

OEHHA updated the guidelines for estimating cancer risks on March 6, 2015 (OEHHA 2015). The new method uses higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined, SCAQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher than the risk identified in MATES IV using the 2015 OEHHA guidance methodology (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (SCAQMD 2015a).

Valley Fever

Valley Fever is an infectious disease caused by the fungus *Coccidioides immitis* and *Coccidioides psadasii*. According to the County Department of Public Health, this fungus is a major cause of community-acquired pneumonia in the southwestern United States (CDPH 2019). Valley Fever fungus is most prevalent in the San Joaquin Valley and the Central Valley, where land is arid to semi-arid and receives moderate rainfall (5 to 20 inches per year). Several factors indicate a project's potential to expose sensitive receptors to Valley Fever: disturbance of the topsoil of undeveloped land, dust storms, strong winds, earthquakes, archaeological digs, agricultural activities, and construction activities.

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site are best documented by measurements taken by the SCAQMD. The proposed project is within Source Receptor Area (SRA) 11, South San Gabriel Valley.[8] The air quality monitoring station closest to the project site is the Pico Rivera-4144 San Gabriel Monitoring Station. This station monitors O_3, NO_x, and $PM_{2.5}$. Data for PM_{10} are supplemented by the Azusa Monitoring Station.[9] The data from these stations are summarized

[8] Per SCAQMD Rule 701, an SRA is defined as follows: "A source area is that area in which contaminants are discharged and a receptor area is that area in which the contaminants accumulate and are measured. Any of the areas can be a source area, a receptor area, or both a source and receptor area". There are 37 SRAs within the SCAQMD's jurisdiction.

[9] Locations of the SRAs and monitoring stations are shown at http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf.

in Table 5.1-4, *Ambient Air Quality Monitoring Summary*, and show regular violations of the state and federal O_3, state PM_{10}, and federal $PM_{2.5}$ standards in the last five years.

Table 5.1-4 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2014	2015	2016	2017	2018
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	7	6	9	7	3
State 8-hour ≥ 0.07 ppm (days exceed threshold)	7	11	6	9	5
Federal 8-Hour > 0.075 ppm (days exceed threshold)	5	2	2	4	2
Max. 1-Hour Conc. (ppm)	0.121	0.107	0.111	0.118	0.115
Max. 8-Hour Conc. (ppm)	0.092	0.081	0.081	0.086	0.082
Nitrogen Dioxide (NO_2)[1]					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	0.0867	0.0704	0.0632	0.0750	0.0768
Coarse Particulates (PM_{10})[2]					
State 24-Hour > 50 µg/m^3 (days exceed threshold)	21	12	12	7	10
Federal 24-Hour > 150 µg/m^3 (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	96.0	101.0	74.0	83.9	78.3
Fine Particulates ($PM_{2.5}$)[1]					
Federal 24-Hour > 35 µg/m^3 (days exceed threshold)	1	3	2	1	2
Max. 24-Hour Conc. (µg/m^3)	35.1	52.7	46.5	49.5	56.3

Source: CARB 2019.
ppm: parts per million; parts per billion, µg/m^3: micrograms per cubic meter
Notes: * Data not available.
[1] Data obtained from the Pico Rivera - 4144 San Gabriel Monitoring Station.
[2] Data obtained from the Azusa Monitoring Station.

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 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 and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

The nearest sensitive receptors to the proposed project site are the residences along Eagle Park Road and Wedgeworth Drive to the west and south, respectively, and students at Wedgeworth Elementary School.

5.1.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

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

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.

AQ-3 Expose sensitive receptors to substantial pollutant concentrations.

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

The Initial Study, included as Appendix A, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold AQ-4

This impact will not be addressed in the following analysis.

5.1.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation based on substantial evidence. The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website (SCAQMD 1993).[10]

Regional Significance Thresholds

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB, shown in Table 5.1-5, *SCAQMD Significance Thresholds*. The table lists thresholds that are applicable for all projects uniformly, regardless of size or scope. There is growing evidence that although ultrafine particulate matter contributes a very small portion of the overall atmospheric mass concentration, it represents a greater proportion of the health risk from PM. However, the EPA and CARB have not adopted AAQS to regulate ultrafine particulate matter; therefore, SCAQMD has not developed thresholds for them.

[10] SCAQMD's Air Quality Significance Thresholds are current as of March 2015 and can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

Table 5.1-5 SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: SCAQMD 2019.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health effects. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Increases cancer risk ($PM_{2.5}$, TACs)
- Aggravates respiratory disease (O_3, $PM_{2.5}$)
- Increases bronchitis (O_3, $PM_{2.5}$)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O_3)
- Reduces resistance to infections and increases fatigue (O_3)
- Reduces lung growth in children ($PM_{2.5}$)
- Contributes to heart disease and heart attacks ($PM_{2.5}$)
- Contributes to premature death (O_3, $PM_{2.5}$)
- Contributes to lower birth weight in newborns ($PM_{2.5}$) (SCAQMD 2015a)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of $PM_{2.5}$ is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists, in a landmark children's health study, found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (SCAQMD 2015b).

SCAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals exposed to elevated concentrations of air pollutants in the SoCAB and has established thresholds that would be protective of these individuals. To achieve the health-based standards established by the EPA, SCAQMD prepares an AQMP that details regional programs to attain the AAQS. Mass emissions in Table 5.1-5 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Regional emissions from a single project do not single-handedly trigger a regional health impact. The SCAQMD CEQA significance thresholds in Table 5.1-5 are based on the trigger levels for the federal New Source Review (NSR) Program. The NSR Program was created to ensure projects are consistent with attainment of health-based federal ambient air quality standards. The federal ambient air quality standards establish the levels of air quality necessary, with an adequate margin of safety, to protect the public health of

sensitive populations such as asthmatics, children, and the elderly. Therefore, projects that do not exceed the SCAQMD regional significance thresholds would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emissions in Table 5.1-5, emissions would cumulatively contribute to the nonattainment status and would contribute in elevating health effects associated to these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 5.1-5, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited above.

SCAQMD has not provided methodology to assess the specific correlation between mass emissions generated and the effect on health in order to address the issue raised in *Sierra Club v. County of Fresno (Friant Ranch, L.P.)* (2018) 6 Cal.5th 502, Case No. S21978 (*Friant Ranch*). Ozone concentrations are dependent upon a variety of complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground-level ozone concentrations in relation to the National AAQS and California AAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. However, if a project within the SoCAB exceed the regional significance thresholds, the project could contribute to an increase in health effects in the basin until such time the attainment standard are met in the SoCAB.

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles and introduction of cleaner fuels, as well as implementation of control technology on industrial facilities, CO concentrations in the SoCAB and the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by SCAQMD did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods.[11]

[11] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

As identified in SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in years before redesignation were a result of unusual meteorological and topographical conditions and not of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017).[12]

Localized Significance Thresholds

SCAQMD identifies localized significance thresholds (LST), shown in Table 5.1-6, *SCAQMD Localized Significance Thresholds*. Emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at a project site (offsite mobile-source emissions are not included in the localized significance threshold analysis) could expose sensitive receptors to substantial concentrations of criteria air pollutants. A project that generates emissions that trigger a violation of the AAQS when added to the local background concentrations would generate a significant impact.

Table 5.1-6 SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
Annual NO_2 Standard (CAAQS)	0.03 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[1]	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[1]	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (SCAQMD)[1]	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[1]	2.5 µg/m^3
Annual Average PM_{10} Standard (SCAQMD)[1]	1.0 µg/m^3

Source: SCAQMD 2019.
ppm: parts per million; µg/m^3: micrograms per cubic meter
[1] Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, SCAQMD developed screening-level LSTs to back-calculate the mass amount (pounds per day) of emissions generated onsite that would trigger the levels shown in Table 5.1-6 for projects under five acres. These "screening-level" LSTs tables are the localized significance thresholds for all projects of five acres and less; however, they can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required.

[12] The CO hotspot analysis refers to the modeling conducted by the Bay Area Air Quality Management District for its CEQA Guidelines because it is based on newer data and considers the improvement in mobile-source CO emissions. Although meteorological conditions in the Bay Area differ from those in the Southern California region, the modeling conducted by BAAQMD demonstrates that the net increase in peak hour traffic volumes at an intersection in a single hour would need to be substantial. This finding is consistent with the CO hotspot analysis SCAQMD prepared as part of its 2003 AQMP to provide support in seeking CO attainment for the SoCAB. Based on the analysis prepared by SCAQMD, no CO hotspots were predicted for the SoCAB. As noted in the preceding footnote, the analysis included some of Los Angeles' busiest intersections, with daily traffic volumes of 100,000 or more peak hour vehicle trips operating at LOS E and F.

The screening-level LSTs in SRA 11 are shown in Table 5.1-7, *SCAQMD Construction Screening-Level Localized Significance Thresholds*. This table includes data regarding for receptors within 82 feet (25 meters) to represent students on campus during construction activities. For construction activities, LSTs are based on the acreage disturbed per day based on equipment use (SCAQMD 2011). The different types of construction activities would require different equipment mixes, resulting in multiple LSTs.

Table 5.1-7 SCAQMD Construction Screening-Level Localized Significance Thresholds

	Threshold (lbs/day)[1]			
Acreage Disturbed	Nitrogen Oxides (NO_X)	Carbon Monoxide (CO)	Coarse Particulates (PM_{10})	Fine Particulates ($PM_{2.5}$)
≤1.00 Acre Disturbed Per Day	83	673	5.0	4.0
1.31 Acres Disturbed Per Day	95	785	5.62	4.31
1.81 Acres Disturbed Per Day	114	964	6.62	4.81
2.50 Acres Disturbed Per Day	131	1,161	8.16	5.57
2.81 Acres Disturbed Per Day	138	1,243	8.89	6.08
3.50 Acres Disturbed Per Day	152	1,422	10.49	7.00
4.81 Acres Disturbed Per Day	179	1,765	13.56	8.75
7.50 Acres Disturbed Per Day	183	1,814	13.99	9.00

Source: SCAQMD 2008a and 2011.
[1] LSTs are based on receptors within 82 feet (25 meters) in SRA 11.

Health Risk Thresholds

Whenever a project would require 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 EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the SCAQMD. Table 5.1-8, *SCAQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment, not the significant effects of the environment on the proposed project. *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478). CEQA does not require an analysis of the environmental effects of attracting development and people to an area. However, the environmental document must analyze the impacts of environmental hazards on future users when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 5.1-8 SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: SCAQMD 2019.

5.1.3 Plans, Programs, and Policies

Regulatory Requirements

RR AIR-1 New buildings are required to achieve the current California Building Energy and Efficiency Standards (Title 24, Part 6) and California Green Building Standards Code (CALGreen) (Title 24, Part 11). The 2019 Building and Energy Efficiency Standards are effective January 1, 2020. The Building Energy and Efficiency Standards and CALGreen are updated tri-annually with a goal to achieve zero net energy (ZNE) for residential buildings by 2020 and nonresidential buildings by 2030.

RR AIR-2 New buildings are required to adhere to the California Green Building Standards Code (CALGreen) requirement to provide bicycle parking for new nonresidential buildings (CALGreen Sections 5.106.4.1, 14.106.4.1, and 5.106.4.1.2).

RR AIR-3 Construction activities will be conducted in compliance with the California Code of Regulations, Title 13, Section 2499, which requires that nonessential idling of construction equipment be restricted to five minutes or less.

RR AIR-4 Construction activities will be conducted in compliance with any applicable South Coast Air Quality Management District rules and regulations, including but not limited to the following:

- **Rule 403**, Fugitive Dust, for controlling fugitive dust and avoiding nuisance.
- **Rule 402**, Nuisance, which states that a project shall not "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property."
- **Rule 1113**, which limits the volatile organic compound content of architectural coatings.

5.1.4 Environmental Impacts

5.1.4.1 METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely in conjunction with the type and scale of development associated with the proposed project. Air quality emissions modeling was completed for the project using the California Emissions Estimator Model (CalEEMod) recommended by the SCAQMD. Air quality modeling datasheets are in Appendix C of this DEIR and are based on the following:

- **Transportation:** Implementation of the proposed project would increase the school population from 600 students to 1,200 students. As seen in Section 5.8, *Transportation*, the proposed elementary school

would generate an additional 1,134 weekday average daily trips (ADT) and no trips on the weekends to account for the additional 600 students the proposed school would house and typical after school programs and activities onsite such as PTA meetings and afterschool club meetings. As seen in Section 5.8, *Transportation*, the residential use would generate 1,171 weekday ADTs, 1,302 Saturday ADTs, and 1,005 Sunday ADTs (PlaceWorks 2019). The average vehicle miles traveled (VMT) of 0.85 mile on weekdays for students was determined using the distance between the school and locations along the school district boundary. A weekday VMT of 7.32 miles, Saturday VMT of 8.14 miles, and Sunday VMT of 6.28 miles for proposed residents were based on CalEEMod default values. The CalEEMod default vehicle mix for the elementary school was adjusted to exclude emissions from heavy heavy-duty trucks, motorhomes, and all buses except school buses. The CalEEMod default vehicle mix for the residential use was adjusted to exclude light heavy-duty trucks, medium heavy-duty trucks, heavy heavy-duty trucks, and bus emissions.

- **Area Sources:** Area and stationary sources are based on the CalEEMod defaults for emissions generated from the use of consumer products and cleaning supplies. Additionally, emissions from wood-burning stoves and fireplaces have been excluded based on the project description and site plans.

- **Energy:** The proposed buildings would be built to meet the 2019 Building Energy Efficiency Standards.

- **Construction:** Phase 1 construction activities are based on the construction schedule provided by the applicant and projected over an approximately 16.5-month time frame with a 2021 buildout. The assumptions for the Phase 2 construction schedule were based on the construction activities Phase 1 and CalEEMod defaults normalized over a 16.5-month time frame ending in December 2025. The demolition activities for both phases of the project would involve the removal of the existing structures and asphalt. All demolition debris will be hauled to an off-site location. The remaining construction activities and equipment mix are based on CalEEMod defaults, as are worker and vendor trips. Vendor trips have been adjusted to account for additional concrete and water trucks. Hauling trips have also been adjusted based on the demolition hauling capacity. Table 5.1-9, *Construction Activities, Phasing and Equipment*, shows the assumed construction activities, their duration, and equipment mix for each activity.

Table 5.1-9 Construction Activities, Phasing and Equipment

Activities	Duration (Days)[1]	Equipment
Phase 1		
Site Preparation	66	3 rubber-tired dozers, 4 tractors/loaders/backhoes
Grading	35	2 excavators, 1 grader, 1 rubber-tired dozer, 2 scrapers, 2 tractors/loaders/backhoes
Utility Trenching	45	1 excavator, 1 trencher
Building Construction	262	1 crane, 3 forklifts, 1 generator set, 3 tractors/loaders/backhoes, 1 welder
Paving	67	2 pavers, 2 sets of paving equipment, 2 rollers
Architectural Coating	77	1 air compressor
Demolition	11	1 concrete/industrial saw, 3 excavators, 2 rubber-tired dozers
Portables Removal	5	1 crane
Finishing/Landscaping	55	1 forklift, 1 tractor/loader/and backhoe
Phase 2		
Demolition	22	1 concrete/industrial saw, 3 excavators, 2 rubber-tired dozers
Bleachers Removal	2	1 crane
Site Preparation	11	3 rubber-tired dozers, 4 tractors/loaders/backhoes
Grading	22	1 excavator, 1 grader, 1 rubber-tired dozer, 3 tractors/loaders/backhoes
Utility Trenching	11	1 excavator, 1 trencher
Residential Housing Construction	243	1 crane, 3 forklifts, 1 generator set, 3 tractors/loaders/backhoes, 1 welder
Architectural Coating	22	1 air compressor
Paving	22	2 pavers, 2 sets of paving equipment, 2 rollers
Finishing and Landscaping	11	1 forklift, 1 tractor/loader/and backhoe

[1] Based on CalEEMod defaults projected over 16.5 months for each phase.

5.1.4.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.1-1: The proposed project is consistent with the applicable air quality management plan. [Threshold AQ-1].

A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the AQMP. The most recently adopted comprehensive plan is the 2016 AQMP, adopted on March 3, 2017.

The regional emissions inventory for the SoCAB is compiled by SCAQMD and SCAG. Regional population, housing, and employment projections developed by SCAG are based in part on cities' general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP. These

demographic trends are incorporated into the regional transportation plan/sustainable communities strategy, compiled by SCAG to determine priority transportation projects and vehicle miles traveled in the SCAG region. As a result, changes in population, housing, or employment growth projections have the potential to affect SCAG's demographic projections and therefore the assumptions in SCAQMD's AQMP. Typically, only large, regionally significant projects have the potential to affect the regional growth projections. In addition, the consistency analysis is generally only required in connection with the adoption of general plans, specific plans, and significant projects.

Implementation of the proposed project would increase the school population from 600 students to 1,200 students. The residential component of the project would result in 160 units and would generate an increase in 464 people. CEQA Guidelines Section 15206(b) states that a proposed project is of statewide, regional, or area-wide significance if the project is a residential development of more than 500 dwelling units. The proposed project would not be considered a regionally significant project that would warrant Intergovernmental Review by SCAG under CEQA Guidelines Section 15206. As discussed in Section 3.14(a) of the IS/NOP (Appendix A of this DEIR), development of a school would not be considered a growth inducing project that would result in population growth. While development of residential housing in the project site would increase population, the growth is anticipated by the County and is consistent with the County's General Plan. Therefore, the project would not have the potential to substantially affect SCAG's demographic projections.

Furthermore, as seen in Impact 5.1-3, the long-term emissions generated by the proposed project would not generate criteria air pollutants that exceed the SCAQMD significance thresholds, which were established to determine whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations . Therefore, implementation of the proposed project would not interfere with or obstruct implementation of the AQMP, and impacts would be less than significant.

Level of Significance Before Mitigation: Less than significant.

Impact 5.1-2 Construction activities associated with the proposed project could 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. [Threshold AQ-2]

The SoCAB is designated nonattainment for O_3 and $PM_{2.5}$ under the California and National AAQS, nonattainment for PM_{10} under the California AAQS,[13] and nonattainment for lead (Los Angeles County only) under the National AAQS. According to SCAQMD methodology, any project that does not exceed or can be mitigated to less than the daily threshold values would not add significantly to a cumulative impact (SCAQMD 1993).

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

[13] Portions of the SoCAB along SR-60 in Los Angeles, Riverside, and San Bernardino counties are proposed nonattainment for NO_2 under the California AAQS.

construction crew. Site preparation activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$) from demolition and soil-disturbing activities, such as grading. Air pollutant emissions from construction activities on-site would vary daily as construction activity levels change. An estimate of maximum daily construction emissions for the proposed project is provided in Table 5.1-10, *Maximum Daily Construction Emissions*. As shown in the table, the maximum daily emissions for CO, SO_2, PM_{10}, and $PM_{2.5}$ from construction-related activities would be less than their respective SCAQMD regional significance threshold values. However, the construction-related NOx emissions generated from the combined site preparation and grading phase and combined site preparation, grading, and utility trenching phase would exceed the SCAQMD regional significance threshold for NOx. In addition, construction-related VOC emissions generated from paints used in architectural coating of the proposed residences would exceed the SCAQMD regional significance threshold for VOC. Consequently, construction of the proposed project could potentially contribute to the nonattainment designations of the SoCAB in the absence of mitigation.

Table 5.1-10 Maximum Daily Construction Emissions

Construction Activity	Maximum Daily Emissions (lbs/Day)[1]					
	VOC	NO_x	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Phase 1 – Year 2020						
Site Preparation	4	43	22	<1	10	6
Site Preparation and Grading	9	**105**	58	<1	17	10
Site Preparation, Grading, and Utility Trenching	10	**111**	63	<1	17	11
Site Preparation and Utility Trenching	5	49	28	<1	11	7
Site Preparation, Utility Trenching, and Building Construction	8	73	51	0	13	8
Utility Trenching and Building Construction	3	30	28	<1	3	2
Building Construction	3	24	22	<1	2	1
Phase 1 – Year 2021						
Building Construction	2	21	21	<1	2	1
Building Construction, Paving, and Architectural Coating	16	36	39	<1	3	2
Building Construction, Paving, Architectural Coating, Demolition, Portables Removal, and Finishing and Landscaping	20	79	68	<1	6	4
Building Construction, Paving, Architectural Coating, Demolition, and Finishing and Landscaping	20	72	65	<1	6	4
Building Construction, Paving, Architectural Coating, and Finishing and Landscaping	16	39	43	<1	4	2
Paving, Architectural Coating, and Finishing and Landscaping	14	18	22	<1	1	1
Architectural Coating and Finishing/Landscaping	13	5	6	<1	1	<1
Phase 2 – Year 2024						
Demolition	2	22	21	<1	2	1

Table 5.1-10 Maximum Daily Construction Emissions

Construction Activity	Maximum Daily Emissions (lbs/Day)[1]					
	VOC	NO_x	CO	SO_2	PM_{10}[2]	$PM_{2.5}$[2]
Demolition and Bleachers Removal	3	28	23	<1	2	1
Site Preparation	3	27	19	<1	9	5
Grading	2	22	17	<1	4	2
Utility Trenching	1	5	6	<1	<1	<1
Building Construction	2	18	25	<1	3	1
Phase 2 – Year 2025						
Building Construction	2	17	24	<1	3	1
Architectural Coating	**100**	1	3	<1	1	<1
Paving	1	9	15	<1	1	<1
Finishing and Landscape	<1	2	4	<1	<1	<1
Maximum Daily Emissions	**100**	**101**	**68**	**<1**	**17**	**11**
SCAQMD Regional Threshold	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold	**Yes**	**Yes**	No	No	No	No

Source: CalEEMod Version 2016.3.2. Highest winter or summer emissions are reported.
Notes: lbs = pounds.
[1] Based on information provided or verified by the District. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the SCAQMD.
[2] Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Level of Significance Before Mitigation: Potentially significant

Impact 5.1-3: Long-term operation of the project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is no-attainment under an applicable federal or state ambient air quality standard. [Threshold AQ-2]

Buildout of the proposed project would result in generation of criteria air pollutant emissions from transportation (i.e., vehicle trips associated with the proposed new use), area (e.g., landscaping equipment, architectural coating), and energy (i.e., natural gas used for heating and cooking) sources.

Phase 1, Opening Year 2021

As shown on Table 5.1-11, *Opening Year 2021, Regional Operation Emissions*, the mobile emissions generated by operation of the school would not exceed the SCAQMD regional significance thresholds for operation-related emissions and would not cumulatively contribute to the nonattainment designations of the SoCAB. Additionally, the new school would be designed and built to meet the 2019 Building Energy Efficiency Standards. Consequently, the new school would be more energy efficient than the existing school.

Table 5.1-11 Opening Year 2021, Regional Operation Emissions

Source	Maximum Daily Emissions (lbs/Day)					
	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.}$
Area	3	<1	<1	<1	<1	<1
Energy[1]	<1	<1	<1	<1	<1	<1
Mobile	1	1	6	<1	1	<1
Total	**4**	**1**	**6**	**<1**	**1**	**<1**
SCAQMD Regional Threshold	**55**	**55**	**550**	**150**	**150**	**550**
Exceeds Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2016.3.2. Highest winter or summer emissions are reported.
Notes: lbs = pounds.
[1] Buildings are assumed to be designed and built to meet the 2019 Building Efficiency Standards and CalGreen based on the anticipated construction schedule.

Phase 2, Buildout Year 2026

At buildout, the proposed project would result in an increase in emissions associated with the expanded educational facilities and residential housing. As shown in Table 5.1-12, *Buildout Year 2026 Regional Operation Emissions*, the maximum daily emissions from operation-related activities would be less than their respective SCAQMD regional significance threshold values. The proposed project would not exceed the regional significance thresholds for operation-related emissions, and therefore would not cumulatively contribute to the nonattainment designations of the SoCAB.

Table 5.1-12 Buildout Year 2026 Regional Operation Emissions

Source	Maximum Daily Emissions (lbs/Day)					
	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.}$
Area	11	3	14	<1	<1	<1
Energy[1]	<1	1	<1	<1	<1	<1
Mobile	3	3	28	<1	10	3
Total	**14**	**6**	**42**	**<1**	**10**	**3**
SCAQMD Regional Threshold	**55**	**55**	**550**	**150**	**150**	**550**
Exceeds Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2016.3.2. Highest winter or summer emissions are reported.
Notes: lbs: Pounds.
[1] Buildings are assumed to be designed and built to meet the 2019 Building Efficiency Standards and CalGreen based on the anticipated construction schedule.

Level of Significance Before Mitigation: Less than significant.

Impact 5.1-4: Construction activities associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

The proposed project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevated levels. Unlike the mass of construction emissions shown in the regional emissions analysis in Table 5.1-10, which are described in

pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or μg/m^3) and can be correlated to potential health effects.

Construction-Phase LSTs

Screening-level LSTs (pounds per day) are the amount of emissions generated by the project at which localized concentrations (ppm or μg/m^3) of criteria air pollutants could exceed the AAQS—for pollutants that the SoCAB is in nonattainment with the AAQS. The screening-level LSTs are based on the project site size and distance to the nearest sensitive receptor and are based on the California AAQS, which are the most stringent. Table 5.1-13, *Construction Emissions Compared to the Screening-Level LSTs*, shows the maximum daily construction emissions (pounds per day) generated during on-site construction activities at the project site compared with SCAQMD's screening-level LSTs thresholds. On-site emissions include fugitive dust emissions and exhaust emissions associated with operation of off-road construction equipment as well as fugitive dust from the movement of dirt. As shown in the table, the maximum daily NOx, CO, PM_{10}, and $PM_{2.5}$ construction emissions generated from on-site construction-related activities would be less than their respective SCAQMD screening-level LSTs, except for PM_{10} and $PM_{2.5}$ associated with the combined site preparation and grading, and combined site preparation, grading, and trenching phase. Consequently, construction activities could expose sensitive receptors to substantial concentrations of air pollutants.

Table 5.1-13 Construction Emissions Compared to the Screening-Level LSTs

	Pollutants(lbs/day)[1]			
	NO_X	CO	PM_{10}[2]	$PM_{2.5}$[2]
SCAQMD ≤1.00 -acre LST	83	673	5.0	4.0
Paving, Architectural Coating, and Finishing and Landscaping (2021 Phase 1)	18	20	0.97	0.90
Architectural Coating and Finishing/Landscaping (2021 Phase 1)	5	5	0.29	0.27
Demolition (2024 Phase 2)	21	20	1.76	1.01
Demolition and Bleachers Removal (2024 Phase 2)	24	21	1.90	1.15
Utility Trenching (2024 Phase 2)	5	6	0.29	0.27
Architectural Coating (2025 Phase 2)	1	2	0.05	0.05
Paving (2025 Phase 2)	9	15	0.42	0.39
Finishing and Landscaping (2025 Phase 2)	2	3	0.10	0.10
Exceeds LST?	No	No	No	No
SCAQMD 1.31-Acre LSTs	95	785	5.62	4.31
Utility Trenching and Building Construction (2020 Phase 1)	25	23	1.52	1.42
Building Construction (2020 Phase 1)	19	17	1.11	1.05
Building Construction (2021 Phase 1)	17	17	0.96	0.90
Building Construction (2021), Paving, Architectural Coating (2021 Phase 1)	32	33	1.73	1.62
Building Construction (2024 Phase 2)	13	16	0.61	0.58
Building Construction (2025 Phase 2)	12	16	0.53	0.50
Exceeds LST?	No	No	No	No

Table 5.1-13 Construction Emissions Compared to the Screening-Level LSTs

	Pollutants(lbs/day)[1]			
	NO_X	CO	PM_{10}[2]	$PM_{2.5}$[2]
SCAQMD 1.81-Acre LSTs	114	964	6.62	4.81
Building Construction, Paving, Architectural Coating, and Finishing and Landscaping (2021 Phase 1)	35	36	1.93	1.80
Exceeds LST?	No	No	No	No
SCAQMD 2.50-Acre LSTs	131	1,161	8.16	5.57
Grading (2024 Phase 2)	17	15	3.54	2.11
SCAQMD 2.81-Acre LSTs	138	1,243	8.89	6.08
Building Construction, Paving, Architectural Coating, Demolition, Portables Removal, and Finishing and Landscaping (2021 Phase 1)	71	60	4.06	3.48
Building Construction, Paving, Architectural Coating, Demolition, and Finishing and Landscaping (2021 Phase 1)	66	58	3.86	3.30
Exceeds LST?	No	No	No	No
SCAQMD 3.50-Acre LSTs	152	1,422	10.49	7.00
Site Preparation (2020 Phase 1)	42	22	9.92	6.27
Site Preparation and Trenching (2020 Phase 1)	49	27	10.32	6.64
Site Preparation (2024 Phase 2)	27	18	8.95	5.38
Exceeds LST?	No	No	No	No
SCAQMD 4.81-Acre LSTs	179	1,765	13.56	8.75
Site Preparation, Utility Trenching, and Building Construction (2020 Phase 1)	68	44	11.44	7.69
Exceeds LST?	No	No	No	No
SCAQMD 7.50-Acre LSTs	183	1,814	13.99	9.00
Site Preparation and Grading (2020 Phase 1)	93	53	**15.81**	**9.81**
Site Preparation, Grading, and Utility Trenching (2020 Phase 1)	99	59	**16.22**	**10.18**
Exceeds LST?	No	No	**Yes**	**Yes**

Source: CalEEMod, version 2016.3.2; SCAQMD 2008b and 2011.
Notes: In accordance with SCAQMD methodology, only on-site stationary sources and mobile equipment on the project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the project site in SRA 11.
[1] Based on information provided or verified by the District. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the SCAQMD.
[2] Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Level of Significance Before Mitigation: Potentially significant.

Health Risk

The SCAQMD currently does not require health risk assessments to be conducted for short-term emissions from construction equipment. Emissions from construction equipment primarily consist of diesel particulate matter (DPM). The OEHHA adopted an updated guidance for the preparation of health risk assessments in

March 2015 (OEHHA 2015). It has also developed a cancer risk factor and noncancer chronic reference exposure level for DPM based on continuous exposure over a 30-year time frame. No short-term acute exposure levels have been developed for DPM. The project is anticipated to be developed in approximately 16.5 months for Phase 1 and 16.5 months for Phase 2, which would limit the exposure of on-site and off-site receptors. Furthermore, neither the proposed school nor the residences are considered to be high priority facilities as they would not generate significant TAC emissions. SCAQMD currently does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. In addition, construction activities would not exceed the screening-level construction LSTs with mitigation. For the reasons stated above, it is anticipated that construction emissions would not pose a threat to on-site and off-site receptors at or near the school, and project-related construction health impacts would be less than significant.

Level of Significance Before Mitigation: Less than significant.

Valley Fever

Valley Fever fungus is most prevalent in the San Joaquin Valley and the Central Valley, where land is arid to semi-arid and receives moderate rainfall. The proposed project is on a previously developed site and is within a developed and built-out urban area. In addition, the proposed project would be required to comply with SCAQMD fugitive dust control measures (e.g., Rule 403), which would reduce emissions of fugitive dust generated from project-related construction activities. Therefore, it is anticipated that location of the project site and compliance with SCAQMD construction-related fugitive dust control requirements and would limit exposure of sensitive receptors to Valley Fever, and impacts would be less than significant.

Level of Significance Before Mitigation: Less than significant.

Impact 5.1-5: Operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

A project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevated levels. The following describes changes in localized impacts from long-term operational activities of the proposed project.

Operational Phase LSTs

Operation of the proposed project would not generate substantial quantities of emissions from on-site, stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions that would require a permit from SCAQMD include industrial land uses, such as chemical processing and warehousing operations where substantial truck idling could occur. The proposed project does not fall within these categories of uses. While operation of the proposed project could result in the use of standard on-site mechanical equipment—such as heating, ventilation, and air conditioning units—and occasional use of landscaping equipment for project site maintenance, air pollutant emissions generated would be nominal. Therefore, net localized air quality impacts from project-related operations would be less than significant.

CO Hotspots

Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited—in order to generate a significant CO impact. While the proposed project would result in an increase in student capacity by 600 students and 160 new dwelling units to the property, the anticipated 522 new AM peak hour vehicle trips generated would be minimal compared to the aforementioned screening levels. Therefore, it would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the school, and impacts would be less than significant. Thus, implementation of the proposed project would not produce the volume of traffic required to generate a CO hotspot. Therefore, implementation of the proposed project would not have the potential to substantially increase CO hotspots at intersections near the project site, and impacts would be less than significant.

On-Site Toxic Air Contaminants

Since the project area falls within 500 feet of a highway, a health risk assessment was performed to examine the effects of TACs on on-site receptors. As seen in Initial Study Section 3.9, *Hazards and Hazardous Materials*, the health risk assessment did not find excess cancer risk or carcinogenic risks above SCAQMD thresholds for adult school staff or students. Operation of the proposed project would not generate substantial TACs that would affect sensitive receptors, including off-site residential receptors and visitors to the proposed project area. For off-site residential receptors, the proposed school project would not constitute a land use that would be a significant source of TACs. Furthermore, since visitors would only be on-site a short time, the HRA performed for the students and staff would offer a conservative assessment of the effects of TACs on the school population. Thus, impacts from TACs on site visitors would also have a less than significant impact.

Level of Significance Before Mitigation: Less than significant.

5.1.5 Cumulative Impacts

In accordance with SCAQMD's methodology, any project that produces a significant project-level regional air quality impact in an area that is in nonattainment contributes to the cumulative impact. Consistent with the methodology, projects that do not exceed the regional significance thresholds would not result in significant cumulative impacts. Cumulative projects in the local area include new development and general growth in the proposed project area. The greatest source of emissions in the SoCAB is mobile sources. Due to the extent of the area potentially impacted by cumulative emissions (i.e., the SoCAB), SCAQMD considers a project cumulatively significant when project-related emissions exceed the SCAQMD regional emissions thresholds shown in Table 5.1-5 (SCAQMD 1993).

Construction

The SoCAB is designated nonattainment for O_3 and $PM_{2.5}$ under the California and National AAQS, nonattainment for PM_{10} under the California AAQS,[14] and nonattainment for lead (Los Angeles County only) under the National AAQS. Construction of cumulative projects will further degrade the regional and local air quality. Air quality will be temporarily impacted during construction activities. The proposed project's contribution to cumulative air quality impacts would be cumulatively considerable and significant. However, as discussed below, implementation of mitigation would reduce project-related construction emissions to below the SCAQMD significance thresholds on a project and cumulative basis.

Operation

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional threshold values is not considered by SCAQMD to be a substantial source of air pollution and does not make a cumulatively considerable contribution to a cumulative air quality impact. Operation of the proposed project would not result in emissions in excess of the SCAQMD regional emissions thresholds for VOC, CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ (see Table 5.1-11 and Table 5.1-12); therefore, the project also would not cumulatively contribute to significant health impacts in the SoCAB. Air pollutant emissions associated with operation of the proposed project would not be cumulatively considerable.

Level of Significance Before Mitigation: Cumulative impacts would be less than significant.

5.1.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, some impacts would be less than significant: 5.1-1, 5.1-3, and 5.1-5.

Without mitigation, these impacts would be **potentially significant**:

- **Impact 5.1-2** Construction activities associated with the proposed project could 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.
- **Impact 5.1-4** Construction activities associated with the proposed project could expose sensitive receptors to substantial pollutant concentrations.

[14] Portions of the SoCAB along SR-60 in Los Angeles, Riverside, and San Bernardino counties are proposed nonattainment for NO_2 under the California AAQS.

5.1.7 Mitigation Measures

Impact 5.1-2

AQ-1 The Hacienda La Puente Unified School District (District) shall specify in the construction bid that the construction contractor(s) shall, at minimum, use equipment that meets the EPA's Tier 3 emissions standards for off-road diesel-powered construction equipment with more than 50 horsepower for all building demolition, unless it can be demonstrated to the District that such equipment is not available. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by Tier 3 emissions standards for a similarly sized engine, as defined by the California Air Resources Board's regulations. Prior to construction, the project engineer shall ensure that all building demolition plans clearly show the requirement for EPA Tier 3 emissions standards for construction equipment over 50 horsepower for demolition activities. During construction, the construction contractor shall maintain a list of all operating equipment associated with building demolition in use on the site for verification by the District. The construction equipment list shall state the makes, models, and numbers of construction equipment on-site. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations.

AQ-2 The Hacienda La Puente Unified School District (District) shall specify in the construction bid that the construction contractor(s) shall only use interior paints with a low VOC (volatile organic compound) content with a maximum concentration of 30 grams per liter (g/L) for residential building architectural coating to reduce VOC emissions. All building and site plans shall note use of paints with a maximum VOC concentration of 30 g/L. Prior to construction, the construction contractor(s) shall ensure that all construction plans submitted to the District's Director of Facilities and Maintenance, or designee, clearly show this requirement.

Impact 5.1-4

AQ-3 The Hacienda La Puente Unified School District (District) shall specify in the construction bid that the construction contractor(s) shall water exposed ground surfaces and disturbed areas three times per day during Phase 1 site preparation activities to minimize fugitive dust. Prior to construction, the construction contractor(s) shall ensure that all construction plans submitted to the District's Director of Facilities and Maintenance, or designee, clearly show the watering requirement to control fugitive dust.

5.1.8 Level of Significance After Mitigation

Impact 5.1-2

Implementation of Mitigation Measure AQ-1, which requires use of site preparation and grading equipment that meets the EPA's Tier 3 emissions standards for school construction activities and Mitigation Measure

5. Environmental Analysis
AIR QUALITY

AQ-2, which requires use of lower VOC-content paints for the proposed residences, would limit construction-related emissions. As shown in Table 5.1-14, *Maximum Daily Construction Emissions with Mitigation*, with the implementation of Mitigation Measures AQ-1 and AQ-2, construction-related NOx and VOC emissions would be reduced to below the SCAQMD screening-level LST. Project and cumulative construction-related air quality impacts under Impact 5.1-2 would be reduced to less than significant.

Table 5.1-14 Maximum Daily Construction Emissions with Mitigation

Construction Activity	Maximum Daily Emissions (lbs/Day)[1]					
	VOC[2]	NO_x	CO	SO_2	PM_{10}[3]	$PM_{2.5}$[3]
Phase 1 – Year 2020						
Site Preparation	2	27	23	<1	8	5
Site Preparation and Grading	5	72	62	<1	14	8
Site Preparation, Grading, and Utility Trenching	5	78	69	<1	14	8
Site Preparation and Utility Trenching	3	34	30	<1	9	5
Site Preparation, Utility Trenching, and Building Construction	5	57	52	<1	11	7
Utility Trenching and Building Construction	3	30	29	<1	3	2
Building Construction	3	23	22	<1	2	1
Phase 1 – Year 2021						
Building Construction	2	21	22	<1	2	1
Building Construction, Paving, and Architectural Coating	16	36	39	<1	3	2
Building Construction, Paving, Architectural Coating, Demolition, Portables Removal, and Finishing and Landscaping	19	69	69	<1	6	4
Building Construction, Paving, Architectural Coating, Demolition, and Finishing and Landscaping	18	63	67	<1	5	3
Building Construction, Paving, Architectural Coating, and Finishing and Landscaping	16	39	43	<1	4	2
Paving, Architectural Coating, and Finishing and Landscaping	14	18	22	<1	1	1
Architectural Coating and Finishing/Landscaping	12	5	6	<1	1	<1
Phase 2 – Year 2024						
Demolition	2	22	21	<1	2	1
Demolition and Bleachers Removal	3	26	23	<1	2	1
Site Preparation	3	27	19	<1	9	5
Grading	2	22	17	<1	4	2
Utility Trenching	1	5	6	<1	<1	<1
Building Construction	2	18	25	<1	3	1
Phase 2 – Year 2025						
Building Construction	2	17	24	<1	3	1
Architectural Coating	60	1	3	<1	1	<1

Table 5.1-14 Maximum Daily Construction Emissions with Mitigation

Construction Activity	Maximum Daily Emissions (lbs/Day)[1]					
	VOC[2]	NO_x	CO	SO_2	PM_{10}[3]	$PM_{2.5}$[3]
Paving	1	9	15	<1	1	<1
Finishing and Landscape	<1	2	4	<1	<1	<1
Maximum Daily Emissions	**60**	**78**	**70**	**<1**	**14**	**8**
SCAQMD Regional Threshold	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold	**No**	**No**	No	No	No	No

Source: CalEEMod, version 2016.3.2. Highest winter or summer emissions are reported.
Notes: lbs = pounds.
[1] Based on information provided or verified by the District. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the SCAQMD.
[2] A VOC content of 30 g/L was used in modeling for Mitigation Measure AQ-2 to provide the most conservative emissions.
[3] Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, watering disturbed areas a minimum of three times per day under Mitigation Measure AQ-2, use of Tier 3 construction equipment under Mitigation Measure AQ-1, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Level of Significance with Mitigation Incorporated: Less than significant.

Impact 5.1-4

Implementation of Mitigation Measures AQ-3, which requires the construction contractor(s) to water exposed ground surfaces and disturbed areas three times a day, would limit construction-related emissions from the operation of construction equipment. As shown in Table 5.1-15, *Phase 1 Site Preparation and Grading Emissions Compared to the Screening-Level LSTs with Mitigation*, with the implementation of Mitigation Measures AQ-3, construction-related PM_{10} and $PM_{2.5}$ emissions would be reduced to below the SCAQMD screening-level LST. Impact 5.1-4 would be reduced to less than significant.

Table 5.1-15 Phase 1 Site Preparation and Grading Emissions Compared to the Screening-Level LSTs with Mitigation

	Pollutants(lbs/day)[1]			
	NO_X	CO	PM_{10}[2]	$PM_{2.5}$[2]
SCAQMD 7.50-Acre LSTs	183	1,814	13.99	9.00
Site Preparation and Grading (2020 Phase 1)	60	58	12.73	7.73
Site Preparation, Grading, and Utility Trenching (2020 Phase 1)	66	64	13.14	8.11
Exceeds LST?	No	No	No	No

Source: CalEEMod, version 2016.3.2; SCAQMD 2008a, 2011.
Notes: In accordance with SCAQMD methodology, only on-site stationary sources and mobile equipment on the project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the project site in SRA 11.
[1] Based on information provided or verified by the District. Where specific information regarding project-related construction activities or processes was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by the SCAQMD.
[2] Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, watering disturbed areas a minimum of three times per day under Mitigation Measure AQ-2, use of Tier 3 construction equipment under Mitigation Measure AQ-1, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186–compliant sweepers.

Level of Significance with Mitigation Incorporated: Less than significant.

5.1.9 References

Bay Area Air Quality Management District (BAAQMD). 2017, May. California Environmental Quality Act Air Quality Guidelines.

California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod). Version 2016.3.2. Prepared by: BREEZE Software, A Division of Trinity Consultants in collaboration with South Coast Air Quality Management District and the California Air Districts.

California Air Resources Board (CARB). 1998, April 22. The Report on Diesel Exhaust. http://www.arb.ca.gov/toxics/dieseltac/de-fnds.htm.

———. 1999. Final Staff Report: Update to the Toxic Air Contaminant List.

———. 2016, May 4. Ambient Air Quality Standards. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

———. 2017, December 19. Area Designations Maps/State and National. http://www.arb.ca.gov/desig/desig.htm.

———. 2019. Air Pollution Data Monitoring Cards (2013, 2014, 2015, 2016, and 2017). http://www.arb.ca.gov/adam/topfour/topfour1.php.

California Department of Public Health (CDPH). 2019, September 6 (updated). Coccidioidomycosis (Valley Fever). https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Coccidioidomycosis.aspx.

Office of Environmental Health Hazard Assessment (OEHHA). 2015, February. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

South Coast Air Quality Management District (SCAQMD). 1993. California Environmental Quality Act Air Quality Handbook.

———. 2000, Fall. Health Effects of Air Pollution. http://www.aqmd.gov/docs/default-source/students/health-effects.pdf.

———. 2005, May. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. http://www.aqmd.gov/home/library/documents-support-material/planning-guidance/guidance-document.

———. 2008a, September. Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III). http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iii.

———. 2008b, July. Final Localized Significance Threshold Methodology.

———. 2011. Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2.

———. 2012, May 4. Final 2012 Lead State Implementation Plan: Los Angeles County. http://www.aqmd.gov/home/library/clean-air-plans/lead-state-implementation-plan.

———. 2013, February. 2012 Final Air Quality Management Plan. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

———. 2015a, October 3. Final Report Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES IV). http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv.

———. 2015b, October. "Blueprint for Clean Air: 2016 AQMP White Paper." 2016 AQMP White Papers Web Page. https://www.aqmd.gov/nav/about/groups-committees/aqmp-advisory-group/2016-aqmp-white-papers/Blueprint.

———. 2017, March 4. Final 2016 Air Quality Management Plan. http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp.

———. 2019, April (revised). SCAQMD Air Quality Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2.

US Environmental Protection Agency (USEPA). 2002, May. Health Assessment Document for Diesel Engine Exhaust. Prepared by the National Center for Environmental Assessment, Washington, DC, for the Office of Transportation and Air Quality; EPA/600/8-90/057F.

———. 2019a. Criteria Air Pollutants. https://www.epa.gov/criteria-air-pollutants.

———. 2019b. Health and Environmental Effects of Hazardous Air Pollutants. https://www.epa.gov/haps/health-and-environmental-effects-hazardous-air-pollutants

Western Regional Climate Center (WRCC). 2019. Montebello, California ([Station ID] 048655): Period of Record Monthly Climate Summary, 01/01/1979 to 02/26/2011. Western U.S. Climate Summaries. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5790.

5. Environmental Analysis
AIR QUALITY

This page left blank intentionally.