

5. Environmental Analysis

5.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Laguna Niguel City Center Mixed Use 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 (South Coast AQMD). The analysis focuses on the project's contribution to air pollution from regional emissions and localized pollutant concentrations. Criteria air pollutant emissions modeling for the proposed project is included in Appendix C of this DEIR. Transportation-sector impacts are based on trip generation and vehicle miles traveled as provided by LLG (see Appendix L). Cumulative impacts related to air quality are based on the regional boundaries of the South Coast Air Basin (SoCAB). The analysis of criteria air pollutants is inherently cumulative.

5.2.1 Environmental Setting

5.2.1.1 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 stationary and mobile sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide (SO₂), coarse inhalable particulate matter (PM₁₀), fine inhalable particulate matter (PM_{2.5}), and lead (Pb) are primary air pollutants. Of these, CO, SO₂, nitrogen dioxide (NO₂), PM₁₀, 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 (O₃) and NO₂ are the principal secondary pollutants.

Each of the primary and secondary criteria air pollutants and its known health effects are described below.

- **Carbon Monoxide** is a colorless, odorless, toxic 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. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. 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 (South Coast AQMD 2005; US EPA 2021a). The SoCAB is designated as being in attainment under the California AAQS and attainment (serious maintenance) under the National AAQS (CARB 2019).
- **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 (South Coast AQMD 2005). There are no AAQS for VOCs. However, because they contribute to

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the formation of O₃, South Coast AQMD has established a significance threshold. The health effects for ozone are described later in this section.

- **Nitrogen Oxides** are a byproduct of fuel combustion and contribute to the formation of O₃, PM₁₀, and PM_{2.5}. The two major forms of NOx are nitric oxide (NO) and NO₂. The principal form of NO₂ produced by combustion is NO, but NO reacts with oxygen to form NO₂, creating the mixture of NO and NO₂ commonly called NOx. NO₂ acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO₂ is only potentially irritating. There is some indication of a relationship between NO₂ and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO₂ absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (South Coast AQMD 2005; US EPA 2021a). The SoCAB is designated as an attainment (maintenance) area under the National AAQS and attainment area under the California AAQS (CARB 2019).
- **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 SO₂. When sulfur dioxide forms sulfates (SO₄) in the atmosphere, together these pollutants are referred to as sulfur oxides (SOx). Thus, SO₂ is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO₂ may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO₂, 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, SO₂ 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 (South Coast AQMD 2005; US EPA 2021a). The SoCAB is designated as attainment under the California and National AAQS (CARB 2019).
- **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 PM₁₀, 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 PM₁₀ and PM_{2.5} may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The US Environmental Protection Agency's (EPA) scientific review concluded that PM_{2.5}, which penetrates deeply into the lungs, is more likely than PM₁₀ 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

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breathing) (South Coast AQMD 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 (South Coast AQMD 2013). However, the EPA and the California Air Resources Board (CARB) have not 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 damage³ (South Coast AQMD 2005; US EPA 2021a). The SoCAB is a nonattainment area for PM_{2.5} under California and National AAQS and a nonattainment area for PM₁₀ under the California AAQS (CARB 2019).⁴

- **Ozone**, or O₃, 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. O₃ is a secondary criteria air pollutant. O₃ concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O₃ poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O₃ can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O₃ also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O₃ also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O₃ harms sensitive vegetation during the growing season (South Coast AQMD 2005; US EPA 2021a). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2019).
- **Lead (Pb)** 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 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 (South Coast AQMD 2005; US EPA 2021a). 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

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 South Coast AQMD’s request to redesignate the SoCAB from serious nonattainment for PM₁₀ to attainment for PM₁₀ under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM₁₀ standards from 2004 to 2007. The EPA approved the State of California’s request to redesignate the South Coast PM₁₀ nonattainment area to attainment of the PM₁₀ National AAQS, effective on July 26, 2013.

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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 nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2019). Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the proposed project.

Table 5.2-1, *Criteria Air Pollutant Health Effects Summary*, summarizes the potential health effects associated with the criteria air pollutants.

Table 5.2-1 Criteria Air Pollutant Health Effects Summary

Pollutant	Health Effects	Examples of Sources
Carbon Monoxide (CO)	<ul style="list-style-type: none">• 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)	<ul style="list-style-type: none">• 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)	<ul style="list-style-type: none">• Increased response to allergens• Aggravation of respiratory illness	Same as carbon monoxide sources
Particulate Matter (PM ₁₀ and PM _{2.5})	<ul style="list-style-type: none">• 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)	<ul style="list-style-type: none">• 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)	<ul style="list-style-type: none">• Behavioral and learning disabilities in children• Nervous system impairment	Contaminated soil

Source: CARB 2019; South Coast AQMD 2005.

Toxic Air Contaminants

People exposed to toxic air contaminants (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

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 (South Coast AQMD 2012).

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damage to the immune system as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (US EPA 2021b). 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. 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 proposed project being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified diesel particulate matter (DPM) 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 DPM 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 (US EPA 2002).

5.2.1.2 REGULATORY BACKGROUND

Ambient air quality standards (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 South Coast AQMD, the California AAQS adopted by the California Air Resources Board (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 (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 CAA 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 CAA 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.

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

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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 5.2-2, *Ambient Air Quality Standards for Criteria Air Pollutants*. These pollutants are O₃, NO₂, CO, SO₂, PM₁₀, PM_{2.5}, and 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 5.2-2 Ambient Air Quality Standards for Criteria Air 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	
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.

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Table 5.2-2 Ambient Air Quality Standards for Criteria Air Pollutants

Pollutant	Averaging Time	California Standard ¹	Federal Primary Standard ²	Major Pollutant Sources
Visibility-Reducing Particles	8 hours	ExCo = 0.23/km visibility of 10≥ miles	No Federal Standard	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	No Federal Standard	Hydrogen sulfide (H ₂ S) 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	No Federal Standard	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; $\mu\text{g}/\text{m}^3$: micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

¹ California standards for O₃, CO (except 8-hour Lake Tahoe), SO₂ (1 and 24 hour), NO₂, and particulate matter (PM₁₀, 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 O₃, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O₃ 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 PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu\text{g}/\text{m}^3$ 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 $\mu\text{g}/\text{m}^3$ to 12.0 $\mu\text{g}/\text{m}^3$. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 $\mu\text{g}/\text{m}^3$, as was the annual secondary standard of 15 $\mu\text{g}/\text{m}^3$. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 $\mu\text{g}/\text{m}^3$ 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 SO₂ 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.

Corporate Average Fuel Economy Standards

The National Highway Traffic Safety Administration (NHTSA) administers the Corporate Average Fuel Economy (CAFE) standards, which regulate how far vehicles must be able to travel on a gallon of fuel. NHTSA sets CAFE standards for passenger cars and for light trucks (collectively, light-duty vehicles), and separately sets fuel consumption standards for medium- and heavy-duty trucks and engines. NHTSA has proposed new fuel economy standards for new passenger cars and light trucks for model years 2024–2026. The standards would

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increase in stringency by about 8 percent each year, reaching a fleetwide average of 48 miles per gallon (mpg) by 2026.

California is the only state allowed to set its own air emissions standards for motor vehicles. California was granted an exception under the Clean Air Act because the state had already implemented standards in 1966 to address its critical smog problem and had established an Air Resources Board (CARB) to oversee them. The Clean Air Act states that the EPA shall grant a waiver if California's standards are necessary to meet compelling circumstances and are at least as stringent as federal standards. Other states may choose to adopt California's vehicle emissions standards without EPA approval. Thirteen states and the District of Columbia, making up about 30 percent of U.S. auto sales, currently follow at least some of California's vehicle emissions standards.

California has also adopted a host of other regulations that reduce criteria pollutant emissions:

- **Assembly Bill (AB) 1493: Pavley Fuel Efficiency Standards.** Pavley I is a clean-car standard that reduces greenhouse gas (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.
- **Senate Bill (SB) 1078, SB 107, and SB 100: Renewables Portfolio Standards.** A major component of California's Renewable Energy Program is the renewables portfolio standard (RPS) established under SB 1078 (Sher) and SB 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year, originally by at least 1 percent to reach at least 20 percent by December 30, 2010. The RPS target for 2016 was 25 percent and for 2020 was 33 percent. SB 100 (2018) set the following RPS targets: 44 percent of retail electricity sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. In addition, SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045.
- **20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards.** The 2006 Appliance Efficiency Regulations (20 CCR sections 1601–1608) were adopted by the California Energy Commission 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 and have been periodically updated since 2006.
- **24 CCR, Part 6: Building and Energy Efficiency Standards.** Energy efficiency standards for new residential and nonresidential buildings adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977. The energy efficiency standards (Title 24, Part 6) are updated every three years, with each update resulting in increasing building energy efficiency. The current energy efficiency standards were adopted in 2019 and the next iteration goes into effect on January 1, 2023 (2022 Title 24). The 2019 Title 24 includes a solar mandate for low-rise residential construction and strict lighting efficiency requirements for commercial construction. The 2022

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Title 24 extends the solar mandate to most commercial construction and requires high-rise residential buildings to be solar ready.

- **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 Efficiency Code requirements), water conservation, material conservation, and internal air contaminants.⁶ As with the energy efficiency standards, Title 24, Part 11 is updated every three years, with each update increasing the stringency of the code.

Tanner Air Toxics Act and Air Toxics Hot Spot 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 section 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 section 7412[b]) is a TAC. Under state law, the California Environmental Protection Agency (CalEPA), 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 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 are required to communicate the results to the public through notices and public meetings if specific thresholds are exceeded.

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

- **13 CCR Chapter 10 section 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.

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

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- **13 CCR Chapter 10 section 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 section 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.

Regional

Air Quality Management Planning

South Coast AQMD is the agency responsible for improving air quality in the SoCAB and ensuring that the National and California AAQS are attained and maintained. South Coast AQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG).

2016 AQMP

On March 3, 2017, South Coast AQMD 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 2025⁷
- 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 2022

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 (South Coast AQMD 2017), which requires reducing NO_x emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions to 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, South Coast AQMD 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

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

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the 2016 AQMP would be implemented in collaboration between CARB and the EPA (South Coast AQMD 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 (Pb) classification because of 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.

South Coast AQMD Rules and Regulations

All projects are subject to South Coast AQMD 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.
- **Rule 445, Wood Burning Devices.** In general, the rule prohibits new developments from the installation of 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.

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- **Rule 1113, Architectural Coatings.** This rule serves to limit the VOCs content of architectural coatings used on projects in the South Coast AQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the South Coast AQMD 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.

5.2.1.3 EXISTING CONDITIONS

South Coast Air Basin

The proposed 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 (South Coast AQMD 2005).

Meteorology

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 that best represents the climatological conditions of the project area is the Laguna Beach, California Monitoring Station (ID 044647). The average low is reported at 43.0°F in January, and the average high is 78.1°F in August (WRCC 2021).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through May. Rainfall averages 12.52 inches per year in the vicinity of the project site (WRCC 2021).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of a shallow marine layer. This "ocean effect" is dominant except for infrequent periods when dry, continental air

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is brought into the SoCAB by offshore winds. Periods of heavy fog are frequent, especially along the coast. 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 (South Coast AQMD 1993).

Wind

Wind patterns across the southern coastal region are characterized by westerly or southwesterly onshore winds during the day and 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 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 inhibit the eastward transport and diffusion of pollutants. 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 (South Coast AQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two distinct types of temperature inversions control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the “mixing height.” 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 (South Coast AQMD 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 AAQS. 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.

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- **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 5.2-3, *Attainment Status of Criteria Air Pollutants in the South Coast Air Basin*.

Table 5.2-3 Attainment Status of Criteria Air 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	Attainment	Attainment/Maintenance
SO ₂	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) ¹
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2021a.

¹ 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 V

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 April 2021, South Coast AQMD released the latest update to the MATES study, MATES V. The first MATES analysis, MATES I, began in 1986 but was limited because of the technology available at the time. Conducted in 1998, MATES II was the first MATES iteration to include a comprehensive monitoring program, an air toxics emissions inventory, and a modeling component. MATES III was conducted in 2004 to 2006, with MATES IV following in 2012 to 2013.

MATES V uses measurements taken during 2018 and 2019, with a comprehensive modeling analysis and emissions inventory based on 2018 data. The previous MATES studies quantified cancer risks based on the inhalation pathway only. MATES V includes information on the chronic noncancer risks from inhalation and non-inhalation pathways. Cancer risks and chronic noncancer risks from MATES II through IV measurements have been re-examined using current Office of Environmental Health Hazards Assessment and CalEPA risk assessment methodologies and modern statistical methods to examine the trends over time.

The MATES V study showed that cancer risk in the SoCAB decreased to 454 in a million from 997 in a million in the MATES IV study. Overall, air toxics cancer risk in the SoCAB decreased by 54 percent since 2012 when MATES IV was conducted. MATES V showed the highest risk locations near the Los Angeles International Airport and the Ports of Long Beach and Los Angeles. DPM continues to be the major contributor to air toxics cancer risk (approximately 72 percent of the total cancer risk). Goods movement and transportation corridors have the highest cancer risk. Transportation sources account for 88 percent of carcinogenic air toxics emissions,

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and the remainder is from stationary sources, which include large industrial operations such as refineries and power plants as well as smaller businesses such as gas stations and chrome-plating facilities. (South Coast AQMD 2021).

Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the proposed project site are best documented by measurements taken by the South Coast AQMD. The proposed project is located within Source Receptor Area (SRA) 21: Capistrano Valley.⁸ The air quality monitoring station closest to the proposed project is the Mission Viejo–26081 Via Pera Monitoring Station, which is one of 31 monitoring stations South Coast AQMD operates and maintains within the SoCAB.⁹ Data from this station includes O₃, PM₁₀, and PM_{2.5} and is summarized in Table 5.2-4. Data for NO₂ is supplemented by the Anaheim–Pampas Lane Monitoring Station. The most current five years of data from these monitoring stations are included in Table 5.2-4 and show regular violations of the state and federal O₃, state PM₁₀ standards, and federal PM_{2.5} standards in the last five years.

Table 5.2-4 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2016	2017	2018	2019	2020
Ozone (O₃)					
State 1-Hour \geq 0.09 ppm (days exceed threshold)	5	3	2	3	20
State & Federal 8-hour \geq 0.070 ppm (days exceed threshold)	13	25	9	11	32
Max. 1-Hour Conc. (ppm)	0.122	0.103	0.121	0.106	0.171
Max. 8-Hour Conc. (ppm)	0.093	0.083	0.088	0.087	0.122
Nitrogen Dioxide (NO₂)					
State 1-Hour \geq 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour \geq 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	0.0643	0.0812	0.0660	0.0594	0.0709
Coarse Particulates (PM₁₀)					
State 24-Hour $>$ 50 $\mu\text{g}/\text{m}^3$ (days exceed threshold)	1	1	1	0	2
Federal 24-Hour $>$ 150 $\mu\text{g}/\text{m}^3$ (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. ($\mu\text{g}/\text{m}^3$)	59.3	58.2	55.6	45.1	56.2
Fine Particulates (PM_{2.5})					
Federal 24-Hour $>$ 35 $\mu\text{g}/\text{m}^3$ (days exceed threshold)	0	0	1	0	2
Max. 24-Hour Conc. ($\mu\text{g}/\text{m}^3$)	24.7	19.5	38.9	20.8	44.8

Source: CARB 2021b.

Notes: ppm = parts per million; ppb = parts per billion; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; * = Data not available

¹ Data obtained from the Mission Viejo Monitoring Station for O₃, PM₁₀, and PM_{2.5} and from the Anaheim – Pampas Lane Monitoring Station for NO₂.

⁸ Per South Coast AQMD 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 South Coast AQMD’s jurisdiction.

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

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Existing Emissions

The project site includes the former South County Justice Center (closed in 2008), the Orange County Library (Laguna Niguel Branch), and a county maintenance yard. These existing land uses generate GHG emissions from building transportation, area sources, energy use, water use/wastewater generation, and solid waste disposal..

Sensitive Receptors

Some land uses are considered more sensitive to air pollution (i.e., toxic air contaminants) 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. Outdoor recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, because the majority of the workers tend to stay indoors most of the time.

The nearest off-site sensitive receptors to the project site include residences to the southwest along Via Reata and Via Corona at 82 feet, residences to the northwest along Pacific Island Drive and Highlands Avenue at 240 feet.

5.2.2 Thresholds of Significance

Laguna Niguel CEQA Manual

The City's CEQA Manual provides local guidelines, procedures, requirements, and thresholds of significance for the environmental review process in Laguna Niguel consistent with the CEQA Statutes (Public Resources Code Section 21000 et seq.) and State CEQA Guidelines (14 CCR Division 6, Chapter 3, Section 15000 et seq.) (Laguna Niguel 2021).

The City relies on the parameters specified in the CEQA Guidelines Appendix G Checklist for assessing impacts to air quality. Since Appendix G does not identify quantifiable thresholds, the City relies on the South Coast AQMD Air Quality Significance Thresholds and Localized Significance Thresholds (LSTs) for evaluating both short-term construction emissions and long-term operational emissions from a proposed project.

According to Appendix G of the CEQA Guidelines and the City's CEQA Manual, 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.

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- 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.

5.2.2.1 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. South Coast AQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation based on substantial evidence.

Regional Significance Thresholds

South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB, shown in Table 5.2-5, *South Coast AQMD Significance Thresholds*. The table lists thresholds that are applicable for all projects uniformly, regardless of size or scope.

Table 5.2-5 South Coast AQMD 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: South Coast AQMD 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 (O₃, PM_{2.5})
- Increases bronchitis (O₃, PM_{2.5})
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O₃)
- Reduces resistance to infections and increases fatigue (O₃)
- Reduces lung growth in children (PM_{2.5})

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- Contributes to heart disease and heart attacks (PM_{2.5})
- Contributes to premature death (O₃, PM_{2.5})
- Contributes to lower birth weight in newborns (PM_{2.5}) (South Coast AQMD 2015b)

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} contributes to 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 (South Coast AQMD 2015b).

South Coast AQMD 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, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS. Mass emissions in Table 5.2-5 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. The thresholds are based on the trigger levels for the federal New Source Review Program, which was created to ensure projects are consistent with attainment of health-based federal AAQS. Regional emissions from a single project do not by themselves trigger a regional health impact, and it is speculative to identify how many more individuals in the air basin would be affected by the health effects listed above. Projects that do not exceed the South Coast AQMD regional significance thresholds in Table 5.2-5 would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If a project exceeds the emission thresholds in Table 5.2-5, the project's emissions would cumulatively contribute to the nonattainment status of the criteria air pollutant and would contribute to elevating health effects associated with these criteria air pollutants. However, for projects that exceed the emissions thresholds in Table 5.2-5, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment because mass emissions are not correlated with average concentrations of emissions in an area or how many additional individuals in the air basin would be affected by the health effects cited above.

South Coast AQMD 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. 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 to a reasonable accuracy to prove useful in understanding those risks. However, if a project in the SoCAB exceeds the regional significance thresholds, the project could contribute to an increase in health effects in the basin until the attainment standard are met in the SoCAB.

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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 South Coast AQMD did not predict a violation of CO standards at the busiest intersections in Los Angeles during the peak morning and afternoon periods.¹⁰ As identified in South Coast AQMD'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).¹¹

Localized Significance Thresholds

South Coast AQMD identifies LSTs as shown in Table 5.2-6, *South Coast AQMD Localized Significance Thresholds*. Emissions of NO₂, CO, PM₁₀, and PM_{2.5} generated at a project site could expose sensitive receptors to substantial concentrations of criteria air pollutants. (Off-site mobile-source emissions are not included in the LST analysis.) A project would generate a significant impact if it generates emissions that, when added to the local background concentrations, violate the AAQS.

¹⁰ 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.

¹¹ 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 South Coast AQMD prepared as part of its 2003 AQMP to provide support in seeking CO attainment for the SoCAB. Based on the analysis prepared by South Coast AQMD, 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.

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Table 5.2-6 South Coast AQMD 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 (South Coast AQMD) ¹	10.4 µg/m ³
24-Hour PM _{2.5} Standard – Construction (South Coast AQMD) ¹	10.4 µg/m ³
24-Hour PM ₁₀ Standard – Operation (South Coast AQMD) ¹	2.5 µg/m ³
24-Hour PM _{2.5} Standard – Operation (South Coast AQMD) ¹	2.5 µg/m ³
Annual Average PM ₁₀ Standard (South Coast AQMD) ¹	1.0 µg/m ³

Source: South Coast AQMD 2019.

ppm – parts per million; µg/m³ – micrograms per cubic meter

¹ Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM₁₀ and PM_{2.5}, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (pounds per day) of emissions generated on-site that would trigger the levels shown in Table 5.2-6 for projects under five acres. These “screening-level” LST tables are the localized significance thresholds for all projects of five acres and less and are based on emissions over an eight-hour period; however, they can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required.

The screening-level LSTs in SRA 21 are shown in Table 5.2-7, *South Coast AQMD Screening-Level Localized Significance Thresholds*. For construction activities, LSTs are based on the acreage disturbed per day and on equipment use up to the project site acreage (South Coast AQMD 2011). These LSTs reflect the thresholds for sensitive receptors within 82 feet (25 meters).

Table 5.2-7 South Coast AQMD Screening-Level Localized Significance Thresholds

Acreage Disturbed	Threshold (lbs/day)			
	Nitrogen Oxides (NO _x)	Carbon Monoxide (CO)	Coarse Particulates (PM ₁₀)	Fine Particulates (PM _{2.5})
≤1.00 Acre Disturbed Per Day	91	696	4.00	3.00
1.50 Acres Disturbed Per Day	111	844	5.00	3.50
≥5.00 Acres Disturbed Per Day	197	1,804	11.99	8.00

Source: South Coast AQMD 2008b, 2011. Based on receptors in SRA 21.

¹ LSTs are based on sensitive receptors within 82 feet (25 meters).

The City's CEQA Manual generally requires emissions to be quantified for commercial and residential projects that require demolition, excavation, or grading that encompasses an area of more than 20,000 square feet. The Manual states that projects requiring an air quality analysis must evaluate both short-term construction emissions and long-term operational emissions. The Manual defers to South Coast AQMD significance thresholds for construction and operation. If emissions exceed South Coast AQMD thresholds, mitigation must be applied, and a health risk assessment must be considered. If emissions exceed South Coast AQMD LST thresholds after mitigation, air dispersion modeling is required.

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Health Risk

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD 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 South Coast AQMD. Table 5.2-8, *South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The environmental document must analyze the impacts of environmental hazards on future users when a proposed project exacerbates an existing environmental hazard or condition (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478)). 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.

The City's CEQA Manual states "For more complicated development projects, where the LST tables are not appropriate or emissions exceed LST screening levels, dispersion modeling and a health risk assessment may be required." Since LST tables are appropriate for the proposed project and the project does not exceed LST thresholds, a health risk assessment is not required.

Table 5.2-8 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds

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

Source: South Coast AQMD 2019.

5.2.3 Plans, Programs, and Policies

Plans, programs, and policies (PPP) include applicable regulatory requirements and conditions of approval for air quality impacts.

PPP 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 became effective January 1, 2020. The Building Energy and Efficiency Standards and CALGreen are updated tri-annually with a goal to achieve zero net energy for residential buildings by 2020 and nonresidential buildings by 2030.

PPP AIR-2 New buildings are required to adhere to the California Green Building Standards Code (CALGreen) requirement to provide bicycle parking for new non-residential buildings, or meet local bicycle parking ordinances, whichever is stricter (CALGreen Sections 5.106.4.1, 14.106.4.1, and 5.106.4.1.2).

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

PPP 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:

- **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.

5.2.4 Environmental Impacts

5.2.4.1 METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA and the City’s CEQA Manual to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the proposed project. South Coast AQMD’s *CEQA Air Quality Handbook* (Handbook) and updates on its website are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in EIRs, and they were used in this analysis.

Air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), version 2020.4. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only). Construction criteria air pollutant emissions modeling is included in Appendix C of this Draft EIR. The calculated emissions of the project are compared to thresholds of significance for individual projects using the City’s CEQA Manual, which relies on South Coast AQMD standards. Following is a summary of the assumptions used for the proposed project analysis.

Construction Phase

Construction would entail demolition of existing asphalt, site preparation, grading, off-site hauling of demolition debris and earthwork material, construction of the proposed structures and buildings, architectural coating, and asphalt paving on 23.26 acres of the approximately 24.38-acre project site. Implementation of the project would demolish 104,410 square feet of buildings in total. Demolition of non-crushed material would

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generate up to 20 truck trips per day for up to 8.5 days. It is anticipated that the debris would be dumped at the Prima Deschecha Landfill in San Juan Capistrano.

Construction of the proposed project would require 83,000 cubic yards of export for Site Preparation and Grading. This would result in a total of 5,929 truck roundtrips with 14 cubic yards of carrying capacity. 51 daily truck roundtrips would be necessary, assuming 116 days of hauling. In addition, construction would approximately 10,000 cubic yards of imported fill and 15,000 cubic yards of exported fill for Fine Grading. This would result in a total of 1,786 truck roundtrips with 14 cubic yard truck carrying capacity. Approximately 27 daily truck roundtrips would be necessary, assuming 66 days of hauling. It is anticipated that export soil would be hauled to the Olinda Alpha Landfill in Brea.

New construction on the project site would include a total of 957,606 square feet, including parking structures and garages. The project would include 300,000 square feet of new asphalt for surface parking and driveways, 26,000 square feet of new hardscape (e.g., concrete curb, walkways), and 20,000 square feet of new landscaping. No pile driving would be required during construction of the project. Painting would include 95% of the buildings' interior and 80% of the buildings' exterior.

Construction is expected to occur for 36 months from September 2023 to September 2026. The air quality and GHG models assume construction would occur on Monday through Friday from 7:00 AM to 4:00 PM for purposes of analysis (see Section 3.3 in Chapter 3, *Project Description*, for construction hour limitations). Construction activity phases that were modeled include site abatement, demolition, site preparation grading/earthwork, utilities, fine grading, street paving, construction of buildings, architectural coatings, and landscaping. Construction air pollutant emissions are based on the preliminary information provided by the developer in Table 3-2, *Construction Equipment*.

Operational Phase

- **Transportation.** The primary source of mobile criteria air pollutant emissions is tailpipe exhaust emissions from the combustion of fuel (i.e., gasoline and diesel). Additionally, for criteria air pollutants, brake and tire wear and fugitive dust created from vehicles traveling on roadways also generate particulate matter. The average daily trip generation for weekday and Saturday trips was provided by LLG (see Appendix L). Saturday trip generation was used as a proxy for Sunday trips in order to provide a conservative estimate of project emissions. Project-related on-road criteria air pollutant emissions are based on year 2026 emission rates for the project buildout year.
- **Area Sources.** Area source emissions from use of consumer cleaning products, landscaping equipment, and VOC emissions from paints are based on CalEEMod default values and the square footage of the proposed buildings and surface parking lot areas.
- **Energy.** Criteria air pollutant emissions from energy use (natural gas used for cooking, heating, etc.) are based on the CalEEMod defaults for natural gas usage for nonresidential and residential land uses, which provide conservative estimates for building energy use. Criteria air pollutant emissions from energy use are associated with natural gas used for heating.

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5.2.4.2 IMPACT ANALYSIS

The following impact analysis addresses thresholds of significance for which the Notice of Preparation disclosed potentially significant impacts (see Appendix A). The applicable thresholds are identified in brackets after the impact statement.

Impact 5.2-1: 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 regional emissions inventory for the SoCAB is compiled by South Coast AQMD 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 SCAG's regional transportation plan/sustainable communities strategy to determine priority transportation projects and vehicle miles traveled in the SCAG region. The AQMP strategy is based on projections from local general plans.

Changes in population, housing, or employment growth projections have the potential to affect SCAG's demographic projections and therefore the assumptions in South Coast AQMD's AQMP. The project would result in the construction of 275 residential units and approximately 174,851 square feet of commercial, retail, and recreational uses, resulting in up to 412 employees. As discussed in Section 5.12, *Population and Housing*, the proposed project's population and employment growth would be within SCAG's forecast growth projections for the City. Additionally, the project would address the need for additional housing to accommodate population growth in the City.

Finally, the long-term emissions generated by the proposed project would not produce criteria air pollutants that exceed the South Coast AQMD significance thresholds for project operations (see Impact 5.2-3). South Coast AQMD's significance thresholds identify whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. Because the project would not exceed the South Coast AQMD's regional significance thresholds and growth is consistent with regional growth projections, the project would not interfere with South Coast AQMD's ability to achieve the long-term air quality goals identified in the AQMP. Therefore, the proposed project would be consistent with the AQMP.

Level of Significance Before Mitigation: Less than significant.

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Impact 5.2-2: Construction activities associated with the proposed project would generate short-term emissions in exceedance of South Coast AQMD's threshold criteria. [Thresholds AQ-2 and AQ-3]

Construction activities produce combustion emissions from various sources, such as on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Construction of the proposed project would generate criteria air pollutants associated with construction equipment exhaust and fugitive dust from site abatement, demolition, site preparation, grading and trenching, building construction, architectural coating, pavement of asphalt and other surfaces, and finishing and landscaping of the site. 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 5.2-9, *Maximum Daily Regional Construction Emissions*.

Table 5.2-9 Maximum Daily Regional Construction Emissions

Construction Phase	Pollutants (lb/day) ^{1,2}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Year 2023						
Site Abatement	<1	4	5	<1	<1	<1
Demolition 2023	4	32	31	<1	2	1
Demolition 2023 and Debris Haul 2023 ³	4	32	31	<1	2	1
Demolition and Debris Haul (2023) ³ , Site Preparation (2023), Rough Grading (2023)	12	108	97	<1	18	9
Year 2024						
Demolition (2024), Site Preparation (2024), Rough Grading (2024)	11	99	95	<1	17	9
Site Preparation (2024) and Rough Grading (2024)	7	72	71	<1	14	8
Site Preparation (2024), Rough Grading (2024), and Utilities Trenching	7	72	71	<1	14	8
Site Preparation (2024), Rough Grading (2024), Utilities Trenching, and Building Construction	11	91	103	<1	23	10
Site Preparation and Soil Haul (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction ⁴	12	156	123	1	33	13
Site Preparation and Soil Haul (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction, Fine Grading and Soil Haul, and Paving ⁴	13	184	144	1	36	15
Building Construction (2024), Fine Grading and Soil Haul, Paving	6	55	64	<1	13	4
Building Construction (2024), Fine Grading, and Paving	5	37	58	<1	10	4
Building Construction (2024)	4	23	37	<1	9	3
Year 2025						
Building Construction (2025)	3	22	36	<1	9	3
Building Construction (2025), Architectural Coating (2025), Landscaping (2025)	17	23	41	<1	10	3

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Table 5.2-9 Maximum Daily Regional Construction Emissions

Construction Phase	Pollutants (lb/day) ^{1,2}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Year 2026						
Building Construction (2026), Architectural Coating (2026), Landscaping (2026)	17	23	40	<1	10	3
Landscaping (2026)	<1	1	2	<1	<1	<1
Maximum Daily Construction Emissions						
Maximum Daily Emissions	17	184	144	1	36	15
South Coast AQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	Yes	No	No	No	No

Source: CalEEMod Version 2020.4.
Emissions totals may not equal 100 percent due to rounding.

¹ Based on the preliminary information provided by the Applicant. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment..

² Includes implementation of fugitive dust control measures required by South Coast AQMD 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.

³ Demolition debris haul would move 2,700 tons of debris to the Prima Deschecha Landfill.

⁴ Soil hauling would involve exporting 98,000 cubic yards of soil off-site to the Brea Olinda Landfill during the site preparation, rough grading, and fine grading phases. Soil hauling during the fine grading phase would also involve import of 10,000 cubic yards of soil into the project site.

The SoCAB is designated nonattainment for O₃ and PM_{2.5} under the California and National AAQS, nonattainment for PM₁₀ under the California AAQS,¹² and nonattainment for lead (Los Angeles County only) under the National AAQS. According to South Coast AQMD 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 (South Coast AQMD 1993). As shown in Table 5.2-10, the maximum daily emissions for CO, SO₂, PM₁₀, and PM_{2.5} from construction-related activities would be less than their respective South Coast AQMD regional significance threshold values. However, the construction-related NO_x emissions generated from construction phases that overlap with site preparation and rough grading, particularly those that involve demolition debris export as well as soil import and export to and from the site, would exceed the South Coast AQMD regional significance threshold for NO_x. Consequently, construction of the proposed project could potentially contribute to the nonattainment designations of the SoCAB in the absence of mitigation.

Mitigation Measure AQ-1 would require use of demolition, site preparation, grading, and utilities trenching equipment that meets the EPA's Tier 4 (Final) emissions standards for construction activities, thereby requiring newer, cleaner construction equipment. Furthermore, Mitigation Measure AQ-2 would prohibit the overlap of demolition activities with site preparation and grading activities and would limit daily rough grading soil hauling to ensure peak construction emissions would not exceed South Coast AQMD thresholds. As shown in Table 5.2-14, *Maximum Daily Regional Construction Emissions with Mitigation Incorporated*, with the implementation of Mitigation Measures AQ-1 and AQ-2, construction-related NO_x emissions would be reduced to below the

¹² Portions of the SoCAB along SR-60 in Los Angeles, Riverside, and San Bernardino counties are proposed nonattainment for NO₂ under the California AAQS.

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South Coast AQMD threshold for NO_x. Project and cumulative construction-related air quality impacts under Impact 5.2-2 would be reduced to less than significant.

Level of Significance Before Mitigation: Potentially significant.

Impact 5.2-3: **Long-term operation of the project would not generate additional vehicle trips and associated emissions in exceedance of South Coast AQMD's threshold criteria. [Thresholds AQ-2 and AQ-3]**

Regional Operational Emissions

Buildout of the proposed project would generate an increase in criteria air pollutant emissions from transportation (i.e., vehicle trips), area sources (e.g., landscaping equipment, architectural coating), and energy (i.e., natural gas used for heating and cooking). As shown in Table 5.2-10, *Net Increase in Regional Operation Emissions*, the net change in maximum daily emissions from operation-related activities would be less than their respective South Coast AQMD regional significance threshold values. Projects that do not exceed the South Coast AQMD regional significance thresholds would not result in an incremental increase in health impacts in the SoCAB from project-related increases in criteria air pollutants. Therefore, impacts to the regional air quality associated with operation of the project would be less than significant.

Table 5.2-10 Net Increase in Regional Operation Emissions

Source	Maximum Daily Emissions (lbs/Day) ¹					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Area	14	<1	23	<1	<1	<1
Energy	<1	3	2	<1	<1	<1
Mobile ²	23	22	217	<1	59	16
Total	37	25	242	1	59	16
South Coast AQMD Regional Operational Threshold	55	55	550	150	150	550
Exceeds Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2020.4. Highest winter or summer emissions are reported.

Notes: lbs: Pounds.

¹ Based on information provided by the Applicant.

² The project involves reconstruction of the 15,000 square foot Orange County Library (Laguna Niguel Branch) on the project site. Trips generated from the existing library are excluded from the project trip generation as they are part of the baseline conditions on-site (see Appendix L).

Overlap of Construction and Operational Phase

The South Coast AQMD does not have a significance threshold for construction/operation overlap; therefore, this analysis is included for informational purposes only. Table 5.2-11, *Potential Overlap of Construction and Operational Activities*, shows the maximum daily emissions during an approximately 12-month period where project-related construction and operation activities overlap. Based on the development timeline for the proposed project, it is anticipated that occupancy of the proposed commercial uses would occur in September 2025, and buildout of the residential buildings would not be complete until September 2026. For purposes of

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in this discussion, the maximum daily combined emissions shown in the table represent a conservative scenario because the maximum daily operational emissions are based on full buildout of the project. In reality, if project-related construction and operation activities were to overlap, only a portion of the proposed project would be operational while the rest is constructed. The construction phases that would overlap with operation of the proposed project would be limited to vertical building construction. Demolition, site preparation, grading, and export, which would generate the highest construction emissions overall, would not occur during project operation.

As shown in Table 5.2-11, the potential overlap of construction and operation would not exceed the South Coast AQMD construction or operational thresholds.

Table 5.2-11 Potential Overlap of Construction and Operational Activities

Source	Maximum Daily Emissions (lbs/day) ^{1,2}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Year 2025 Construction Peak Emissions	17	23	41	<1	10	3
Year 2026 Construction Peak Emissions	17	23	40	<1	10	3
Year 2025 Net Change in Operational Emissions	37	25	242	1	59	16
Maximum Daily Combined Emissions						
Year 2025	54	48	283	1	69	19
Year 2026	54	48	282	1	69	19
South Coast AQMD Regional Construction Threshold	75	100	550	150	150	55
South Coast AQMD Regional Threshold	55	55	550	150	150	550
Exceeds Construction/Operational Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2020.4. Highest winter or summer emissions are reported.

Notes: lbs: Pounds.

¹ Based on information provided by the Applicant.

² The maximum daily operational emissions are based on full buildout. Therefore, the maximum daily combined emissions represent a conservative scenario because in practice, only a proportion of the allowable land use space would be operating while the rest of the proposed project is constructed and fully built out.

Level of Significance Before Mitigation: Less than significant.

Impact 5.2-4: Construction activities associated with the proposed project would expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

This impact analysis describes changes in localized impacts from short-term construction activities. The proposed project could expose sensitive receptors to elevated pollutant concentrations during construction activities. Unlike the construction emissions shown in the regional emissions analysis in Table 5.2-10, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu\text{g}/\text{m}^3$) and can be correlated to potential health effects.

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Construction-Phase LSTs

Screening-level LSTs (pounds per day) are the amount of project-related mass emissions at which localized concentrations (ppm or $\mu\text{g}/\text{m}^3$) could exceed the AAQS for criteria air pollutants for which the SoCAB is designated nonattainment. 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 AAQS, established to protect sensitive receptors most susceptible to respiratory distress. Table 5.2-12, *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 the South Coast AQMD's screening-level LSTs thresholds. On-site emissions include fugitive dust emissions and exhaust emissions associated with operation of off-road construction equipment in addition to fugitive dust from the movement of dirt. As shown in the table, the maximum daily NO_x , CO, PM_{10} , and $\text{PM}_{2.5}$ construction emissions from on-site construction-related activities would be less than their respective South Coast AQMD screening-level LSTs, except for PM_{10} and $\text{PM}_{2.5}$, for all construction phases that include site preparation and rough grading. Consequently, construction activities would potentially expose sensitive receptors to substantial concentrations of air pollutants.

Table 5.2-12 Construction Emissions Compared to the Screening-Level LSTs

	Pollutants(lbs/day) ¹			
	NO _x	CO	PM ₁₀ ²	PM _{2.5} ²
South Coast AQMD ≤ 1.00 -acre LST	91	696	4.00	3.00
Site Abatement	3	5	0.17	0.15
Demolition (2023)	32	30	1.30	1.22
Demolition (2023) and Demolition Haul (2023)	32	30	1.91	1.31
Landscaping	1	2	0.05	0.05
Exceeds LST?	No	No	No	No
South Coast AQMD 1.31-Acre LSTs	103	789	4.62	3.31
Building Construction (2024)	13	16	0.61	0.57
Building Construction (2025)	12	16	0.53	0.49
Building Construction (2025), Architectural Coating (2025), Landscaping (2025)	14	18	0.58	0.55
Building Construction (2026), Architectural Coating (2026), Landscaping (2026)	14	18	0.58	0.55
Exceeds LST?	No	No	No	No
South Coast AQMD 1.50-Acre LSTs	111	844	5.00	3.50
Building Construction (2024), Fine Grading and Soil Haul, Paving	27	36	1.57	1.25
Building Construction (2024), Fine Grading, and Paving	27	36	1.55	1.24
Exceeds LST?	No	No	No	No
South Coast AQMD 5.00-Acre LSTs	197	1,804	11.99	8.00
Demolition and Debris Haul (2023), Site Preparation (2023), Rough Grading (2023)	107	95	16.77	9.00
Demolition (2024), Site Preparation (2024), Rough Grading (2024)	99	93	15.80	8.57

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Table 5.2-12 Construction Emissions Compared to the Screening-Level LSTs

	Pollutants(lbs/day) ¹			
	NO _x	CO	PM ₁₀ ²	PM _{2.5} ²
Site Preparation (2024) and Rough Grading (2024)	72	70	13.88	7.54
Site Preparation (2024), Rough Grading (2024), and Utilities Trenching	72	70	13.88	7.54
Site Preparation (2024), Rough Grading (2024), Utilities Trenching, and Building Construction	81	80	14.32	7.96
Site Preparation (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction	81	80	14.39	7.97
Site Preparation and Soil Haul (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction	81	80	14.42	7.97
Site Preparation and Soil Haul (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction, Fine Grading and Soil Haul, and Paving	91	95	14.91	8.40
Exceeds LST?	No	No	Yes	Yes

Source: CalEEMod Version 2020.4., and South Coast AQMD 2008b and 2011.

Notes: In accordance with South Coast AQMD methodology, only on-site stationary sources and mobile equipment occurring on the project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the project site in Source Receptor Area (SRA) 21.

¹ Based on preliminary information provided or verified by the City. 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 South Coast AQMD. Because the most current data shows a reduction in building area from the preliminary data, the model outputs are conservative.

² Includes implementation of fugitive dust control measures required by South Coast AQMD 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.

Construction Health Risk

The Office of Environmental Health Hazards Assessment issued 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. South Coast AQMD currently does not require the evaluation of long-term excess cancer risk or chronic health impacts for a short-term project. Emissions from construction equipment primarily consist of DPM. The project is anticipated to be developed in approximately 36 months, which would limit the exposure of on- and off-site receptors. Based on guidance from South Coast AQMD, construction risk is extrapolated based on the LST analysis. Because all construction phases that include site preparation and rough grading exceeded their respective PM_{2.5} and PM₁₀ LSTs, project-related construction health impacts would be potentially significant.

Level of Significance Before Mitigation: Potentially significant.

Impact 5.2-5: Operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]

This impact analysis describes changes in localized impacts from long-term operation of the project. The proposed project could expose sensitive receptors to elevated pollutant concentrations during operational

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activities if it would cause or contribute significantly to elevated levels. Unlike the construction emissions shown in the regional emissions analysis in Table 5.2-10, which is described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu\text{g}/\text{m}^3$) and can be correlated to potential health effects.

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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 require a permit from South Coast AQMD, such as chemical processing or warehousing operations where substantial truck idling could occur on-site. The proposed project is not an industrial project that has the potential to emit substantial sources of stationary emissions. While operation of the proposed project would 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 from those uses would not be substantial. Therefore, net localized air quality impacts from project-related operations would be less than significant.

Carbon Monoxide 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 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. The SoCAB has been designated in attainment of both the National and California AAQS for CO. 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 (BAAQMD 2017). The proposed project would generate a net increase of 490 PM peak-hour trips on weekdays and 939 midday peak hour trips on weekends (LLG 2021), which is substantially below the incremental increase in peak-hour vehicle trips needed to generate a significant CO impact. Implementation of the project would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the project site.

Level of Significance Before Mitigation: Less than significant.

Impact 5.2-6: The proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. [Threshold AQ-4]

The threshold for odor is if a project creates an odor nuisance pursuant to South Coast AQMD Rule 402, Nuisance, which states:

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons

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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.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

The type of facilities that are considered to have objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities.

The proposed project would develop and operate retail (including restaurants) and residential structures, which would not fall within the types of uses that are associated with foul odors that constitute a public nuisance. During construction activities, construction equipment exhaust and application of asphalt and architectural coatings would temporarily generate odors. However, construction-related odor emissions would be temporary and intermittent and would not affect a significant number or people.

Level of Significance before Mitigation: Less than significant.

5.2.5 Cumulative Impacts

In accordance with South Coast AQMD'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 sources of emissions in the SoCAB are mobile sources. Due to the extent of the area potentially impacted by cumulative emissions (i.e., the SoCAB), South Coast AQMD considers a project cumulatively significant when project-related emissions exceed the South Coast AQMD regional emissions thresholds shown in Table 5.2-6 (South Coast AQMD 1993).

5.2.5.1 CONSTRUCTION

The SoCAB is designated nonattainment for O₃ and PM_{2.5} under the California and National AAQS and nonattainment for PM₁₀ and lead (Los Angeles County only) under the National AAQS. Construction of cumulative projects will further degrade the regional and local air quality. As shown in Table 5.2-9, project-related construction activities would generate short-term emissions for NO_x that would exceed the South Coast AQMD regional emissions thresholds. Furthermore, construction of the proposed project would exceed localized significance thresholds for PM₁₀ and PM_{2.5}. Because regional construction emissions would potentially exceed the South Coast AQMD's significance thresholds during construction in the absence of mitigation, the proposed project's contribution to cumulative air quality impacts would potentially be cumulatively considerable without mitigation.

5.2.5.2 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 South Coast AQMD to be a substantial source of air pollution

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and does not add significantly to a cumulative impact. Operation of the proposed project, as shown in Table 5.2-11, would not result in emissions in excess of the South Coast AQMD regional emissions thresholds. In addition, no significant impacts were identified regarding CO hotspots or generation of foul odors during operation of the proposed project. Therefore, the proposed project's contribution to cumulative air quality impacts would not be cumulatively considerable.

5.2.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, some impacts would be less than significant: 5.2-1, 5.2-3, 5.2-5, and 5.2-6.

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

- **Impact 5.2-2** Construction activities associated with the proposed project could result in a cumulatively considerable net increase of NO_x.
- **Impact 5.2-4** Construction activities associated with the proposed project could result in a cumulatively considerable net increase in PM₁₀ and PM_{2.5} that would exceed localized significance thresholds. In addition, because all construction phases that include site preparation and rough grading exceeded their respective PM_{2.5} and PM₁₀ LSTs, project-related construction health impacts would also be cumulatively considerable.

5.2.7 Mitigation Measures

Impact 5.2-2

AQ-1 The construction contractor(s) shall, at minimum, use equipment that meets the United States Environmental Protection Agency's (EPA) Tier 4 (Final) emissions standards for off-road diesel-powered construction equipment with more than 50 horsepower for site preparation and rough grading/earthwork, utilities trenching, and building construction activities that overlap with site preparation and rough grading activities. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by Tier 4 Final 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 plans clearly show the requirement for EPA Tier 4 Final emissions standards for construction equipment over 50 horsepower for the specific activities stated above. During construction, the construction contractor shall maintain a list of all operating equipment associated with these phases in use on the site for verification by the City. 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.

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AQ-2 The construction contractor(s) shall implement the following measures to reduce construction exhaust emissions during demolition and soil hauling activities associated with demolition and rough grading:

- Demolition activities shall be prohibited from overlapping with grading activities. Ground-disturbing activities shall commence following the demolition of the existing structures on-site.
- Hauling of soil generated from rough grading activities shall be limited to a maximum of 3,626 miles per day. Air quality modeling was based on the assumption that the 3,626 miles per day would consist of 98 one-way haul trips per day with 14 cubic-yard trucks and a one-way haul distance of approximately 37 miles. All plans shall identify the disposal site for exported material, the distance to the disposal site, and the number of permitted truck trips to the disposal site to remain under the miles per day limit.

These requirements shall be noted on all construction management plans prior to issuance of any construction permits and verified by the City of Laguna Niguel during the demolition and soil-disturbing phases.

Impact 5.2-4

AQ-3 The construction contractor shall prepare a dust control plan and implement the following measures during ground-disturbing activities—in addition to the existing requirements for fugitive dust control under South Coast Air Quality Management District (AQMD) Rule 403—to further reduce PM₁₀ and PM_{2.5} emissions:

- Following all grading activities, the construction contractor shall prevent dust and wind-born erosion by either planting ground cover or applying a binder/gel tackifier.
- During all construction activities, the construction contractor shall sweep streets with South Coast AQMD Rule 1186-compliant, PM₁₀-efficient vacuum units on a daily basis if silt is carried over to adjacent public thoroughfares or occurs as a result of hauling.
- During all construction activities, the construction contractor shall maintain a minimum 24-inch freeboard on trucks hauling dirt, sand, soil, or other loose materials and shall tarp materials with a fabric cover or other cover that achieves the same amount of protection.
- During all construction activities, the construction contractor shall water exposed ground surfaces and disturbed areas a minimum of every three hours on the construction site and a minimum of three times per day.
- During all construction activities, the construction contractor shall limit on-site vehicle speeds on unpaved roads to no more than 15 miles per hour.
- During all ground-disturbing activities, the construction contractor shall apply nontoxic soil stabilizers to minimize fugitive dust.

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Prior to construction activities, the construction contractor shall ensure that all construction plans submitted to the City clearly show the watering and soil stabilizer requirement to control fugitive dust. During construction activities, the City of Laguna Niguel shall verify that these measures have been implemented during normal construction site inspections.

5.2.8 Level of Significance After Mitigation

Impact 5.2-2

The overlapping construction phases that include demolition, site preparation, grading/earthwork, soil hauling, and utilities trenching would cause an exceedance in the South Coast AQMD NO_x threshold. Mitigation Measure AQ-1 would require use of demolition, site preparation, grading, and utilities trenching equipment that meets the EPA's Tier 4 (Final) emissions standards for construction activities, thereby requiring newer, cleaner construction equipment. Furthermore, Mitigation Measure AQ-2 would prohibit the overlap of demolition activities with site preparation and grading activities and would limit daily rough grading soil hauling to ensure peak construction emissions would not exceed South Coast AQMD thresholds. As shown in Table 5.1-13, *Maximum Daily Regional Construction Emissions with Mitigation Incorporated*, with the implementation of Mitigation Measures AQ-1 and AQ-2, construction-related NO_x emissions would be reduced to below the South Coast AQMD threshold for NO_x. Project and cumulative construction-related air quality impacts under Impact 5.2-2 would be reduced to less than significant.

Table 5.2-13 Maximum Daily Regional Construction Emissions with Mitigation Incorporated

Construction Phase	Pollutants (lb/day) ^{1,2}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Year 2023						
Site Abatement	<1	4	5	<1	<1	<1
Demolition (2023)	4	32	31	<1	2	1
Demolition (2023) and Debris Haul (2023)	4	32	31	<1	2	1
Year 2024						
Demolition (2024)	1	5	41	<1	<1	<1
Site Preparation (2024) and Rough Grading (2024)	2	7	72	<1	10	4
Site Preparation (2024) and Rough Grading and Soil Haul (2024)	2	28	78	<1	13	5
Site Preparation (2024), Rough Grading and Soil Haul (2024), and Utilities Trenching	2	29	78	<1	13	5
Site Preparation (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction	5	40	111	<1	22	8
Site Preparation and Soil Haul (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction	5	63	118	<1	25	9
Site Preparation (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction, Fine Grading and Soil Haul, and Paving	6	90	138	1	27	10
Building Construction (2024), Fine Grading and Soil Haul, Paving	5	47	65	<1	13	4

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Table 5.2-13 Maximum Daily Regional Construction Emissions with Mitigation Incorporated

Construction Phase	Pollutants (lb/day) ^{1,2}					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Building Construction (2024), Fine Grading, and Paving	5	30	60	<1	10	3
Building Construction (2024)	4	23	37	<1	9	3
Year 2025						
Building Construction (2025)	3	22	36	<1	9	3
Building Construction (2025), Architectural Coating (2025), Landscaping (2025)	17	23	41	<1	10	3
Year 2026						
Building Construction (2026), Architectural Coating (2026), Landscaping (2026)	17	23	40	<1	10	3
Landscaping (2026)	<1	1	2	<1	<1	<1
Maximum Daily Construction Emissions						
Maximum Daily Emissions	27	90	116	1	24	11
South Coast AQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod Version 2020.4.

Emissions totals may not equal 100 percent due to rounding.

¹ Based on the preliminary information provided by the Applicant. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by South Coast AQMD of construction equipment.

² Includes implementation of fugitive dust control measures required by South Coast AQMD 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.

³ Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce NO_x emissions below South Coast AQMD thresholds by requiring equipment for the aforementioned construction phases to meet the EPA's Tier 4 (Final) emissions standards as well as by prohibiting the overlap of demolition activities with site preparation and rough grading activities and limiting daily soil haul, respectively.

Impact 5.2-4

Like Impact 5.2-2, the overlapping construction phases that overlap with site preparation, rough grading/earthwork would exceed South Coast AQMD screening level LSTs for PM₁₀ and PM_{2.5}, which would also cause project-related construction health impacts. In addition to Mitigation Measures AQ-1 and AQ-2, Mitigation Measure AQ-3 would limit construction-related emissions by requiring the construction contractor(s) to water exposed ground surfaces and disturbed areas three times a day and apply nontoxic soil stabilizers during ground-disturbing activities. As shown in Table 5.2-14, *Construction Emissions Compared to the Screening-Level LSTs with Mitigation Incorporated*, with the implementation of Mitigation Measures AQ-1, AQ-2, and AQ-3, construction-related PM₁₀ and PM_{2.5} emissions would be reduced to below the South Coast AQMD screening-level LST. Thus, the project would not generate emissions that exceed any screening-level LST or cause any construction health impacts with mitigation incorporated. Impact 5.2-4 would be reduced to less than significant.

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Table 5.2-14 Construction Emissions Compared to the Screening-Level LSTs with Mitigation Incorporated

	Pollutants(lbs/day) ¹			
	NO _x	CO	PM ₁₀ ²	PM _{2.5} ²
South Coast AQMD 5.00-Acre LSTs	197	1,804	11.99	8.00
Site Preparation (2024) and Rough Grading (2024)	7	70	9.56	4.28
Site Preparation (2024) and Rough Grading and Soil Haul (2024)	7	70	9.58	4.28
Site Preparation (2024), Rough Grading and Soil Haul (2024), and Utilities Trenching	7	70	9.58	4.28
Site Preparation (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction	9	82	9.66	4.35
Site Preparation and Soil Haul (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction	9	82	9.69	4.36
Site Preparation and Soil Haul (2024), Rough Grading and Soil Haul (2024), Utilities Trenching, and Building Construction, Fine Grading and Soil Haul, and Paving	19	96	8.96	4.65
Exceeds LST?	No	No	No	No

Source: CalEEMod Version 2020.4, and South Coast AQMD 2008b and 2011.

Notes: In accordance with South Coast AQMD methodology, only on-site stationary sources and mobile equipment occurring on the project site are included in the analysis. LSTs are based on receptors within 82 feet (25 meters) of the project site in Source Receptor Area (SRA) 21.

¹ Based on information provided or verified by the City. 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 South Coast AQMD.

² Includes implementation of fugitive dust control measures required by South Coast AQMD 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.

³ As seen for Impact 5.2-2, Mitigation Measures AQ-1 and AQ-2 would reduce PM₁₀ and PM_{2.5} emissions below South Coast AQMD thresholds by requiring equipment for the aforementioned construction phases to meet the EPA's Tier 4 (Final) emissions standards as well as by prohibiting the overlap of demolition activities with site preparation and rough grading activities and limiting daily soil haul, respectively. In addition, Mitigation Measure AQ-3 would require the construction contractor(s) to water exposed ground surfaces and disturbed areas three times a day.

5.2.9 References

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

California Air Pollution Control Officers Association (CAPCOA). 2021. California Emissions Estimator Model (CalEEMod). Version 2020.4. 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>.

5. Environmental Analysis

AIR QUALITY

- _____. 2019, August. Area Designations Maps/State and National. <http://www.arb.ca.gov/desig/desig.htm>.
- _____. 2021a, October. Area Designations Maps/State and National. <http://www.arb.ca.gov/desig/desig.htm>.
- _____. 2021b, July 15 (accessed). Air Pollution Data Monitoring Cards (2015, 2016, 2017, 2018, and 2019). <http://www.arb.ca.gov/adam/topfour/topfour1.php>.
- _____. 2021c, August 9 (accessed). EMFAC Fleet Database for 2019, Los Angeles County. <https://arb.ca.gov/emfac/fleet-dbhp>.

Linscott, Law, & Greenspan Engineers (LLG). 2021. Traffic Impact Analysis for the Laguna Niguel City Center Project. See DEIR Appendix L.

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 (South Coast AQMD). 1993. *California Environmental Quality Act Air Quality Handbook*.

- _____. 2000, Fall. *Health Effects of Air Pollution*. Accessed on December 12, 2018. <http://www.aqmd.gov/docs/default-source/students/health-effects.pdf>.
- _____. 2003. *Final 2003 Air Quality Management Plan*. <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/2003-aqmp>.
- _____. 2005, May. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*. <http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf>.
- _____. 2008a, September. *Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES III)*. <https://www.aqmd.gov/home/air-quality/air-quality-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://www3.aqmd.gov/hb/attachments/2011-2015/2012May/2012-May4-030.pdf>.
- _____. 2013, February. *2012 Final Air Quality Management Plan*. <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan>.

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_____. 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. *Health Effects of Air Pollution*. <http://www.aqmd.gov/home/library/public-information/publications>.

_____. 2015c, October. “Blueprint for Clean Air: 2016 AQMP White Paper.” 2016 AQMP White Papers web page. Accessed December 12, 2018. <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*. <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>.

_____. 2019, April. *South Coast AQMD Air Quality Significance Thresholds*. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>.

_____. 2021, April. *Multiple Air Toxics Exposure Study V* (MATES V). <http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v>.

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

_____. 2021a, May 20 (accessed). Criteria Air Pollutants. <https://www.epa.gov/criteria-air-pollutants>.

_____. 2021b, May 21 (accessed). 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). 2021. Laguna Beach, California ([Station ID] 044647): Period of Record Monthly Climate Summary, 03/01/1928 to 04/24/2016. Western U.S. Climate Summaries. <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca4647>.

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