

## 5. Environmental Analysis

### 5.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Century Villages at Cabrillo Specific Plan (Specific Plan) 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 air pollution from regional emissions and localized pollutant concentrations. Criteria air pollutant emissions modeling for the Specific Plan is included in Appendix C of this DEIR. Transportation-sector impacts are based on trip generation and vehicle miles traveled, as provided by Fehr and Peers (see Appendix I). Cumulative impacts related to air quality are based on the regional boundaries of the South Coast Air Basin (SoCAB).

#### 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 sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (Pb) are primary air pollutants. Of these, CO, SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are “criteria air pollutants,” which means that ambient air quality standards (AAQS) have been established for them. VOC and NO<sub>x</sub> are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O<sub>3</sub>) and nitrogen dioxide (NO<sub>2</sub>) are the principal secondary pollutants.

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

- **Carbon Monoxide** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005; USEPA 2020a). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2018).
- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The two major forms of NO<sub>x</sub> are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO<sub>x</sub> produced by combustion is NO, but NO reacts quickly with oxygen to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> commonly called NO<sub>x</sub>. NO<sub>2</sub> is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO<sub>2</sub> is only potentially irritating. NO<sub>2</sub> absorbs blue light; the result is a brownish-

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red cast to the atmosphere and reduced visibility. NO<sub>2</sub> exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO<sub>2</sub> exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO<sub>2</sub> concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (South Coast AQMD 2005; USEPA 2020a). The SoCAB is designated an attainment area for NO<sub>x</sub> forms, including NO<sub>2</sub>, under the National and California AAQS (CARB 2018).

- **Sulfur Dioxide** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO<sub>2</sub>. When sulfur dioxide forms sulfates (SO<sub>4</sub>) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO<sub>x</sub>). Thus, SO<sub>2</sub> is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO<sub>2</sub> may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO<sub>2</sub>, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and amplified asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing) at lower concentrations and when combined with particulates, SO<sub>2</sub> 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; USEPA 2020a). The SoCAB is designated attainment for SO<sub>x</sub> forms, including SO<sub>2</sub>, under the California and National AAQS (CARB 2018).
- **Suspended Particulate Matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM<sub>10</sub>, 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<sub>2.5</sub>, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤2.5 millionths of a meter or 0.0001 inch). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM<sub>10</sub> and PM<sub>2.5</sub> may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The U.S. Environmental Protection Agency's (EPA's) scientific review concluded that PM<sub>2.5</sub>, which penetrates deeply into the lungs, is more likely than PM<sub>10</sub> to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (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

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by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,<sup>1</sup> environmental damage,<sup>2</sup> and aesthetic damage<sup>3</sup> (South Coast AQMD 2005; USEPA 2020a). The SoCAB is a nonattainment area for PM<sub>2.5</sub> under California and National AAQS and a nonattainment area for PM<sub>10</sub> under the California AAQS (CARB 2018).<sup>4</sup>

- **Ozone**, or O<sub>3</sub>, is a key ingredient of “smog” and is a gas that is formed when VOCs and NO<sub>x</sub>, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O<sub>3</sub> is a secondary criteria air pollutant. O<sub>3</sub> concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O<sub>3</sub> poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O<sub>3</sub> can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O<sub>3</sub> also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O<sub>3</sub> also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O<sub>3</sub> harms sensitive vegetation during the growing season (South Coast AQMD 2005; USEPA 2020a). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2018).
- **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 the formation of O<sub>3</sub>, South Coast AQMD has established a significance threshold. The health effects for ozone are described above.
- **Lead** is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current 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; USEPA 2020a). The major sources of lead emissions have historically been mobile and industrial sources. As a

<sup>1</sup> PM<sub>2.5</sub> is the main cause of reduced visibility (haze) in parts of the United States.

<sup>2</sup> 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.

<sup>3</sup> Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

<sup>4</sup> CARB approved the South Coast AQMD’s request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards from 2004 to 2007. The EPA approved the State of California’s request to redesignate the South Coast PM<sub>10</sub> nonattainment area to attainment of the PM<sub>10</sub> National AAQS, effective on July 26, 2013.

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result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.<sup>5</sup> As a result of these violations, the Los Angeles County portion of the SoCAB is designated as nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2018). There are no lead-emitting sources associated with this project, and therefore, lead is not a pollutant of concern for the Specific Plan.

Table 5.2-1 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"> <li>Chest pain in heart patients</li> <li>Headaches, nausea</li> <li>Reduced mental alertness</li> <li>Death at very high levels</li> </ul>	Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Ozone (O <sub>3</sub> ) Volatile Organic Compounds (VOC) <sup>1</sup>	<ul style="list-style-type: none"> <li>Cough, chest tightness</li> <li>Difficulty taking a deep breath</li> <li>Worsened asthma symptoms</li> <li>Lung inflammation</li> </ul>	Atmospheric reaction of organic gases with nitrogen oxides in sunlight
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>2</sup>	<ul style="list-style-type: none"> <li>Increased response to allergens</li> <li>Aggravation of respiratory illness</li> </ul>	Same as carbon monoxide sources
Particulate Matter (PM <sub>10</sub> & PM <sub>2.5</sub> )	<ul style="list-style-type: none"> <li>Hospitalizations for worsened heart diseases</li> <li>Emergency room visits for asthma</li> <li>Premature death</li> </ul>	Cars and trucks (particularly diesels) Fireplaces and woodstoves Windblown dust from overlays, agriculture, and construction
Sulfur Dioxide (SO <sub>2</sub> )	<ul style="list-style-type: none"> <li>Aggravation of respiratory disease (e.g., asthma and emphysema)</li> <li>Reduced lung function</li> </ul>	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, and industrial processes
Lead (Pb)	<ul style="list-style-type: none"> <li>Behavioral and learning disabilities in children</li> <li>Nervous system impairment</li> </ul>	Contaminated soil

Source: CARB 2009; South Coast AQMD 2005.

Notes:

<sup>1</sup> Because VOC is secondary pollutant and is primarily associated with the formation of ozone (O<sub>3</sub>), health effects associated with VOC are encompassed in the health effects described for ozone.

<sup>2</sup> The health effects described for NO<sub>2</sub> are also applicable to NO<sub>x</sub> in general, as NO<sub>x</sub> encompasses both NO and NO<sub>2</sub>.

<sup>5</sup> 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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#### *Toxic Air Contaminants*

People exposed to toxic air pollutants (TACs) at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory, and other health problems (USEPA 2020b). By the December 1999 update to the TAC list, CARB had designated 244 compounds as TACs (CARB 1999). Subsequently, the list was updated in 2007 to include Environmental Tobacco Smoke (CARB 2020b). 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 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 (USEPA 2002).

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
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 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

#### **5.2.1.2 REGULATORY BACKGROUND**

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

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#### Federal and State

##### *Ambient Air Quality Standards*

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

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

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 5.2-2. These pollutants are ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

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

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Ozone (O <sub>3</sub> ) <sup>3</sup>	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 <sub>2</sub> )	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 <sub>2</sub> )	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	

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

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM <sub>10</sub> )	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	*	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 <sup>3</sup>	150 µg/m <sup>3</sup>	
Respirable Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>4</sup>	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	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 <sup>3</sup>	
Lead (Pb)	30-Day Average	1.5 µg/m <sup>3</sup>	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m <sup>3</sup>	
	Rolling 3-Month Average	*	0.15 µg/m <sup>3</sup>	
Sulfates (SO <sub>4</sub> ) <sup>5</sup>	24 hours	25 µg/m <sup>3</sup>	*	Industrial processes.
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 <sub>2</sub> 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.

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

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Source: CARB 2016.				
Notes: ppm: parts per million; µg/m <sup>3</sup> : micrograms per cubic meter				
* Standard has not been established for this pollutant/duration by this entity.				
<sup>1</sup> California standards for O <sub>3</sub> , CO (except 8-hour Lake Tahoe), SO <sub>2</sub> (1 and 24 hour), NO <sub>2</sub> , and particulate matter (PM <sub>10</sub> , PM <sub>2.5</sub> , 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.				
<sup>2</sup> National standards (other than O <sub>3</sub> , PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O <sub>3</sub> standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM <sub>10</sub> , the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m <sup>3</sup> is equal to or less than one. For PM <sub>2.5</sub> , 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.				
<sup>3</sup> On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.				
<sup>4</sup> On December 14, 2012, the national annual PM <sub>2.5</sub> primary standard was lowered from 15 µg/m <sup>3</sup> to 12.0 µg/m <sup>3</sup> . The existing national 24-hour PM <sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m <sup>3</sup> , as was the annual secondary standard of 15 µg/m <sup>3</sup> . The existing 24-hour PM <sub>10</sub> standards (primary and secondary) of 150 µg/m <sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.				
<sup>5</sup> On June 2, 2010, a new 1-hour SO <sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.				

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

- **AB 1493: Pavley Fuel Efficiency Standards.** Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025.
- **SB 1078 and SB 107: Renewables Portfolio Standards.** A major component of California’s Renewable Energy Program is the renewables portfolio standard (RPS) established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010.
- **California Code of Regulations (CCR), Title 20: Appliance Energy Efficiency Standards.** The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances.
- **24 CCR, Part 6: Building and Energy Efficiency Standards.** Energy conservation standards for new residential and non-residential buildings adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977.
- **24 CCR, Part 11: Green Building Standards Code.** Establishes planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.<sup>6</sup>

<sup>6</sup> The green building standards became mandatory in the 2010 edition of the code.

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#### *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 § 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 US Code § 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics “Hot Spot” Information and Assessment Act of 1987). The Tanner Air Toxics Act set up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an “airborne toxics control measure” for sources that emit that TAC. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate “toxics best available control technology” to minimize emissions. To date, CARB has established formal control measures for 11 TACs that are identified as having no safe threshold.

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

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

- **13 CCR § 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.** Generally restricts on-road diesel-powered commercial motor vehicles with a gross vehicle weight rating of greater than 10,000 pounds from idling more than five minutes.
- **13 CCR § 2480: Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools.** Generally restricts a school bus or transit bus from idling for more than five minutes when within 100 feet of a school.
- **13 CCR § 2477 and Article 8: Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate.** Regulations established to control emissions associated with diesel-powered TRUs.
- **13 CCR § 2020, 2021, 2021.1, 2021.2: Diesel Particulate Matter Control Measure for On-Road Heavy-Duty Diesel-Fueled Residential and Commercial Solid Waste Collection Vehicles.** Regulations established to control and reduce emissions from solid waste collection vehicles.

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#### 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). Since 1979, a number of AQMPs have been prepared. The 2016 AQMP is the current document. South Coast AQMD is in the process of preparing the 2022 update to the AQMP.

##### ***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<sub>2.5</sub> standard by 2025<sup>7</sup>
- 2006 National 24-hour PM<sub>2.5</sub> standard by 2019
- 1997 National 8-hour ozone standard by 2023
- 1979 National 1-hour ozone standard by year 2022

It is projected that total NO<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> emissions would also reduce PM<sub>2.5</sub> concentrations in the SoCAB. However, because the goal is to meet the 2012 federal annual PM<sub>2.5</sub> 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 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 due to the addition of source-specific monitoring under the new federal

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<sup>7</sup> The 2016 AQMP requests a reclassification from moderate to serious nonattainment for the 2012 National PM<sub>2.5</sub> standard.

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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. In general, the rule prohibits new developments from the installation of wood-burning devices.
- **Rule 445, Wood Burning Devices.** This rule is intended to reduce the emission of particulate matter from wood-burning devices and applies to manufacturers and sellers of wood-burning devices, commercial sellers of firewood, and property owners and tenants that operate a wood-burning device.
- **Rule 1113, Architectural Coatings.** This rule serves to limit the VOC content of architectural coatings used on projects in the 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

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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 Plan Area is in the SoCAB, which includes all of Orange County and the non-desert 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 Plan Area that best represents the climatological conditions of the project area is the Long Beach, California Monitoring Station (ID 045082). The average low is reported at 44.8°F in January, and the average high is 80.7°F in August (WRCC 2020).

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 12.72 inches per year in the vicinity of the Plan Area (WRCC 2020).

###### *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 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).

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#### *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 ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- ***Unclassified.*** A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- ***Attainment.*** A pollutant is in attainment if the AAQS for that pollutant was not violated at any site in the area during a three-year period.
- ***Nonattainment.*** A pollutant is in nonattainment if there was at least one violation of an AAQS for that pollutant in the area. What constitutes a violation is dependent on the criteria air pollutant and ranges from no exceedances allowed, to no more than one exceedance per year to readings based on a three-year period.
- ***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.

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The attainment status for the SoCAB is shown in Table 5.2-3.

**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 <sub>10</sub>	Serious Nonattainment	Attainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO <sub>2</sub>	Attainment	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) <sup>1</sup>
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2018.

<sup>1</sup> In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

### Multiple Air Toxics Exposure Study IV

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on existing ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In 2008, South Coast AQMD conducted its third update, MATES III, based on the Office of Environmental Health Hazards Assessment's (OEHHA) 2003 Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (2003 HRA Guidance Manual). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, which accounted for 84 percent of the cancer risk (South Coast AQMD 2008a).

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

The Office of Environmental Health Hazard Assessment (OEHHA) updated the guidelines for estimating cancer risks on March 6, 2015. The new method utilizes higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined together, South Coast AQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher using the proposed updated

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methods identified in MATES IV (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (South Coast AQMD 2015a).

### Existing Ambient Air Quality

Existing ambient air quality, historical trends, and projections in the vicinity of the Plan Area are best documented by measurements made by South Coast AQMD. The Plan Area lies within Source Receptor Area (SRA) 4 (South Los Angeles County Coastal). The air quality monitoring station closest to the Plan Area is the Long Beach Webster Street Monitoring Station. However, because this station does not monitor for PM<sub>2.5</sub>, data for this criteria air pollutant is obtained from the North Long Beach Monitoring Station. Data from these stations are summarized in Table 5.2-4. The data show that the area has regularly exceeded the state PM<sub>10</sub> and the federal PM<sub>2.5</sub> standards.

**Table 5.2-4 Ambient Air Quality Monitoring Summary**

Pollutant/Standard <sup>1</sup>	Number of Days Thresholds Were Exceeded and Maximum Levels <sup>1,2</sup>				
	2014	2015	2016	2017	2018
<b>Ozone (O<sub>3</sub>)<sup>1</sup></b>					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	0	0	0	0	0
State 8-hour ≥ 0.07 ppm (days exceed threshold)	1	0	0	0	0
Federal 8-Hour > 0.075 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.087	0.087	0.079	0.082	0.074
Max. 8-Hour Conc. (ppm)	0.072	0.067	0.059	0.069	0.064
<b>Nitrogen Dioxide (NO<sub>2</sub>)<sup>2</sup></b>					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.1359	0.1018	0.0756	0.0895	0.0853
<b>Coarse Particulates (PM<sub>10</sub>)<sup>2</sup></b>					
State 24-Hour > 50 µg/m <sup>3</sup> (days exceed threshold)	3	6	8	10	4
Federal 24-Hour > 150 µg/m <sup>3</sup> (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	84.0	80.0	75.0	79.0	84.0
<b>Fine Particulates (PM<sub>2.5</sub>)<sup>3</sup></b>					
Federal 24-Hour > 35 µg/m <sup>3</sup> (days exceed threshold)	2	3	0	4	6
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	51.5	54.6	29.3	55.3	79.6

Source: CARB 2020a.

Notes: ppm = parts per million; ppb = parts per billion; µg/m<sup>3</sup> = micrograms per cubic meter; \* = Data not available

<sup>1</sup> The CARB iADAM Air Quality Data Statistics does not provide data for lead.

<sup>2</sup> Data obtained from the Long Beach Webster Street Monitoring Station for O<sub>3</sub>, NO<sub>2</sub>, and PM<sub>10</sub>.

<sup>3</sup> Data obtained from the North Long Beach Monitoring Station for PM<sub>2.5</sub>.

### Existing Emissions

The existing uses within the Plan Area currently generates criteria air pollutant emissions from natural gas use for energy, heating and cooking, vehicle trips associated with residents, employees, vendors, and visitors, and area sources such as landscaping equipment and consumer cleaning products. Table 5.2-5 summarizes emissions associated with the daily operations of these existing land uses using emission rates for years 2020 (current conditions) and 2033 (future conditions). The Year 2020 inventory represents the projected emissions generated currently by the existing land uses based on calendar year 2020 emission factors for on-road vehicles. The Year

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2033 inventory represents the projected emissions that the existing land uses would generate in the future utilizing calendar year 2033 emission factors for on-road vehicles. To isolate the impacts related to the change in land uses proposed by the Specific Plan, the net change in emissions related implementation of the Specific Plan is based on the difference in emissions generated by the existing and proposed land uses under year 2033 conditions. This approach is taken as existing land uses would be subject to regulations that come into effect in the future that reduce mobile-source emissions. Thus, the level of emissions the existing land uses generate today would not be generated in perpetuity, but would be affected by these state regulations.

**Table 5.2-5 Plan Area Existing Criteria Air Pollutant Emissions**

Phase	Operation-Related Regional Emissions (pounds/day) <sup>1</sup>					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Year 2020</b>						
Area	16	1	72	<1	<1	<1
Energy <sup>2</sup>	<1	3	1	<1	<1	<1
Mobile <sup>3</sup>	11	24	149	<1	35	10
<b>Total</b>	<b>28</b>	<b>27</b>	<b>222</b>	<b>&lt;1</b>	<b>36</b>	<b>10</b>
<b>Year 2033</b>						
Area	16	1	71	<1	<1	<1
Energy <sup>2</sup>	<1	3	1	<1	<1	<1
Mobile <sup>4</sup>	6	11	75	<1	35	9
<b>Total</b>	<b>22</b>	<b>14</b>	<b>147</b>	<b>&lt;1</b>	<b>36</b>	<b>10</b>

Sources: CalEEMod Version 2016.3.2.25.

Notes: Based on highest winter or summer emissions.

<sup>1</sup> Includes only those pollutants in which South Coast AQMD have established regional significance thresholds and that are applicable. Thus, emissions data for ozone and lead are omitted. Additionally, because the proposed project does not involve a large permitted industrial project where South Coast AQMD is the lead agency, lead (Pb) is not a pollutant of concern.

<sup>2</sup> Utilizes CalEEMod historical energy rates, which are based on the 2005 Building Energy Efficiency Standards.

<sup>3</sup> Based on calendar year 2020 emission rates obtained from EMFAC2017, Version 1.0.2., and adjusted based on CalEEMod methodology for vehicle emission rates.

<sup>4</sup> Based on calendar year 2033 emission rates obtained from EMFAC2017, Version 1.0.2., and adjusted based on CalEEMod methodology for vehicle emission rates.

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

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As shown in Figure 3, *Aerial Photograph*, the nearest off-site sensitive receptor to the Plan Area is the adjacent Cabrillo High School to the north and east. Beyond the high school campus are residences north of West Hill Street and east of Santa Fe Avenue.

### 5.2.2 Thresholds of Significance

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

- AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.
- AQ-2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
- AQ-3 Expose sensitive receptors to substantial pollutant concentrations.
- AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

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

- Threshold AQ-4

This impact will not be addressed in the following analysis.

#### 5.2.2.1 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 5.2-6. The table lists thresholds that are applicable for all projects uniformly, regardless of size or scope. There is growing evidence that although ultrafine particulate matter contributes a very small portion of the overall atmospheric mass concentration, it represents a greater proportion of the health risk from PM. However, the EPA and CARB have not adopted AAQS to regulate ultrafine particulate matter; therefore, South Coast AQMD has not developed thresholds for them.

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**Table 5.2-6 South Coast AQMD Significance Thresholds**

Air Pollutant <sup>1</sup>	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO <sub>x</sub> )	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO <sub>x</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>10</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>2.5</sub> )	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2019.

<sup>1</sup> The South Coast AQMD has not developed a regional significance threshold for ozone. In addition, because the proposed project does not involve a large permitted industrial project where South Coast AQMD is the lead agency, lead (Pb) is not a pollutant of concern.

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<sub>2.5</sub>, TACs)
- Aggravates respiratory disease (O<sub>3</sub>, PM<sub>2.5</sub>)
- Increases bronchitis (O<sub>3</sub>, PM<sub>2.5</sub>)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O<sub>3</sub>)
- Reduces resistance to infections and increases fatigue (O<sub>3</sub>)
- Reduces lung growth in children (PM<sub>2.5</sub>)
- Contributes to heart disease and heart attacks (PM<sub>2.5</sub>)
- Contributes to premature death (O<sub>3</sub>, PM<sub>2.5</sub>)
- Contributes to lower birth weight in newborns (PM<sub>2.5</sub>) (South Coast AQMD 2000)

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<sub>2.5</sub> is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists, in a landmark children's health study, found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (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 5.2-6 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 (NSR) Program. The NSR Program was created to ensure projects are consistent with attainment of health-based federal AAQS. Regional emissions from a single project do not single-handedly 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

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effects listed above. Projects that do not exceed the South Coast AQMD regional significance thresholds in Table 5.2-6 would not violate any air quality standards or contribute substantially to an existing or projected air quality violation.

If projects exceed the emissions in Table 5.2-6, emissions would cumulatively contribute to the nonattainment status and would contribute in elevating health effects associated to these criteria air pollutants. Known health effects related to ozone include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions in Table 5.2-6, it is speculative to determine how exceeding the regional thresholds would affect the number of days the region is in nonattainment since mass emissions are not correlated with concentrations of emissions or how many additional individuals in the air basin would be affected by the health effects cited above.

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) (2018) 6 Cal.5th 502, Case No. S21978. In *Friant Ranch*, the California Supreme Court determined that the EIR for the proposed Friant Ranch project failed to adequately analyze the project's air quality impacts on human health. The EIR prepared for the project, a master planned retirement community in Fresno County, showed that project-related mass emissions would exceed the San Joaquin Valley Air Pollution Control District's regional significance thresholds. In its findings, the California Supreme Court affirmed the holding of the Court of Appeal that EIRs for projects must not only identify impacts to human health, but also provide an "analysis of the correlation between the project's emissions and human health impacts" related to each criteria air pollutant that exceeds the regional significance thresholds or explain why it could not make such a connection. In general, the ruling focuses on the correlation of emissions of toxic air contaminants and criteria air pollutants and their impact to human health.

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 feasible to link health risks to the magnitude of emissions exceeding the significance thresholds. 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 such time the attainment standard are met in the SoCAB.

#### CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 parts per million (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

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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.<sup>8</sup> 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 (South Coast AQMD 1992; South Coast AQMD 2003). 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).<sup>9</sup>

### Localized Significance Thresholds

The South Coast AQMD identifies localized significance thresholds shown in Table 5.2-7. Emissions of NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> generated at a project site (offsite mobile-source emissions are not included in the LST analysis) could expose sensitive receptors to substantial concentrations of criteria air pollutants. A project that generates emissions that trigger a violation of the AAQS when added to the local background concentrations would generate a significant impact.

**Table 5.2-7 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 <sub>2</sub> Standard (CAAQS)	0.18 ppm
Annual NO <sub>2</sub> Standard (CAAQS)	0.03 ppm
24-Hour PM <sub>10</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>10</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>
Annual Average PM <sub>10</sub> Standard (South Coast AQMD) <sup>1</sup>	1.0 µg/m <sup>3</sup>

<sup>8</sup> 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.

<sup>9</sup> 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 5.2-7 South Coast AQMD Localized Significance Thresholds**

Air Pollutant (Relevant AAQS)	Concentration
Source: South Coast AQMD 2019. ppm – parts per million; µg/m <sup>3</sup> – micrograms per cubic meter	
<sup>1</sup> Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM <sub>10</sub> and PM <sub>2.5</sub> , 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 (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5.2-7 for projects under five acres. These “screening-level” LSTs tables are the localized significance thresholds for all projects of five acres and less; however, they can be used as screening criteria for larger projects to determine whether dispersion modeling may be required.

The construction screening-level LSTs in SRA 4 are shown in Table 5.2-8. For construction activities, the screening-level LSTs are based on the distance to the nearest sensitive receptors and the acreage disturbed per day based on equipment use (South Coast AQMD 2011). For purposes of this analysis, the screening-level LSTs are based on the reference distance of 82 feet (25 meters) and acreage disturbed of 3.36 acres. The distance of 82 feet is the minimum referenced distance per South Coast AQMD LST methodology and is utilized as the nearest sensitive receptors would be the onsite residents that could surround a development accommodated under the Specific Plan (South Coast AQMD 2008b). The 3.36 acreage disturbed is based on the 1.12-acre project site for Phase A multiplied by three to account for the assumption that up to three development phases could occur concurrently.

**Table 5.2-8 South Coast AQMD Screening-Level Localized Significance Thresholds: Construction**

Acreage Disturbed	Threshold (lbs/day) <sup>1</sup>			
	Nitrogen Oxides (NO <sub>x</sub> )	Carbon Monoxide (CO)	Coarse Particulates (PM <sub>10</sub> )	Fine Particulates (PM <sub>2.5</sub> )
3.36 Acres Disturbed Per Day <sup>2</sup>	101	1,154	10	6

Source: South Coast AQMD 2008b and South Coast AQMD 2011, Based on receptors in SRA 4.

<sup>1</sup> Screening-level LSTs are based on receptors within 82 feet (25 meters).

<sup>2</sup> Based on the 1.12-acre project site for Phase A multiplied by three to account for the assumption that up to three development phases could occur concurrently.

**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 5.2-9 lists the TAC incremental risk thresholds for operation of a project. The types of land uses that typically generate substantial quantities of criteria air pollutants and TACs from operations include industrial (stationary sources) and warehousing (truck idling) land uses. Residential, commercial, and office uses do not use substantial quantities of TACs, thus these thresholds are typically applied to new industrial projects only. Additionally, the purpose of this environmental evaluation is to identify the significant effects of the Specific Plan on the environment, not the significant effects of the environment on the Specific Plan. *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478). However, the environmental document must analyze the impacts of environmental hazards on future users

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when a proposed project exacerbates an existing environmental hazard or condition. As stated, because residential, commercial, and office uses do not use substantial quantities of TACs, they typically do not exacerbate existing hazards.

**Table 5.2-9 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 Environmental Impacts

#### 5.2.3.1 METHODOLOGY

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with future development that would be accommodated by the Specific Plan. 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 (South Coast AQMD 1993). The following provides a summary of the assumptions utilized for the Specific Plan analysis.

#### Operational Phase

- **Transportation:** Based on the weekday daily trip generation and vehicle miles traveled (VMT) data provided by Fehr and Peers (see Appendix I of this DEIR). Additionally, the analysis also utilizes the Saturday and Sunday daily trip generation rates as provided in the 10th Edition Trip Generation Manual Handbook (ITE 2017). Year 2020 and 2033 on-road criteria air pollutant emissions are based on calendar year 2020 and 2033 emission rates, respectively, obtained from EMFAC2017 (v. 1.0.2) and adjusted based on CalEEMod methodology.
- **Area Sources:** Area sources generated from use of consumer products and cleaning supplies are based on CalEEMod default emission rates and on the assume building square footages. Additionally, existing and proposed dwelling units are modeled without fireplaces.
- **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 by residential and nonresidential land uses. The CalEEMod historical energy rates, which are based on the 2005 Building Energy Efficiency Standards, are utilized for the existing buildings. New buildings are assumed to comply with the 2019 Building Energy Efficiency Standards and are modeled to be one percent more energy efficient for natural gas compared to the 2016 Building Energy Efficiency Standards (NORESO 2018). Under the California Building and Energy Standards, residential buildings that are four stories and higher fall under the non-residential standards.

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**Construction Phase**

Development of the Specific Plan is anticipated to commence in year 2023 and occur over an anticipated 12 development phases over a 10-year period. Each of the development phases are anticipated to last approximately 20 months. Due to the programmatic nature of the Specific Plan, construction emissions are quantified for a single development phase that represents the worst-case scenario for an individual development phase. This worst-case phase is used to represent the emissions that could be generated by the other anticipated development phases accommodated under the Specific Plan. This worst-case scenario generally accounts for the largest amount of demolition and grading hauling activities and amount of development that could occur within a given development phase. Table 5.2-10 shows the anticipated construction activities, phasing, and equipment mix for each of the activities for this scenario. The construction schedule utilized in the analysis represents a “worst-case” analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent. The modeling considers overlapping construction activities where applicable (e.g., architectural coating and asphalt demolition).

**Table 5.2-10 Construction Activities, Phasing and Equipment: Worst-Case Development Phase**

Activities <sup>1</sup>	Start/End Dates <sup>1</sup>	Off-Road Equipment <sup>1, 2</sup>
Building Demolition	03/01/2023 to 05/23/2023	2 Excavators, 2 Skid Steer Loaders, & 1 Tractor/Loader/Backhoe
Building Demolition Haul	04/01/2023 to 05/26/2023	No additional equipment from building demolition activity
Site Preparation	06/01/2023 to 06/07/2023	1 Grader, 1 Rubber Tired Dozer, & 1 Tractor/Loader/Backhoe
Site Preparation Soil Haul	06/01/2023 to 06/14/2023	No additional equipment from site preparation activity
Rough Grading	06/09/2023 to 06/22/2023	1 Grader, 1 Rubber Tired Dozer, & 1 Tractor/Loader/Backhoe
Geopiers/Extra Foundation Preparation	07/01/2023 to 09/22/2023	1 B27 Electric Vibroflot, 1 Crane, 1 Tractor/Loader/Backhoe, & 1 Generator Set
Utility Trenching	08/01/2023 to 10/23/2023	1 Excavator & 1 Trencher
Building Construction	10/15/2023 to 05/24/2024	1 Crane, 1 Forklift, 1 Generator Set, 1 Tractor/Loader/Backhoe
Architectural Coating	06/01/2024 to 08/23/2024	1 Air Compressor
Asphalt Demolition	07/01/2024 to 07/05/2024	2 Excavators, 2 Skid Steer Loaders, & 1 Tractor/Loader/Backhoe
Asphalt Demolition Haul	07/01/2024 to 07/05/2024	No additional equipment from asphalt demolition activity
Asphalt Paving	08/24/2024 to 09/20/2024	1 Cement and Mortar Mixer, 1 Paver, 1 Paving Equipment, 1 Roller, & 1 Tractor/Loader/Backhoe
Fine Grading	09/23/2024 to 09/27/2024	1 Grader, 1 Rubber Tired Dozer, & 1 Tractor/Loader/Backhoe
Finishing/Landscaping	10/01/2024 to 11/25/2024	1 Forklift

Notes:

<sup>1</sup> Based on information provided, anticipated, and CalEEMod defaults.

<sup>2</sup> Two water trucks are assumed for the building demolition, site preparation, rough grading, geopiers/extra foundation preparation, asphalt demolition, and fine grading activities.

The anticipated construction schedules for each of the Specific Plan development phases are shown in Table 5.2-11. As shown in the table, it is anticipated that buildout of the proposed Specific Plan would be implemented in multiple phases in response to evolving funding opportunities and logistic constraints. However, although overall development would be subject to demand and market conditions, for purposes of

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this analysis, it is assumed that up to three development phases could occur concurrently at any one time during the 10-year buildout window based on the development schedule anticipated.

**Table 5.2-11 Specific Plan Development Phase Schedule**

Development Phase <sup>1</sup>	Construction Schedule <sup>1</sup>
Phase A	March 2023 to November 2024
Phase B	January 2024 to September 2025
Phase C	November 2024 to July 2026
Phase D	September 2025 to May 2027
Phase E	January 2027 to February 2028
Phase F	November 2027 to December 2028
Phase G	March 2028 to November 2029
Phase H	January 2029 to September 2030
Phase I	November 2029 to July 2031
Phase J	September 2030 to May 2032
Phase K	July 2031 to March 2033
Phase L	May 2032 to July 2033

Notes:

<sup>1</sup> Based on information provided by City Fabrick.

#### 5.2.3.2 IMPACT ANALYSIS

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

**Impact 5.2-1: The Specific Plan is consistent with the applicable air quality management plan. [Threshold AQ-1]**

**Impact Analysis:** The following describes potential air quality impacts and consistency with the AQMP from the implementation of the Specific Plan.

South Coast AQMD is directly responsible for reducing emissions from area, stationary, and mobile sources in the SoCAB to achieve the National and California AAQS. South Coast AQMD has responded to this requirement by preparing an AQMP. On March 3, 2017, the South Coast AQMD Governing Board adopted the 2016 AQMP, which is a regional and multiagency effort (South Coast AQMD, CARB, SCAG, and EPA). 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 two principal criteria for conformance with an AQMP are:

1. Whether the project would exceed the assumptions in the AQMP.

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2. Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timeline attainment of air quality standards.

SCAG is South Coast AQMD's partner in the preparation of the AQMP, providing the latest economic and demographic forecasts and developing transportation measures. Regional population, housing, and employment projects developed by SCAG are based, in part, on a city's general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP and are incorporated into the regional transportation plan/sustainable communities strategy (RTP/SCS) prepared by SCAG to determine priority transportation projects and vehicle miles traveled (VMT) in the SCAG region. Because the AQMP strategy is based on projections from local general plans, projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan. Additionally, only large projects have the potential to substantially affect the demographic forecasts in the AQMP.

#### Criterion 1

CEQA Guidelines Section 15206(b) states that a proposed project is of statewide, regional, or area-wide significance if the project is a residential development of more than 500 dwelling units, a commercial office building of 250,000 square feet or more or that employs 1,000 or more employees, and/or a shopping center of 500,000 square feet or more. The amount of commercial and retail space accommodated under the Specific Plan would not exceed the commercial and retail screening criteria. However, the Specific Plan would introduce a net increase of approximately 515 new dwelling units; thus, it is a project of statewide, regional, or area-wide significance. As described in Section 5.11, *Population and Housing*, and shown in Table 5.11-7 on page 5.11-8, *Estimated Population Housing Growth Trend in Long Beach with Specific Plan Buildout*, the Specific Plan would be within the population projection for the City based on SCAG growth projections. Thus, implementation of the Specific Plan would not substantially affect demographic projections beyond what is accounted for in the current 2016 AQMP. Therefore, the Specific Plan would not be considered inconsistent with the AQMP under the first criterion.

#### Criterion 2

With respect to the second criterion, the analyses in the response to Impact 5.2-3 demonstrate that the Specific Plan would not generate long-term emissions of criteria air pollutants that would exceed South Coast AQMD's regional operation-phase significance thresholds, which were established to determine whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. Thus, long-term implementation of the Specific Plan would not result in an increase in the frequency or severity of existing air quality violations; cause or contribute to new violations; or delay timely attainment of the AAQS. Therefore, overall, the Specific Plan would be considered consistent with the AQMP under the second criterion.

#### Summary

The Specific Plan would not result in generating long-term criteria air pollutant emissions in exceedance of the South Coast AQMD's regional operational significance thresholds (see Table 5.2-13) and would not cumulatively contribute to the nonattainment designations in the SoCAB. Additionally, implementation of the Specific Plan would not substantially affect the population estimates for the City and the population estimate

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assumed in the 2016 AQMP. Therefore, the Specific Plan would be considered consistent with the AQMP; and impacts would be less than significant.

**Impact 5.2-2:** Construction activities associated with the Specific Plan could generate short-term emissions that would exceed South Coast AQMD's regional significance thresholds and cumulatively contribute to the nonattainment designations of the South Coast Air Basin (SoCAB). [Threshold AQ-2]

**Impact Analysis:** Construction activities would temporarily increase PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, NO<sub>x</sub>, SO<sub>x</sub>, and CO regional emissions in the SoCAB. The primary source of NO<sub>x</sub>, CO, and SO<sub>x</sub> emissions is the operation of construction equipment. The primary sources of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions are activities that disturb the soil, such as grading and excavation, road construction, and building demolition and construction. The primary source of VOC emissions is the application of architectural coating and off-gas emissions associated with asphalt paving. A discussion of health impacts associated with air pollutant emissions generated by construction activities is included in Section 5.2.1.1, *Air Pollutants of Concern*.

As discussed in Section 3.4.6, *Project Phasing and Construction*, of this DEIR, based on the anticipated development phasing shown below, it is assumed up to three development phases could be overlapping at any given time. An estimate of maximum daily construction emissions is provided in Table 5.2-12. The table shows the highest daily emissions that would be generated over the worst-case individual development phase. This worst-case individual development phase emissions are based on the construction assumptions shown previously in Table 5.2-9, *Construction Activities, Phasing and Equipment: Worst-Case Development Phase*. Additionally, it also shows the highest daily emissions for the combined scenario. This combined scenario assumes two levels of overlap. It assumes the individual construction activities (i.e., building demolition, grading, etc.) would all overlap. Furthermore, it also assumes the concurrent development of three development phases. As stated, the emissions associated with the worst-case individual development phase is utilized as a proxy for each of the three development phases. In addition, because it is not anticipated that three development phases would be implemented during years 2023 and 2024, and emissions associated with construction equipment and vehicles generally improve with each passing year due to emissions regulations, maximum daily emissions for the combined scenario shown in Table 5.2-12 are considered to be conservative estimates.

**Table 5.2-12 Maximum Daily Regional Construction Emissions Estimate**

Construction Phase(s)	Criteria Air Pollutants (pounds per day) <sup>1,2</sup>					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Worst-Case Individual Development Phase</b>						
Building Demolition	1	8	13	<1	1	<1
Building Demolition & Building Demolition Haul	1	9	14	<1	1	<1
Site Preparation & Site Preparation Haul	1	15	8	<1	3	2
Site Preparation Haul	<1	2	1	<1	<1	<1
Site Preparation Haul & Rough Grading	1	13	7	<1	3	2
Rough Grading	1	11	6	<1	3	2
Geopiers/Extra Foundation Preparation	1	11	9	<1	1	<1

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**Table 5.2-12 Maximum Daily Regional Construction Emissions Estimate**

Construction Phase(s)	Criteria Air Pollutants (pounds per day) <sup>1, 2</sup>					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Geopiers/Extra Foundation Preparation & Utility Trenching	2	17	17	<1	2	1
Utility Trenching	1	6	7	<1	1	<1
Utility Trenching & Building Construction	3	20	24	<1	3	1
Building Construction (Year 2023)	2	15	17	<1	2	1
Building Construction (Year 2024)	2	14	17	<1	2	1
Architectural Coating	19	2	3	<1	<1	<1
Architectural Coating, Asphalt Demolition, & Asphalt Demolition Haul	20	12	16	<1	3	1
Asphalt Paving	1	7	10	<1	1	<1
Fine Grading	1	10	6	<1	3	1
Finishing/Landscaping	<1	2	3	<1	1	<1
Maximum Daily Emissions	20	20	24	<1	3	2
<b>Combined Scenario</b>						
All Construction Activities Overlap <sup>3</sup>	29	95	95	<1	17	8
Maximum Daily Emissions <sup>4</sup>	<b>86</b>	<b>286</b>	285	1	52	25
South Coast AQMD Regional Thresholds	75	100	550	150	150	55
Significant?	Yes	Yes	No	No	No	No

Source: CalEEMod Version 2016.3.2. Highest winter or summer emissions are reported.

<sup>1</sup> Construction equipment mix is based on information provided, anticipated, and CalEEMod default construction mix.

<sup>2</sup> 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.

<sup>3</sup> Assumes all construction activities associated with a development phase would overlap concurrently.

<sup>4</sup> Based on the "All Construction Activities Overlap" emissions multiplied by three, which is the potential number of development phases that could occur concurrently under the Specific Plan.

As shown in the table, construction activities associated with implementation of the Specific Plan could potentially exceed the South Coast AQMD regional thresholds for VOC and NO<sub>x</sub> based on the maximum daily emissions generated under the combined scenario. The primary source of NO<sub>x</sub> emissions is vehicle and construction equipment exhaust. NO<sub>x</sub> is a precursor to the formation of both O<sub>3</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). The primary source of VOC during construction is from the application of paint and it is a precursor to the formation of O<sub>3</sub>. Project-related emissions of VOC and NO<sub>x</sub> would contribute to the O<sub>3</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> nonattainment designations of the SoCAB. Therefore, project-related construction activities would result in potentially significant regional air quality impacts.

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

**Impact Analysis:** Buildout of the Specific Plan would result in direct and indirect criteria air pollutant emissions from transportation, energy (e.g., natural gas use), and area sources (e.g., aerosols and landscaping equipment). Mobile-source criteria air pollutant emissions are based on vehicle trip generation data provided

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by Fehr & Peers (see Appendix I of this DEIR). As shown in Table 5.2-13, operation of the proposed residential land uses at buildout would not generate air pollutant emissions that exceed South Coast AQMD’s regional significance thresholds. Therefore, the operation of the Specific Plan would not significantly contribute to the nonattainment designations of the SoCAB and operation-related regional air quality impacts would be less than significant.

**Table 5.2-13 Maximum Daily Regional Operational Phase Emissions**

Source	Operation-Related Regional Emissions (pounds/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Existing (Year 2033)<sup>1</sup></b>						
Area	16	1	71	<1	<1	<1
Energy <sup>2</sup>	<1	3	1	<1	<1	<1
Mobile <sup>3</sup>	6	11	75	<1	35	9
<b>Total</b>	<b>22</b>	<b>14</b>	<b>147</b>	<b>&lt;1</b>	<b>36</b>	<b>10</b>
<b>Specific Plan Full Buildout (Year 2033)</b>						
Area	45	1	114	<1	1	1
Energy <sup>4</sup>	1	5	2	<1	<1	<1
Mobile <sup>3</sup>	11	21	129	<1	58	16
<b>Total</b>	<b>57</b>	<b>27</b>	<b>245</b>	<b>&lt;1</b>	<b>60</b>	<b>17</b>
<b>Net Change (Project – Existing)<sup>1,5</sup></b>						
Net Change	35	13	98	<1	24	7
South Coast AQMD Regional Thresholds	55	55	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod Version 2016.3.1. Based on highest winter or summer emissions. Totals may not equal 100 percent due to rounding.

<sup>1</sup> Existing emissions based on year 2033 vehicle emissions data is utilized as vehicle emissions associated with existing land uses would not occur in perpetuity, but would change overtime to comply with emissions standards and to account for vehicle turnover from older cars to newer cars as time passes. However, while the existing emissions are based on year 2033 data, the land use assumed is still based on the current existing land use.

<sup>2</sup> Utilizes the CalEEMod historical energy rates, which are based on the 2005 Building Energy Efficiency Standards.

<sup>3</sup> Based on calendar year 2033 emission rates obtained from EMFAC2017, Version 1.0.2., and adjusted based on CalEEMod methodology for vehicle emission rates.

<sup>4</sup> New buildings are assumed to comply with the 2019 Building Energy Efficiency Standards and are modeled to be one percent more energy efficient for natural gas compared to the 2016 Building Energy Efficiency Standards.

<sup>5</sup> Vehicle emission rates typically decrease over time due to compliance with emissions regulations. Thus, the existing uses under buildout year 2033 conditions result in lower emissions compared to baseline year 2020 conditions. However, comparison of existing uses under year 2033 conditions to the Specific Plan results in a more conservative result as the net change is greater.

### 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 5.2-14 shows the overlap of maximum construction and operation emissions based on full buildout of the Specific Plan. Based on the anticipated implementation schedule for the Specific Plan, there is potential for overlap between construction and operational activity. Combining the maximum daily construction emissions (see Table 5.2-12) with the maximum daily operational emissions (see Table 5.2-13) would give a maximum daily emission representing peak construction activity and full buildout of the project, a scenario that would not occur. Additionally, the peak daily construction emissions for the combined scenario are based on all construction activities for an individual development phase overlapping in addition to the overlap of three separate development phases. While it is anticipated that overlap between construction activities and development phases could occur, it is

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likely that only some construction activities for a given development phase and across other development phases would overlap at any one time and not all at once.

**Table 5.2-14 Potential Overlap of Construction and Operational Activities**

Scenario	Unmitigated Regional Emissions (pounds/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Construction Combined Scenario Maximum Daily Emissions	86	286	285	1	52	25
Operational Maximum Daily Emissions (Net)	35	13	98	<1	24	7
<b>Max Daily Combined Emissions</b>	<b>121</b>	<b>299</b>	<b>382</b>	<b>1</b>	<b>76</b>	<b>32</b>

Source: CalEEMod Version 2016.3.2.

**Impact 5.2-4: Operation of the proposed land uses accommodated under the Specific Plan would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-3]**

**Impact Analysis:** Operation of new land uses that would be accommodated under the Specific Plan could generate new sources of criteria air pollutants and TACs in the Specific Plan area from area/stationary sources and mobile sources. Unlike the mass of operation emissions shown in Table 5.2-13, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or µg/m<sup>3</sup>) and can be correlated to potential health effects.

**Operation Phase Localized Significance Thresholds (LSTs)**

The screening-level LSTs are the amount of project-related stationary and area sources of emissions at which localized concentrations (ppm or µg/m<sup>3</sup>) would exceed the ambient air quality standards for criteria air pollutants for which the SoCAB is designated a nonattainment area. The Specific Plan would primarily permit the development of residential uses only and commercial and retail uses that are not associated with generating a high or substantial number of trucks. Typical sources of criteria air pollutant emissions within the Specific Plan from stationary and area sources include energy use (natural gas used for cooking and water heating) and landscaping fuel and aerosols. Types of land uses that typically generate substantial quantities of criteria air pollutants and TACs include industrial (stationary sources) and warehousing (truck idling) land uses. These types of major air pollutant emissions sources are not permitted in the Plan Area. Thus, the Specific Plan would not result in creation of land uses that would generate substantial concentrations of criteria air pollutant emissions. Therefore, localized operation-related air quality impacts are considered less than significant.

**Operational Phase CO Hotspots**

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. 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.<sup>10</sup> As identified in

<sup>10</sup> 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

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South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide, peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not of congestion at a particular intersection (South Coast AQMD 1992; South Coast AQMD 2003).

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). Under full buildout conditions, the Specific Plan would result in a net increase of 351 peak hour trips (PM). Thus, implementation of the Specific Plan would not produce the volume of traffic required (i.e., 24,000 to 44,000 peak hour vehicle trips) to generate a CO hotspot. Therefore, implementation of the Specific Plan would not have the potential to substantially increase CO hotspots at intersections in the vicinity of the Plan Area, and impacts would be less than significant.

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**Impact 5.2-5: Construction-related emissions associated with land uses accommodated under the Specific Plan could expose sensitive receptors to substantial concentrations of criteria air pollutants and toxic air contaminants. [Threshold AQ-3]**

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**Impact Analysis:** Development of new land uses that would be accommodated under the Specific Plan could generate new sources of criteria air pollutants from construction equipment exhaust and fugitive dust (criteria air pollutants only). Implementation of the Specific Plan could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevating those levels. Unlike the mass of construction emissions shown in Table 5.2-12, 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.

### Construction Phase Localized Significance Thresholds (LSTs)

The screening-level LSTs are the amount of project-related emissions at which localized concentrations (ppm or  $\mu\text{g}/\text{m}^3$ ) would exceed the AAQS for criteria air pollutants for which the SoCAB is designated a nonattainment area. As stated, they are based on the acreage disturbed and distance to the nearest sensitive receptor. Nearest off-site sensitive receptor to the Plan Area is the adjacent Cabrillo High School to the north and east. Beyond the high school campus are residences north of West Hill Street and east of Santa Fe Avenue. However, for purposes of this evaluation, the nearest sensitive receptors would be the onsite residents that could surround construction accommodated under the Specific Plan. It is anticipated that onsite residences could be within 82 feet of active construction areas within the Specific Plan.<sup>11</sup>

Table 5.2-15 shows the maximum daily construction emissions (pounds per day) generated during onsite construction activities. As shown in the table, maximum daily construction emissions would not exceed the South Coast AQMD screening-level LST for CO. However, construction activities would result in exceeding

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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.

<sup>11</sup> The distance of 82 feet is the minimum referenced distance per the South Coast AQMD LST methodology (South Coast AQMD 2008b)

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the screening-level LSTs for NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>. The PM<sub>10</sub> and PM<sub>2.5</sub> emissions shown in the table represent the total onsite particulate matter emissions generated from vehicle exhaust and fugitive dust. Onsite NO<sub>x</sub> emissions are from off-road equipment exhaust. Therefore, without mitigation, development of the Specific Plan would result in a potentially significant localized air quality impact and cause an exceedance of the California AAQS.

**Table 5.2-15 Maximum Daily Onsite Localized Construction Emissions**

Source	Pollutants (pounds per day) <sup>1,2</sup>			
	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
All Construction Activities Overlap <sup>3</sup>	76	76	12	7
Maximum Daily Emissions <sup>4</sup>	227	229	35	21
3.36-Acre Screening-Level LSTs	101	1,154	10	6
Exceeds LSTs?	Yes	No	Yes	Yes

Source: CalEEMod 2016.3.2; South Coast AQMD 2008b; South Coast AQMD 2011. In accordance with South Coast AQMD methodology, only on-site stationary sources and mobile equipment occurring on the proposed project site are included. Screening-level LSTs are based on receptors within 82 feet (25 meters) of the project site.

<sup>1</sup> Construction equipment mix is based on information provided, anticipated, and CalEEMod default construction mix.

<sup>2</sup> 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.

<sup>3</sup> Assumes all construction activities associated with a development phase would overlap concurrently.

<sup>4</sup> Based on the "All Construction Activities Overlap" emissions multiplied by three, which is the potential number of development phases that could occur concurrently under the Specific Plan.

**Construction Phase Toxic Air Contaminants (TACs)**

Health risks associated with toxic air contaminant emissions from construction equipment are primarily due to DPM. The South Coast AQMD currently does not require health risk assessments to be conducted for short-term emissions from construction equipment. OEHHA adopted new guidance for the preparation of health risk assessments that was issued in March 2015 (OEHHA 2015). However, while OEHHA has developed a cancer risk factor and noncancer chronic reference exposure level for DPM, these factors are based on continuous exposure over a 30-year time frame. No short-term acute exposure levels have been developed for DPM.

The Specific Plan is a broad-based policy plan that would be implemented over a period of 10 years or more. This anticipated buildout period would limit the exposure of on- and off-site receptors to elevated concentrations when compared to the 30-year exposure time frame. Additionally, it is anticipated that construction of individual developments accommodated under the plans would likely be spread out incrementally over this period of time, which would also limit the exposure of on- and off-site receptors to elevated concentrations of DPM. However, based on guidance from South Coast AQMD, construction risk is extrapolated based on the LST analysis (South Coast AQMD 2013-2020). As shown above in Table 5.2-15, construction activities would exceed the screening-level construction LSTs. Thus, construction of the development that would be accommodated by the Specific Plan has the potential to expose sensitive receptors to substantial pollutant concentrations of TACs. Therefore, construction activities associated with

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implementation of the Specific Plan could result in localized air quality impacts that are potentially significant as it pertains to TACs.

#### 5.2.4 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. Cumulative projects in the local area include new development and general growth in the Plan Area. The greatest source of emissions in the SoCAB is mobile sources. Due to the extent of the area potentially impacted from cumulative project 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. No significant cumulative impacts were identified with regard to CO hotspots.

##### Construction

The SoCAB is designated nonattainment for O<sub>3</sub> and PM<sub>2.5</sub> under the California and National AAQS and nonattainment for PM<sub>10</sub> and lead (Los Angeles County only) under the National AAQS. Construction of cumulative projects would further degrade the regional and local air quality. Air quality would be temporarily impacted during construction activities. Implementation of mitigation measures for related projects would reduce cumulative impacts. However, project-related construction emissions could still potentially exceed the South Coast AQMD significance thresholds on a project and cumulative basis for VOC and NO<sub>x</sub>. Consequently, because VOC and NO<sub>x</sub> contribute to the formation of ozone and particulate matter, the Specific Plan's contribution to cumulative air quality impacts for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would be cumulatively considerable and therefore would be significant.

##### 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 and does not add significantly to a cumulative impact. As discussed in the above impact analysis, operation of the Specific Plan would not result in emissions in excess of the South Coast AQMD regional emissions thresholds. Therefore, the air pollutant emissions associated with the Specific Plan would not be cumulatively considerable and impacts are less than significant.

#### 5.2.5 Level of Significance Before Mitigation

Upon implementation of regulatory requirements, the following impacts would be less than significant: 5.2-1, 5.2-3 and 5.2-4.

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

- Impact 5.2-2 and Cumulative Construction activities associated with the Specific Plan could generate short-term emissions that would exceed South Coast AQMD's regional significance thresholds and cumulatively

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contribute to the nonattainment designations of the South Coast Air Basin (SoCAB).

- Impact 5.2-5 Construction-related emissions associated with land uses accommodated under the Specific Plan could expose sensitive receptors to substantial concentrations of criteria air pollutants and toxic air contaminants.

### 5.2.6 Mitigation Measures

#### Impact 5.2-2

AQ-1 The construction contractor(s) shall incorporate the following measures into the proposed Project to reduce construction criteria air pollutant emissions, including VOC, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, generated by construction equipment used for future development projects implemented under the proposed Century Villages at Cabrillo Specific Plan:

- All off-road equipment with engines rated at 50 horsepower or greater, shall at minimum, meet the United States Environmental Protection Agency's Tier 4 Interim emissions limits. An exemption from these requirements may be granted by the City of Long Beach (City) in the event that the applicant documents that equipment with the required tier is not reasonably available and corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment. Before an exemption may be considered by the City, the applicant shall be required to, at minimum, demonstrate that two construction fleet owners/operators in the Los Angeles Region were contacted and that those owners/operators confirmed Tier 4 Interim or better equipment could not be located within the Los Angeles region. To ensure that Tier 4 Interim construction equipment or better would be used during the Proposed Project's construction, the City shall include this requirement in applicable bid documents, purchase orders, and contracts. Successful contractor(s) must demonstrate the ability to supply the compliant construction equipment for use and provide to the City a list of all construction equipment proposed to be used that states the makes, models, Equipment Identification Numbers, and number of construction equipment onsite prior to any ground disturbing and construction activities.
- Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall not idle for more than 5 minutes, and shall turn their engines off when not in use to reduce vehicle emissions.
- Properly tune and maintain all construction equipment in accordance with manufacturer's specifications;

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- Where feasible, employ the use of electrical or alternative fueled (i.e., nondiesel) construction equipment, including forklifts, concrete/industrial saws, pumps, aerial lifts, air compressors, and other comparable equipment types to the extent commercially available.
- To reduce the need for electric generators and other fuel-powered equipment, provide on-site electrical hookups for the use of hand tools such as saws, drills, and compressors used for building construction.
- Develop a Construction Traffic Control Plan to ensure construction traffic and equipment use is minimized to the extent practicable. The Construction Traffic Control Plan shall include measures to reduce the number of large pieces of equipment operating simultaneously during peak construction periods, scheduling of vendor and haul truck trips to occur during non-peak hours, establish dedicated construction parking areas to encourage carpooling and efficiently accommodate construction vehicles, identify alternative routes to reduce traffic congestion during peak activities, and increase construction employee carpooling.
- Encourage construction contractors to apply for South Coast Air Quality Management District “SOON” funds. The “SOON” program provides funds to applicable fleets for the purchase of commercially-available low-emission heavy-duty engines to achieve near-term reduction of NO<sub>x</sub> emissions from in-use off-road diesel vehicles.

AQ-2

The construction contractor(s) shall incorporate the following measures into the proposed Project to reduce construction fugitive dust emissions (PM<sub>10</sub> and PM<sub>2.5</sub>), generated by grading and construction activities of future development projects implemented under the proposed Century Villages at Cabrillo Specific Plan, consistent with South Coast Air Quality Management District (South Coast AQMD) Rule 403, with a goal of retaining dust on the site:

- Water, or utilize another South Coast AQMD-approved dust control non-toxic agent, on the grading areas at least three times daily to minimize fugitive dust.
- All permanent roadway improvements shall be constructed and paved as early as possible in the construction process to reduce construction vehicle travel on unpaved roads. To reduce fugitive dust from earth-moving operations, building pads shall be finalized as soon as possible following site preparation and grading activities.
- Stabilize grading areas as quickly as possible to minimize fugitive dust.
- Apply chemical stabilizer, install a gravel pad, or pave the last 100 feet of internal travel path within the construction site prior to public road entry, and to on-site stockpiles of excavated material.

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- Remove any visible track-out into traveled public streets with the use of sweepers, water trucks, or similar method as soon as possible.
- Provide sufficient perimeter erosion control to prevent washout of silty material onto public roads. Unpaved construction site egress points shall be graveled to prevent track-out.
- Wet wash the construction access point at the end of the workday if any vehicle travel on unpaved surfaces has occurred.
- Cover haul trucks or maintain at least 2 feet of freeboard to reduce blow-off during hauling.
- Evaluate the need for reduction in dust generating activity, potential to stop work, and/or implementation of additional dust control measures if winds exceed 25 miles per hour.
- Enforce a 15-mile-per-hour speed limit on unpaved surfaces.
- Provide haul truck staging areas for the loading and unloading of soil and materials. Staging areas shall be located away from sensitive receptors, at the furthest feasible distance.
- Construction Traffic Control Plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections, to the extent feasible. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits.
- Review and comply with any additional requirements of South Coast AQMD Rule 403.

AQ-3 To address the impact relative to volatile organic compound (VOC) emissions, the construction contractor(s) shall use Super-Compliant VOC-content architectural coatings (0 grams per liter to less than 10 grams per liter VOC) during Proposed Project construction/application of paints and other architectural coatings to reduce ozone precursors. If paints and coatings with VOC content of 0 grams/liter to less than 10 grams/liter cannot be utilized, the developer shall avoid application of architectural coatings during the peak smog season: July, August, and September. The developer shall procure architectural coatings from a supplier in compliance with the requirements of South Coast Air Quality Management District's Rule 1113 (Architectural Coatings).

#### Impact 5.2-5

Mitigation Measures AQ-1 and AQ-2 would also minimize localized criteria air pollutant and TAC emissions from site-specific construction activities within the Specific Plan.

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#### 5.2.7 Level of Significance After Mitigation

##### Impact 5.2-2

Buildout of the Specific Plan would occur over approximately 10 years or longer. Construction activities associated with buildout of the Specific Plan could generate short-term emissions that exceed the South Coast AQMD'S significance thresholds during this time and cumulatively contribute to the nonattainment designations of the SoCAB. Implementation of Mitigation Measures AQ-1 through AQ-3 would reduce criteria air pollutant emissions of VOC and NO<sub>x</sub> from construction-related activities to the extent feasible. However, construction time frames and equipment for individual site-specific projects are not available and there is a potential for multiple developments to be constructed at any one time, resulting in significant construction-related emissions. Therefore, despite adherence to Mitigation Measures AQ-1 through AQ-3, Impact 5.2-2 would remain ***significant and unavoidable***.

As stated, the attainment designation is based on compliance with the National and California AAQS, which are set at levels that are generally determined to provide an adequate level of safety in protecting the public health pursuant to the Clean Air Act and are applied at the regional level. Because the Specific Plan would exceed the VOC and NO<sub>x</sub> regional thresholds, it would result in a ***significant and unavoidable*** regional air quality impact and would cumulatively contribute to the nonattainment designations of the SoCAB.

The general health impacts associated with each of the emissions analyzed in this section are provided above in pages 5.2-1 through 5.2-5. However, per South Coast AQMD, exceedance of the regional significance thresholds cannot be used to correlate a project to quantifiable health impacts, unless emissions are sufficiently high to use a regional model (see Appendix C2). Because the AAQS is applied at the regional level, a regional scale air quality model is necessary to determine the concentrations of the criteria air pollutants in the SoCAB and whether they exceed the AAQS. In general, regional scale air quality modeling efforts are conducted by air districts as they are the agencies that oversee compliance of the air basins to the AAQS. Regional air quality models currently available to air districts typically attempts to accounts for all emissions sources within an air basin. Due to the nature of the available regional model, the purpose of the AAQS, the AAQS being based on concentrations instead of mass emissions, and the complexity in correlating concentration levels with the amount of mass emissions generated, a large change in emissions would be needed to provide observable and meaningful results. For example, as part of its preparation of the 2012 AQMP, South Coast AQMD showed that reducing NO<sub>x</sub> by 431 tons per day (157,680 tons per year) and VOC by 187 tons per day (68,255 tons per year) would reduce ozone concentration levels by only 9 parts per billion (see Appendix C2). The maximum daily emission of 120 pounds per day of NO<sub>x</sub> (0.06 tons per day or 22 tons per year) generated from project-related operational activities would exceed the regional significance threshold by 65 pounds per day. Thus, in the regional model, the changes in regional emissions generated by the Specific Plan are too small of a resolution (size of the project site and emissions quantity) for the project to substantially affect the concentrations predicted in the South Coast AQMD'S regional model. Therefore, while emissions are conservatively assumed to cumulatively contribute to the nonattainment designation because they exceed the South Coast AQMD'S regional significance threshold, it would be speculative to determine the health consequences from the incremental increase in emissions because the Specific Plan is unlikely to be large enough (i.e., smaller than the

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smallest resolution of the regional model) to substantially affect the concentrations predicted in South Coast AQMD's regional model.

#### Impact 5.2-5

Mitigation Measures AQ-1 and AQ-2 (applied for Impact 5.2-2), which would require implementation of project-specific measures would contribute in reducing the Specific Plan's regional construction emissions and therefore, also result in a reduction of localized construction-related criteria air pollutant and TACs emissions to the extent feasible. However, because existing sensitive receptors may be close to project-related construction activities, construction emissions generated by individual development projects have the potential to exceed South Coast AQMD's project-specific LSTs and health risk thresholds. Furthermore, because of the scale of development activity associated with buildout of the Specific Plan, it is not possible to determine whether the scale and phasing of individual development projects would result in the exceedance of the localized emissions thresholds and contribute to known health effects. Therefore, Impact 5.2-5, regarding construction-related localized impacts from criteria air pollutant and TAC emissions associated with buildout of the Specific Plan, would remain *significant and unavoidable*.

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