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5.3 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for implementation of the Southeast Area Specific Plan (SEASP or Project) to impact air quality. This evaluation is based on the methodology recommended by the South Coast Air Quality Management District (SCAQMD). The analysis focuses on air pollution from regional emissions and localized pollutant concentrations. Transportation-sector impacts are based on trip generation and vehicle miles traveled (VMT) provided by Fehr & Peers (see Appendix J). Criteria air pollutant emissions modeling for the Project is included in Appendix C of this DEIR.

5.3.1 Environmental Setting

5.3.1.1 REGULATORY BACKGROUND

The project site is within the South Coast Air Basin (SoCAB). Land use is subject to the rules and regulations imposed by SCAQMD, as well as the California AAQS adopted by the California Air Resources Board (CARB) and National AAQS adopted by the United States Environmental Protection Agency (EPA). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the project are summarized below. The state and federal government have established ambient air quality standards (AAQS) for air pollutants, which are periodically updated. Air pollutants for which the state and federal government have identified AAQS for are known as criteria air pollutants. In addition to criteria air pollutants, both the state and federal government regulate the release of toxic air contaminants (TACs).

Federal and State Laws

Ambient Air Quality Standards

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

The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive

receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate 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 5.3-1, *Ambient Air Quality Standards for Criteria Pollutants*. These pollutants are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 5.3-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	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[3]	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm[2]	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm[1,3]	
	24 hours	0.04 ppm	0.014 ppm[2]	

Table 5.3-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Particulate Matter - Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarterly	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)	24 hours	25 µg/m^3	*	Industrial processes.

Table 5.3-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Visibility-Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles[1]	*	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	*	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.

Table 5.3-1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Vinyl Chloride	24 hour	0.01 ppm	*	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2015.
Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
[1] When relative humidity is less than 70 percent.
[2] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
[3] NO_2 and SO_2 standards are converted from ppb (parts per billion) to ppm for consistency purposes.

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

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

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

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California legislature enacted a program to identify the health effects of TACs and reduce exposure to them. The California Health and Safety Code defines a TAC as "an air pollutant which may cause

or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health" (17 CCR § 93000). A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 U.S. 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:

- CARB Rule 2485 (13 CCR Chapter 10, Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- CARB Rule 2480 (13 CCR Chapter 10, Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- CARB Rule 2477 (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

Air Pollutants of Concern

Criteria Air Pollutants

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide

(SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that AAQS have been established for them. VOC and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants.

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

- **Carbon Monoxide** is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005; USEPA 2015a). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2014).

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

- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_X produced by combustion is NO, but NO reacts quickly with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO_2 is only potentially irritating. NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 exposure concentrations near roadways are of particular concern for susceptible individuals, including asthmatics, children, and the elderly. Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between elevated short-term NO_2 concentrations and increased visits to emergency departments and

hospital admissions for respiratory issues, especially asthma (SCAQMD 2005; USEPA 2015a). The SoCAB is designated an attainment area for NO_2 under the National and California AAQS (CARB 2014).

- **Sulfur Dioxide** a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and chemical processes at plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly adverse for asthmatics at elevated ventilation rates (e.g., while exercising or playing.) At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations such as children, the elderly, and asthmatics (SCAQMD 2005; USEPA 2015a). The SoCAB is designated attainment under the California and National AAQS (CARB 2014).

- **Suspended Particulate Matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include particulate matter with an aerodynamic diameter of 10 microns or less (i.e., ≤10 millionths of a meter or 0.0004 inch). Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns or less (i.e., ≤2.5 millionths of a meter or 0.0001 inch). Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at far lower concentrations. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (e.g., irritation of the airways, coughing, or difficulty breathing) (SCAQMD 2005). There has been emerging evidence that ultrafine particulates, which are even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), have human health implications, because their toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (SCAQMD 2013). However, the EPA or CARB has yet to adopt AAQS to regulate these particulates. Diesel particulate matter is

classified by CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,[1] environmental damage,[2] and aesthetic damage[3] (SCAQMD 2005; USEPA 2015a). The SoCAB is a nonattainment area for $PM_{2.5}$ under California and National AAQS and a nonattainment area for PM_{10} under the California AAQS (CARB 2014).[4]

- **Ozone** is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_X, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O_3 harms sensitive vegetation during the growing season (SCAQMD 2005; USEPA 2015a). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2014).

- **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

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

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

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

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

children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (SCAQMD 2005; USEPA 2015a). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.[5] As a result of these violations, the Los Angeles County portion of the SoCAB is designated as nonattainment under the National AAQS for lead (SCAQMD 2012; CARB 2014). Because emissions of lead are found only in projects that are permitted by SCAQMD, lead is not a pollutant of concern for the Project.

Toxic Air Contaminants

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Diesel Particulate Matter

In 1998, CARB identified diesel particulate matter as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lungs.

Air Quality Management Planning

SCAQMD is the agency responsible for improving air quality in the SoCAB and assuring that the National and California AAQS are attained and maintained. SCAQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern

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

California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2012 AQMP

On December 7, 2012, SCAQMD adopted the 2012 AQMP, which employs the most up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on- and off-road mobile sources, and area sources. It also addresses several state and federal planning requirements, incorporating new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and new meteorological air quality models. The 2012 AQMP builds upon the approach identified in the 2007 AQMP for attainment of federal PM and ozone standards and highlights the significant amount of reductions needed. It also highlights the urgent need to engage in interagency coordinated planning to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria air pollutant standards within the time frames allowed under the CAA. The 2012 AQMP demonstrates attainment of federal 24-hour $PM_{2.5}$ standards by 2014 and the federal 8-hour ozone standard by 2023. Preliminary ambient air quality data suggests that meeting the 2016 federal 24-hour $PM_{2.5}$ standards by the end of 2014 is not likely, largely due to the extreme drought conditions in the SoCAB (SCAQMD 2015c). It includes an update to the revised EPA 8-hour ozone control plan with new commitments for short-term NO_X and VOC reductions. The plan also identifies emerging issues—ultrafine particulate matter ($PM_{1.0}$), near-roadway exposure, and energy supply and demand.

2016 Draft AQMP

The SCAQMD is in the process of updating the AQMP. The 2016 AQMP will address strategies and measures to attain the 2008 federal 8-hour ozone standard by 2032 and the 2012 federal annual $PM_{2.5}$ standard by 2021. The 2016 AQMP will also take an initial look at the 2015 federal 8-hour ozone standard and will update previous attainment plans for ozone and $PM_{2.5}$ that have not yet been met (SCAQMD 2015d).

Lead State Implementation Plan

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

Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to the EPA for approval.

5.3.1.2 EXISTING CONDITIONS

South Coast Air Basin

The Project site is in the SoCAB, which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest, with high mountains forming the remainder of the perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (SCAQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the Project site that best represents the climatological conditions of the Project area is the Long Beach 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 2016).

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 Project site (WRCC 2016).

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, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 2005).

Wind

Wind patterns across the 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 (SCAQMD 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 (SCAQMD 2005).

SoCAB Nonattainment Designations

The AQMP provides the framework for air quality basins to achieve attainment of the California and National AAQS 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 are marginal, moderate, serious, severe, and extreme. The attainment status for the SoCAB is shown in Table 5.3-2, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*. The SoCAB is designated in attainment of the California AAQS for sulfates and designated a nonattainment area for lead (Los Angeles County only) under the National AAQS.

Table 5.3-2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

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

Source: CARB 2014.

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

Existing Ambient Air Quality

Existing ambient air quality, historical trends, and projections in the vicinity of the Project site are best documented by measurements made by SCAQMD. The Project site lies within Source Receptor Area (SRA) 4 (South Los Angeles County Coastal). The air quality monitoring station closest to the Project site is the South Long Beach Monitoring Station. However, this station only monitors PM_{10} and $PM_{2.5}$ so data for the other criteria air pollutants was obtained from the Long Beach Webster Street Monitoring Station. Data from these stations are summarized in Table 5.3-3. The data show that the area has exceeded the state eight-hour O_3 standard only once in the last five years. The area regulatory exceeds the state PM_{10} and the federal $PM_{2.5}$ standards. The state 1-hour O_3, federal 8-hour O_3, CO, NO_2, and SO_2 standards have not been exceeded in the last five years in the Project vicinity.

Table 5.3-3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Thresholds Were Exceeded and Maximum Levels during Such Violations				
	2011	2012	2013	2014	2015
Ozone (O_3)					
State 1-Hour ≥ 0.09 ppm	0	0	0	0	0
State 8-hour ≥ 0.070 ppm	0	0	0	1	0
Federal 8-Hour > 0.070 ppm[1]	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.074	0.080	0.090	0.087	0.087
Max. 8-Hour Conc. (ppm)	0.064	0.067	0.070	0.072	0.067
Carbon Monoxide (CO)					
State 8-Hour > 9.0 ppm	0	0	0	NA	NA
Federal 8-Hour ≥ 9.0 ppm	0	0	0	NA	NA
Max. 8-Hour Conc. (ppm)	2.60	3.31	2.57	NA	NA
Nitrogen Dioxide (NO_2)					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Federal 1-Hour ≥ 0.18 ppm	0	0	0	2	1
Max. 1-Hour Conc. (ppb)	90.0	97.8	81.2	135.9	101.8
Sulfur Dioxide (SO_2)					
State 1-Hour ≥ 0.04 ppm	NA	0	0	0	0
Max. 1-Hour Conc. (ppm)	NA	0.003	0.013	0.004	0.004
Coarse Particulates (PM_{10})					
State 24-Hour > 50 µg/m^3	0	1	1	2	0
Federal 24-Hour > 150 µg/m^3	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	50.0	54.0	54.0	59.0	50.0
Fine Particulates ($PM_{2.5}$)					
Federal 24-Hour > 35 µg/m^3	3	4	1	2	4
Max. 24-Hour Conc. (µg/m^3)	42.0	59.1	42.9	61.9	62.2

Sources: CARB 2016. Data for O_3, NO_2, and SO_2 obtained from the Long Beach Webster Street Monitoring Station. Data for CO, PM_{10}, and $PM_{2.5}$ obtained from the South Long Beach Monitoring Station.

ppm: parts per million; ppb: parts per billion; µg/m^3: micrograms per cubic meter; NA: not available

[1] On October 1, 2015, the EPA adopted a new 8-hour National AAQS for ozone of 0.070 ppm (70 ppb).

Existing Criteria Air Pollutant Emissions

Table 5.3-4, *Existing Southeast Area Specific Plan Criteria Air Pollutant Emissions Inventory*, is based on existing land uses in SEASP. Criteria air pollutant emissions generated in the plan area were estimated using the California Emissions Estimator Model (CalEEMod), version 2013.2.2.

Table 5.3-4 Existing Southeast Area Specific Plan Criteria Air Pollutant Emissions Inventory

Sector	Criteria Air Pollutant Emissions (pounds per day)					
	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Community Emissions						
Area	701	8	714	<1	54	54
Energy[1]	3	29	16	<1	2	2
On-Road Transportation[2]	509	1,200	4,953	10	642	183
Total	1,214	1,237	5,684	10	699	239
Large Generators – Permitted Emissions[3]						
AES Los Alamitos	2	9	40	1	2	2
Haynes Generating Station	4	11	23	1	6	6

Source: CalEEMod 2013.2.2. for year 2015. Totals may not add to 100 percent due to rounding.
[1] Existing residential and nonresidential building energy use modeled using historical energy demand rates in CalEEMod.
[2] Transportation emissions are based on trip generation and VMT provided by Fehr & Peers.
[3] Based on SCAQMD's Facility Information Detail (FIND) database for year 2014. Assumes $PM_{2.5}$ is 99.8 percent of PM_{10} based on the CEIDARs PM2.5 fraction for gaseous fuels. SCAQMD FIND database includes small generators in the Project area, not listed above.

Existing Health Risk Mapping

SoCAB Multiple Air Toxics Exposure Study

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and the potential health risks from air toxics in the SoCAB. In 2008, SCAQMD conducted its third update to the MATES study (MATES III) based on the Office of Environmental Health Hazards Assessment (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 in the SoCAB. The largest contributor to this risk was diesel exhaust, which accounted for 84 percent of the cancer risk (SCAQMD 2008a).

SCAQMD recently released the fourth update (MATES IV), which was also based on OEHHA's 2003 HRA Guidance Manual. The results showed that the overall monitored risk for excess cancer from a lifetime exposure to ambient levels of air toxics decreased to approximately 418 in one million in the SoCAB. 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 an associated decrease in air toxics exposure. As a result, the estimated basinwide population-weighted risk had decreased by approximately 57 percent since MATES III. Based on the results of the MATES°IV analysis, cancer risk within the Southeast Area Specific Plan ranges from 1,007 to 1,296 per million over a 70-year lifetime (SCAQMD 2016a).

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, SCAQMD estimates that risks for a given inhalation exposure level will be about 2.7 times higher than the risk identified in MATES IV using the 2015 OEHHA guidance methodology (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (SCAQMD 2015b).

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are considered sensitive receptors 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 working population is generally the healthiest segment of the public.

5.3.2 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 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

AQ-3 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors).

AQ-4 Expose sensitive receptors to substantial pollutant concentrations.

AQ-5 Create objectionable odors affecting a substantial number of people.

South Coast Air Quality Management District

The analysis of the Project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website.[6] CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established regional thresholds of significance. In addition to the regional thresholds, projects are subject to the AAQS.

SCAQMD Regional Significance Thresholds

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 5.3-5, *SCAQMD Significance Thresholds*, lists thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, SCAQMD has not developed thresholds for them.

[6] SCAQMD's air quality significance thresholds are current as of March 2011 and can be found at: http://www.aqmd.gov/ceqa/hdbk.html.

Table 5.3-5 SCAQMD Significance Thresholds

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

Source: SCAQMD 2015a.

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. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

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

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

Mass emissions in Table 5.3-5 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not single-handedly trigger a regional health impact. SCAQMD is the primary agency

responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB. To achieve the health-based standards established by the EPA, SCAQMD prepares an AQMP that details regional programs to attain the AAQS.

CO Hotspots

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

Localized Significance Thresholds

SCAQMD identifies localized significance thresholds, shown in Table 5.3-6, *Localized Significance Thresholds*. Emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at a project site (offsite mobile-source emissions are not included in the 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 5.3-6 Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (California AAQS)[1]	20 ppm
8-Hour CO Standard (California AAQS/ National AAQS)	9.0 ppm
1-Hour NO_2 Standard (California AAQS)	0.18 ppm
Annual Average NO_2 Standard ((California AAQS)[1]	0.03 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[2]	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[2]	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (SCAQMD)[2]	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[2]	2.5 µg/m^3
Annual Average PM_{10} Standard (SCAQMD)[2]	1.0 µg/m^3

Sources: SCAQMD 2015a and CARB 2015.
ppm – parts per million; µg/m^3 – micrograms per cubic meter
[1] Based on the more restrictive California AAQS for CO and NO_2.
[2] Threshold is based on SCAQMD Rule 403. Since the SoCAB is nonattainment for PM_{10} and $PM_{2.5}$, the threshold is the allowable change in concentration. Background concentration is irrelevant.

Health Risk Thresholds

Whenever a project would require use of chemical compounds that have been identified in SCAQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the SCAQMD. Table 5.3 7, *Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The City notes that the purpose of this EIR is to identify the significant effects of the proposed Project on the environment, not the significant effects of the environment on the proposed Project. (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (Case No. S213478)). CEQA does not require an EIR to analyze the environmental effects of attracting development and people to an area. However, the EIR must analyze the impacts of environmental hazards on future users, when the proposed Project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

Table 5.3-7 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: SCAQMD 2015a.

5.3.3 Environmental Impacts

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 SEASP. SCAQMD has published guidelines that are intended to provide local governments with guidance for analyzing and mitigating air quality impacts and that were used in this analysis (SCAQMD 1993; SCAQMD 2008; SCAQMD 2015a; SCAQMD 2016). Industrial sources of emissions that require a permit from SCAQMD (permitted sources) are not included in the SEASP community inventory since they have separate emission reduction requirements. Modeling of criteria air pollutants was conducted using the California Emissions Estimator Model (CalEEMod), version 2013.2.2. On-road transportation sources are based on trip generation rates and VMT provided by Fehr & Peers.

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

Impact 5.3-1: Buildout of the Project would generate slightly more growth than the existing general plan; therefore, the Project would be inconsistent with SCAQMD's air quality management plan. [Threshold AQ-1]

Impact Analysis: CEQA requires that projects be evaluated for consistency with the AQMP. A consistency determination 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 effects of a project under consideration at a stage 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 of the AQMP. The regional emissions inventory for the SoCAB is compiled by SCAQMD and SCAG. Regional population, housing, and employment projections developed by SCAG are based, in part, on the local jurisdictions' general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into the 2016–2040

Regional Transportation Plan/Sustainable Communities Strategy, compiled by SCAG to determine priority transportation projects and vehicle miles traveled within the SCAG region. Projects that are consistent with the local general plan are considered consistent with the air quality–related regional plan. Typically, only new or amended general plan elements, specific plans, and major projects that have the potential to affect the regional population and employment forecasts need to undergo a consistency review.

Southeast Area Specific Plan

Per CEQA Guideline Section 15206, SEASP is considered regionally significant by SCAG. Changes in the population, housing, or employment growth projections associated with this Project have the potential to substantially affect SCAG's demographic projections and therefore the assumptions in SCAQMD's AQMP. SEASP would increase the land use intensity within the Project site, resulting in an increase in population and employment in the SEASP area. Because regional transportation modeling is based on the underlying general plan land use designation, SEASP could potentially change the assumptions of the AQMP.

The AQMP ensures that the region is on track to attain the California and federal AAQS. When a project has the potential to exceed the assumptions of the AQMP because it is more intensive than the underlying land use designation, criteria air pollutants generated during operation of development that would be accommodated by that project are compared to SCAQMD's regional significance thresholds (see Impact 5.3-2 and Impact 5.3-3), which were established to determine whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. Development that would be accommodated by the SEASP would exceed SCAQMD's regional operational thresholds. As a result, the proposed Project could potentially exceed the assumptions in the AQMP and would not be considered consistent with the AQMP.

SEASP would be consistent with SCAG's regional goals of providing infill housing, improving the jobs-housing balance, and integrating land uses near major transportation corridors. Building upon the recommendations of the Regional Transportation Plan/Sustainable Communities Strategy, SEASP incorporates two mixed use districts—Mixed-Use Community Core and the Mixed-Use Marina—that would encourage a greater mix of uses. Guiding principles of SEASP include: Expand multimodal transportation options through enhanced pedestrian and bicycle connectivity and increase public connectivity to open space, including the marina, other waterways, the wetlands, and parks. As identified in Section 5.16, *Transportation and Traffic*, implementation of SEASP would result in a decrease in VMT per service population (SP) from 45.3 VMT/SP to 36.6 VMT/SP, which is consistent with regional goals to reduce passenger VMT.

However, despite furthering the regional transportation and planning objectives, SEASP would represent a substantial increase in emissions compared to existing conditions and would exceed

SCAQMD's regional operational significance thresholds (see Impact 5.3-3). As a result, SEASP could potentially exceed the assumptions in the AQMP and would not be considered consistent with the AQMP. Consequently, impacts would be potentially significant.

Impact 5.3-2: Construction activities associated with the Project would generate a substantial increase in short-term criteria air pollutant emissions that exceeds the threshold criteria and would cumulatively contribute to the nonattainment designations of the SoCAB. [Thresholds AQ-2, AQ-3, and AQ-4]

Impact Analysis: A project would normally have a significant effect on the environment if it violates any air quality standard or contributes substantially to an existing or projected air quality violation. Construction activities produce combustion emissions from various sources, such as onsite heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Site preparation activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$) from grading, excavation, and demolition. Exhaust emissions from construction onsite would vary daily.

Construction activities would temporarily increase PM_{10}, $PM_{2.5}$, VOC, NO_X, SO_X, and CO regional emissions within the SoCAB. Construction activities associated with buildout of SEASP are anticipated to occur sporadically over approximately 20 years or more. Buildout would comprise multiple smaller projects undertaken by individual developers/project applicants, each having its own construction timeline and activities. Development of multiple properties could occur at the same time; however, there is no defined development schedule for these future projects at this time. For this analysis, the maximum daily emissions are based on a very conservative scenario, where several construction projects throughout the SEASP area would occur at the same time and all construction phases would overlap. The amount of construction assumed is consistent with the approximately 20-year anticipated buildout of the SEASP area. An estimate of maximum daily construction emissions is provided in Table 5.3-8, *Estimate of Regional Construction Emissions in the Southeast Area Specific Plan*.

Table 5.3-8 Estimate of Regional Construction Emissions in the Southeast Area Specific Plan

Construction Phase[1,2]	Construction-Related Regional Emissions (pounds/day)[3]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Demolition[3]	5	53	43	<1	7	3
Site Preparation	5	52	40	<1	11	7
Grading[4]	8	90	65	<1	9	5
Building Construction	6	44	53	<1	5	3
Paving	3	20	16	<1	1	1
Architectural Coatings	57	2	4	<1	1	0
Worst-Case Day[5]	84	261	221	<1	34	19
SCAQMD Standard	75	100	550	150	150	55
Significant?	Yes	Yes	No	No	No	No

Source: CalEEMod Version 2013.2.2.

[1] Construction equipment mix is based on CalEEMod default construction mix. See Appendix C for a list of assumptions on emissions generated on a worst-case day.

[2] Grading includes compliance with SCAQMD Rule 403 fugitive dust control measures. Measures include requiring an application of water at least twice per day to at least 80 percent of the unstabilized disturbed onsite surface areas, replacing disturbed ground cover quickly, and restricting speeds on unpaved roads to less than 15 miles per hour. Modeling also assumes a VOC of 50 g/L for interior and 100 g/L for exterior paints pursuant to SCAQMD Rule 1113.

[3] Approximately 2,521,636 building square feet of the existing structures would be demolished.

[4] Assumes up to 280,000 cubic yards of soil haul could be required.

[5] Based on overlap of the all phases.

As shown in the table, construction activities associated with the proposed Project could potentially exceed the SCAQMD regional thresholds for VOC and NO_X. The primary source of NO_X emissions is exhaust from vehicles and construction equipment. NO_X is a precursor to the formation of both O_3 and particulate matter (PM_{10} and $PM_{2.5}$). VOC is produced by equipment exhaust and off-gas of architectural coatings and paving. VOC is a precursor to the formation of O_3. Project-related emissions of VOC and NO_X would contribute to the O_3, NO_2, PM_{10}, and $PM_{2.5}$ nonattainment designations of the SoCAB. Therefore, Project-related construction activities would result in significant regional air quality impacts. Because cumulative development within SEASP would exceed the regional significance thresholds, construction of the Project could contribute to an increase in health effects in the basin until such time as the attainment standard are met.

Impact 5.3-3: Long-term operation of the Project would generate a substantial increase in criteria air pollutant emissions that exceed the threshold criteria and would cumulatively contribute to the nonattainment designations of the SoCAB. [Thresholds AQ-2 and AQ-3]

Impact Analysis: Buildout of SEASP would result in direct and indirect criteria air pollutant emissions from transportation, energy (natural gas use), and area sources (e.g., natural gas fireplaces, aerosols, landscaping equipment). Transportation sources of criteria air pollutant emission are based on the traffic impact analysis conducted by Fehr & Peers (see Appendix J of this DEIR). Development that would be accommodated by SEASP would generate a net increase of 51,866 gross weekday average daily trips ends (35,439 external weekday average daily trips), resulting in 305,044 additional daily VMT at Project buildout. VMT reductions from transportation demand management (TDM) measures incorporated into the Project design that improve the pedestrian and bicycle network were estimated by Fehr & Peers. The results of the CalEEMod modeling are included in Table 5.3-9, *Maximum Daily Southeast Area Specific Plan Operational Phase Regional Emissions*.

Table 5.3-9 Maximum Daily Southeast Area Specific Plan Operational Phase Regional Emissions

Phase	Operation-Related Regional Emissions (pounds/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Existing						
Area	700	8	707	<1	54	54
Energy	3	29	16	<1	2	2
Transportation	245	537	2,498	10	642	181
Total	949	573	3,221	10	699	238
Project[1]						
Area	927	13	1,154	<1	64	64
Energy	6	51	26	<1	4	4
Transportation	255	551	2,578	10	654	185
Total	1,188	615	3,758	11	722	253
Net Change						
Project Less Existing Emissions Area	227	5	447	<1	10	10
Project Less Existing Energy	3	22	10	<1	2	2
Project Less Existing Transportation	10	14	80	<1	12	3
Total Net Change	240	42	537	<1	23	15

Table 5.3-9 Maximum Daily Southeast Area Specific Plan Operational Phase Regional Emissions

Phase	Operation-Related Regional Emissions (pounds/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Reductions from TDM Measures[1]	-5	-29	-101	-1	-48	-13
Total Change with TDM Measures	235	12	436	0	-25	1
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	Yes	No	No	No	No	No
Combined Construction + Operation (Worst-Case)						
Combined Construction + Operation	318	274	658	<1	9	21
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	Yes	Yes	Yes	No	No	No

Source: CalEEMod Version 2013.2.2. Based on highest winter or summer emissions using 2035 emission rates. Totals may not equal 100 percent due to rounding.

[1] VMT reductions from TDM measures provided by Fehr & Peers; accounts for VMT reductions from an increase in pedestrian and bicycle activity associated with the Project design features that account for improvements to the pedestrian and bicycle network.

As shown in the table, the operation phase of SEASP at buildout would generate air pollutant emissions that exceed SCAQMD's regional significance thresholds for VOC. Construction of the new residential and nonresidential uses would be based on market-demand and would be constructed over the approximately 20-year Project buildout; therefore, emissions from construction activities could add to the total emissions during early phases (see Table 5.3-8). Table 5.3-9 shows maximum daily emissions at buildout once construction is complete and during a worst-case year from overlap of the project with construction. Emissions of VOC that exceed the SCAQMD regional threshold would cumulatively contribute to the O_3 nonattainment designation of the SoCAB. Therefore, implementation of SEASP would result in a significant impact because it would significantly contribute to the nonattainment designations of the SoCAB. Because cumulative development within SEASP would exceed the regional significance thresholds, operation of the Project could contribute to an increase in health effects in the basin.

Impact 5.3-4: Construction activities related to buildout of the proposed Project could expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]

Impact Analysis: Development that would be accommodated by SEASP 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 5.3-8, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu g/m^3$) and can be correlated to potential health effects. LSTs are the amount of Project-related emissions at which localized concentrations (ppm or $\mu g/m^3$) would exceed the AAQS for criteria air pollutants for which the SoCAB is designated a nonattainment area.

Table 5.3-8 provides an estimate of the magnitude of criteria air pollutant emissions generated by the development that would be accommodated by SEASP for each construction subphase. Buildout of SEASP would occur over a period of approximately 20 years or longer and would comprise several smaller projects with their own construction time frame and construction equipment. Concentrations of criteria air pollutants generated by a development project depend on the emissions generated onsite and the distance to the nearest sensitive receptor. Therefore, an LST analysis can only be conducted at a project level, and quantification of LSTs is not applicable for this program-level environmental analysis. Because potential redevelopment could occur close to existing sensitive receptors, the development that would be accommodated by SEASP has the potential to expose sensitive receptors to substantial pollutant concentrations. Construction equipment exhaust combined with fugitive particulate matter emissions has the potential to expose sensitive receptors to substantial concentrations of criteria air pollutant emissions and result in a significant impact.

Impact 5.3-5: Buildout of the Project could result in new source sources of criteria air pollutant emissions and/or toxic air contaminants near existing or planned sensitive receptors. [Threshold AQ-4]

Impact Analysis: Operation of new land uses consistent with the land use plan of the Project would generate new sources of criteria air pollutants and TACs. The following describes potential localized operational air quality impacts from the implementation of SEASP.

Onsite Stationary and Area Sources Emissions

Residential, Hotels, Commercial, Retail, Office

Operation of residential and nonresidential structures in SEASP would include occasional use of landscaping equipment, natural gas consumption for heating, and nominal truck idling for vendor deliveries. The proposed Project would permit residential, commercial, and office land uses and would not involve warehousing or similar uses where substantial truck idling could occur onsite. Onsite emissions from the residential and nonresidential uses from onsite energy use (natural gas

used for cooking and water heating) and other onsite sources (e.g., landscaping fuel, aerosols) would not generate substantial concentrations of emissions or exacerbate existing health risk in the area.

Industrial and Other Land Uses Requiring a SCAQMD Permit

Certain types of land uses have the potential to generate substantial stationary and area sources of emissions. Land uses that have the potential to generate substantial stationary sources of emissions that would require a permit from SCAQMD include industrial land uses, such as chemical processing facilities, dry cleaners, and gasoline-dispensing facilities. Operators of certain types of facilities must submit emissions inventories. The Air Toxics Program categorizes each facility as being high, intermediate, or low priority based on the potency, toxicity, quantity, and volume of its emissions. If the risks are above established levels, facilities are required to notify surrounding populations and to develop and implement a risk reduction plan. In addition to stationary/area sources of TACs, warehousing and trucking facilities could generate a substantial amount of diesel particulate matter emissions from off-road equipment use and truck idling. The Industrial designation within SEASP would not permit new heavy industrial or warehousing. However, oil and gas operations are a permitted use within SEASP. The exact nature of new industrial uses is speculative for this broad-based Specific Plan. Additionally, future oil and gas operations are subject to the City's Municipal Code, Title 12, Oil Production Regulations, and CEQA review. Because SEASP could permit industrial land uses, there is a potential for new industrial uses to generate stationary sources of emissions that could impact nearby sensitive receptors.

Stationary sources of emissions would be controlled by SCAQMD through permitting and would be subject to further study and health risk assessment prior to the issuance of any necessary air quality permits under SCAQMD's New Source Review. Because the nature of those emissions cannot be determined at this time and they are subject to further regulation and permitting, they will not be addressed further in this analysis but are considered a potentially significant impact of the Project.

Mobile Source Emissions: CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. At the time of the 1993 SCAQMD Handbook, the SoCAB was designated nonattainment under the California AAQS and National AAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined. In 2007, the SCAQMD was designated in attainment for CO under both the California AAQS and National

AAQS.[7] Furthermore, 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 2011). Buildout of the SEASP would not produce the volume of traffic required to generate a CO hotspot (Fehr & Peers 2016).[8] Therefore, impacts from CO hotspots are considered less than significant.

Impact 5.3-6 The proposed Project would not create objectionable odors affecting a substantial number of people. [Threshold AQ-5]

Impact Analysis: The Proposed Project would not emit objectionable odors that would affect a substantial number of people. The threshold for odor is if a project creates an odor nuisance pursuant to SCAQMD Rule 402, Nuisance, which states:

> A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

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

Odors generated by new nonresidential land uses are not expected to be significant or highly objectionable. New industrial uses would be required to be in compliance with SCAQMD Rule 402. Likewise, existing facilities are required to be in compliance with SCAQMD Rule 402 to prevent nuisances on sensitive land uses. Therefore, impacts related to objectionable odors would be less than significant.

[7] As identified in SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide, peak carbon monoxide concentrations in the SoCAB were the result of unusual meteorological and topographical conditions and not of congestion at a particular intersection.

[8] The highest intersection volumes with the project at buildout were identified at Pacific Coast Highway and Second Street at 10,196 vehicles during the PM peak hour, which is substantially below 44,000 vehicles per hour necessary to elevate CO concentrations above the AAQS.

Emissions from construction equipment, such as diesel exhaust, and volatile organic compounds from architectural coatings and paving activities may generate odors; however, these odors would be temporary, intermittent, and not expected to affect a substantial number of people. Additionally, noxious odors would be confined to the immediate vicinity of the construction equipment. By the time such emissions reach any sensitive receptor sites, they would be diluted to well below any level of air quality concern. Furthermore, short-term construction-related odors are expected to cease upon the drying or hardening of the odor-producing materials. Therefore, impacts associated with operation- and construction-generated odors would be less than significant.

5.3.4 Cumulative Impacts

In accordance with the SCAQMD 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 within the SoCAB. The greatest source of emissions within the SoCAB are mobile sources. Due to the extent of the area potentially impacted from cumulative project emissions, SCAQMD considers a project cumulatively significant when project-related emissions exceed the SCAQMD regional emissions thresholds shown in Table 5.3-5, *SCAQMD Significance Thresholds*.

Construction

The SoCAB is designated nonattainment for O_3, $PM_{2.5}$, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for PM_{10} under the California AAQS.[9] 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 SCAQMD significance thresholds on a project and cumulative basis. Consequently, the proposed Project's contribution to cumulative air quality impacts 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 SCAQMD to be a substantial source of air pollution and does not add significantly to a cumulative impact. Operation of the proposed

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

Project would result in emissions in excess of the SCAQMD regional emissions thresholds for VOC for long-term operation and would cumulatively contribute to the O_3 nonattainment designations. Additionally, the proposed Project would generate TACs that could contribute to elevated levels of risk in the SoCAB. Based on the results of the MATES IV analysis, cancer risk in the Southeast Area Specific Plan area ranges from 1,007 to 1,296 per million over a 70-year lifetime (SCAQMD 2016a). Therefore, the proposed Project's air pollutant emissions would be cumulatively considerable and therefore significant.

5.3.5 Existing Regulations

State

- Clean Car Standards – Pavley (AB 1493)
- California Advanced Clean Cars CARB (Title 13 CCR)
- California Advanced Clean Cars – LEV III (Title 13 CCR)
- Statewide Retail Provider Emissions Performance Standards (SB 1368).
- Clean Energy and Pollution Reduction Act of 2015 (SB 350)
- Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools (13 CCR 2480)
- Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling (13 CCR 2485)
- In-Use Off-Road Diesel Idling Restriction (13 CCR 2449)
- Building Energy Efficiency Standards (Title 24, Part 6)
- California Green Building Code (Title 24, Part 11)
- Appliance Energy Efficiency Standards (Title 20)

SCAQMD

- SCAQMD Rule 201: Permit to Construct
- SCAQMD Rule 402: Nuisance Odors
- SCAQMD Rule 403: Fugitive Dust
- SCAQMD Rule 1113: Architectural Coatings
- SCAQMD Rule 1403: Asbestos Emissions from Demolition/Renovation Activities
- SCAQMD Rule 1186: Street Sweeping

5.3.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, Impact 5.3-6 would be less than significant.

Without mitigation, the following impacts would be **potentially significant:**

- **Impact 5.3-1** The proposed Project is a regionally significant project that would contribute to an increase in frequency or severity of air quality violations in the South Coast Air Basin and would conflict with the assumptions of the applicable Air Quality Management Plan.
- **Impact 5.3-2** The proposed Project would generate short-term emissions that exceed the South Coast Air Quality Management District's regional construction significance thresholds and would cumulatively contribute to the nonattainment designations of the South Coast Air Basin.
- **Impact 5.3-3** The proposed Project would generate long-term emissions that exceed the South Coast Air Quality Management District's regional operational significance thresholds and would cumulatively contribute to the nonattainment designations of the South Coast Air Basin.
- **Impact 5.3-4** Construction activities related to the buildout of the proposed Project could expose sensitive receptors to substantial pollutant concentrations NO_X, CO, PM_{10}, and $PM_{2.5}$.
- **Impact 5.3-5** Stationary sources of emissions generated by future industrial uses associated with the proposed Project could generate substantial pollutant concentrations near sensitive land uses.

5.3.7 Mitigation Measures

Project Design Features (PDF)

The following Project Design Features (PDF) would reduce emissions associated with the proposed Project:

Transportation and Motor Vehicles

PDF-1 **Reduction of Peak Hour Trips, Transportation Management Association (TMA):** The City shall establish a TMA with authority to implement strategies pertaining to trip reduction through transportation demand management (TDM). Responsibilities of the TMA shall include, but are not limited to:

- Operation of all shared parking subject to the TMA program.
- Real-time information and other wayfinding mechanisms.

- Coordinating and offering programs to provide biking, walking, and other trip reduction strategies.
- Data collection.

The TMA shall actively engage existing and future parking lot and garage owners to lease, sell, or make spaces publically accessible in order to be added to the district's pool of shared parking.

PDF-2 **Reduction of Peak Hour Trips, Transportation Demand Management (TDM) Plan:** Projects within SEASP that generate 50 or more peak hour trips are required to:

- Join the TMA and ensure that tenants are TMA members for the first 25 years from the date of final inspection or certificate of occupancy.
- Submit a Transportation Demand Management (TDM) plan to the Director of Development Services Department, or his/her designee.

PDF-3 **Reduced Parking Requirements:** Projects in SEASP are eligible for a parking reduction by incorporating Transportation Demand Management (TDM) strategies, pending Site Plan Review approval. TDM strategies applicable to reduced parking requirements, subject to the discretion of the City's Development Services Department Director include, but are not limited to:

- Car sharing
- Carpool/vanpool
- Unbundled parking (parking spaces are rented or sold separately, rather than automatically included with the rent or purchase price of a residential or commercial unit)
- Joint use (shared parking)
- Transit, bicycle, and pedestrian system improvements
- Trip reduction incentives to employees, such as free transit passes

A "park once" policy shall be promoted for SEASP. Rather than driving from one use to another, visitors are highly encouraged to park once and walk to one or more destinations within the Project area. Similarly, residents and employees are encouraged to walk from residences or workplaces to SEASP destinations.

All parking reduction requirements shall be approved at the discretion of the Development Services Department Director, which will determine the appropriate level of parking demand reduction generated by these strategies on a project-specific basis.

PDF-4 **Pedestrian Network:** Many streets in the SEASP area currently do not have sidewalks or only have sidewalks on one side of the street. Figure 6-1 in the Specific Plan shows the network of proposed sidewalk connections. Pedestrian connections shall be developed in coordination and pursuant to the standard of Chapter 7, Design Standards and Guidelines, of the Specific Plan. The addition of sidewalks and/or boardwalk are proposed along Pacific Coast Highway, Channel Drive, Studebaker Road, 2nd Street, Marina Drive, and streets internal to development that will occur in the Specific Plan area. In addition to providing more sidewalks, the Specific Plan recommends "breaking-up" the long block lengths in the SEASP area into shorter blocks to provide more connectivity and make it easier for pedestrians to comfortably navigate an area. Midblock crossings are proposed across Pacific Coast Highway adjacent to areas designated as Community Core. Lastly, to limit exposure and increase safety for pedestrians crossing the street, curb extensions are also envisioned at crossings, possibly along Marina Drive or Studebaker Road as a transition into the mixed-use areas.

PDF-5 **Bicycle Network:** Figure 6-2 in the Specific Plan identifies proposed bicycle connections. Bicycle circulation is provided on streets with designated bike lanes, separated bikeways (cycle tracks), and off-street pathways. These facilities are classified in four bicycle facility classifications:

- *Class I Bikeway (Multiuse Path).* Provides a separated corridor that is not served by streets and highways and is away from the influence of parallel streets. Class I bikeways are for nonvehicle use only with opportunities for direct access and recreational benefits, right-of-way for the exclusive use of bicycles and pedestrians, and minimized cross-flow conflicts. SEASP includes a new Class I facility on the north side of the Los Cerritos Channel that would connect Pacific Coast Highway to Loynes Drive if it does not impact sensitive wetlands in the area. A connection is also proposed that would link this route to the existing San Gabriel Bike Trail.
- *Class II Bikeway (Bike Lanes).* Provides a delineated right-of-way assigned to bicyclists to enable more predictable movements, accommodating bicyclists through on-street corridors. New Class II bikeways are proposed along the

Shopkeeper Road extension to Pacific Coast Highway, Studebaker Road, and Marina Drive.

- *Class III Bikeway (Bike Route).* A shared facility (by bikes and vehicles) that provides either continuity with other bicycle facilities or designates preferred routes through high-demand on-street corridors. The existing Class III facility along 2nd Street between Pacific Coast Highway and Studebaker Road is envisioned to be improved as a Class II facility through implementation of this Specific Plan.
- *Class IV Separated Bikeways (Cycle Track).* Provides delineated right-of-way assigned to bicyclists with physical separation from vehicles. This separation can include parked vehicles, bollards, curbs, or any other physical device that provides separation. The most significant change to the bike and roadway network proposed for the SEASP area is the inclusion of two cycle tracks—one along Pacific Coast Highway and the other along Studebaker Road.

PDF-6 **Traffic Light Synchronization:** Traffic signal timing at intersections along the Pacific Coast Highway are controlled by Caltrans and the City of Long Beach. To better coordinate progression of traffic signals in the area, the SEASP identifies the following options:

- Enter into a cooperative agreement with Caltrans to maintain the signals.
- Have Caltrans relinquish sections of their facility to the City, so that the City can update the equipment and maintain the signals.
- Work with Caltrans on a comprehensive signal timing program that is implemented to coordinate and maintain the timings, including hardware to ensure that the signal clocks do not drift from one another.

Energy and Water Use

PDF-7 **Building Placement and Orientation/Heat Gain:** SEASP encourages buildings that are oriented for energy efficiency to capture day lighting, minimize heat gain, and take advantage of prevailing breezes for natural ventilation. The SEASP encourages open spaces that are appropriately landscaped and provide adequate shade devices or shade trees to reduce heat island effects. Shade devices include, but are not limited to, umbrellas, awnings, trellises, and canopies that are integrated into the building or over open spaces. Greenroofs, or eco-roofs, are permitted in the Specific Plan area to reduce stormwater runoff, lower energy consumption, and provide spaces for community gardens. SEASP also encourages parking lots that

provide sufficient tree coverage to mitigate the heat island effect. Parking structures should also be shaded and/or include photovoltaic arrays on the top deck to reduce heat island effect.

PDF-8 **Energy Efficient Lighting.** SEASP requires use of low-contrast lighting, low-voltage fixtures, and energy-efficient bulbs, such as compact fluorescent and light emitting diode (LED) bulbs for all outdoor lighting. Additionally, SEASP encourages the use of solar-powered light fixtures. For architectural lighting, use of automatic timers is encouraged to conserve energy at night. Furthermore, the SEASP includes bird-safe measures that would result in energy co-benefits, including requirements for automated on/off systems and motion detectors for interior lighting. The SEASP also encourages building owners to participate in "Lights Out for Birds" programs or similar initiatives by turning off lighting at night.

PDF-9 **Drought-Tolerant Landscaping:** Landscaping shall be drought tolerant and feature native wetland plants to create a more seamless transition between the natural wetlands and development. Landscaping for projects (including right-of-way medians) within SEASP shall be consistent with the provisions of Chapter 21.42, Landscape Standards, in the Zoning Code. Landscaping shall be consistent with Title 21 Standards as well. For Mixed-Use Community Core and Mixed-Use Marina, the provisions of Chapter 21.42.040, Landscaping Standards, for R-3, R-4, and Nonresidential Districts shall apply.

Mitigation Measures

Impact 5.3-1

Mitigation measures applied for Impact 5.3-2 and Impact 5.3-3 would reduce the proposed Project's regional construction-related and operational-phase criteria air pollutant emissions to the extent feasible to minimize potential conflicts with the SCAQMD AQMP. However, no mitigation measures are available that would reduce impacts associated with inconsistency with the air quality management plans due to the magnitude of growth and associated emissions that would be generated by the buildout of SEASP.

Impact 5.3-2

AQ-1 Applicants for new development projects within the Southeast Area Specific Plan shall require the construction contractor to use equipment that meets the US Environmental Protection Agency (EPA) Tier 4 emissions standards for off-road diesel-powered construction equipment with more than 50 horsepower, unless it can be demonstrated to the City of Long Beach that such equipment is not available.

Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 4 diesel emissions control strategy for a similarly sized engine, as defined by the California Air Resources Board's regulations.

Prior to construction, the project engineer shall ensure that all demolition and grading plans clearly show the requirement for EPA Tier 4 or higher emissions standards for construction equipment over 50 horsepower. During construction, the construction contractor shall maintain a list of all operating equipment in use on the construction site for verification by the City of Long Beach. The construction equipment list shall state the makes, models, and numbers of construction equipment onsite. Equipment shall be properly serviced and maintained in accordance with the manufacturer's recommendations. Construction contractors shall also ensure that all nonessential idling of construction equipment is restricted to five minutes or less in compliance with California Air Resources Board's Rule 2449.

AQ-2 Applicants for new development projects within the Southeast Area Specific Plan shall require the construction contractor to prepare a dust control plan and implement the following measures during ground-disturbing activities—in addition to the existing requirements for fugitive dust control under South Coast Air Quality Management District (SCAQMD) Rule 403—to further reduce PM_{10} and $PM_{2.5}$ emissions. The City of Long Beach shall verify that these measures have been implemented during normal construction site inspections.

- Following all grading activities, the construction contractor shall reestablish ground cover on the construction site through seeding and watering.
- During all construction activities, the construction contractor shall sweep streets with SCAQMD Rule 1186–compliant, PM_{10}-efficient vacuum units on a daily basis if silt is carried over to adjacent public thoroughfares or occurs as a result of hauling.
- During all construction activities, the construction contractor shall maintain a minimum 24-inch freeboard on trucks hauling dirt, sand, soil, or other loose materials and shall tarp materials with a fabric cover or other cover that achieves the same amount of protection.
- During all construction activities, the construction contractor shall water exposed ground surfaces and disturbed areas a minimum of every three hours on the construction site and a minimum of three times per day.

- During all construction activities, the construction contractor shall limit onsite vehicle speeds on unpaved roads to no more than 15 miles per hour.

AQ-3 Applicants for new development projects within the Southeast Area Specific Plan shall require the construction contractor to use coatings and solvents with a volatile organic compound (VOC) content lower than required under South Coast Air Quality Management District Rule 1113 (i.e., super compliant paints). The construction contractor shall also use precoated/natural-colored building materials, where feasible. Use of low-VOC paints and spray method shall be included as a note on architectural building plans and verified by the City of Long Beach during construction.

Impact 5.3-3

Stationary Source

AQ-4 Prior to issuance of a building permit for new development projects within the Southeast Area Specific Plan, the property owner/developer shall show on the building plans that all major appliances (dishwashers, refrigerators, clothes washers, and dryers) to be provided/installed are Energy Star appliances. Installation of Energy Star appliances shall be verified by the City of Long Beach prior to issuance of a certificate of occupancy.

Transportation and Motor Vehicles

AQ-5 Prior to issuance of building permits for residential development projects within the Southeast Area Specific Plan, the property owner/developer shall indicate on the building plans that the following features have been incorporated into the design of the building(s). Proper installation of these features shall be verified by the City of Long Beach prior to issuance of a certificate of occupancy.

- For multifamily dwellings, electric vehicle charging shall be provided as specified in Section A4.106.8.2 (Residential Voluntary Measures) of the CALGreen Code and the Long Beach Municipal Code.
- Bicycle parking shall be provided as specified in Section A4.106.9 (Residential Voluntary Measures) of the CALGreen Code.

AQ-6 Prior to issuance of building permits for nonresidential development projects within the Southeast Area Specific Plan, the property owner/developer shall indicate on the building plans that the following features have been incorporated into the design of

the building(s). Proper installation of these features shall be verified by the City of Long Beach prior to issuance of a certificate of occupancy.

- For buildings with more than ten tenant-occupants, changing/shower facilities shall be provided as specified in Section A5.106.4.3 (Nonresidential Voluntary Measures) of the CALGreen Code.
- Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1 (Nonresidential Voluntary Measures) of the CALGreen Code.
- Facilities shall be installed to support future electric vehicle charging at each nonresidential building with 30 or more parking spaces. Installation shall be consistent with Section A5.106.5.3 (Nonresidential Voluntary Measures) of the CALGreen Code and the Long Beach Municipal Code.

Impact 5.3-4

Mitigation measures applied for Impact 5.3-2 would also reduce the proposed Project's localized construction-related criteria air pollutant emissions to the extent feasible.

Impact 5.3-5

AQ-7 New industrial land uses that have industrial equipment which requires a permit to operate from the South Coast Air Quality Management District, or have the potential to generate 40 or more diesel trucks per day, and are located within 1,000 feet of a sensitive land use (e.g. residential, schools, hospitals, nursing homes), as measured from the property line of the project to the property line of the nearest sensitive use, shall submit a health risk assessment (HRA) to the City of Long Beach prior to future discretionary project approval. The HRA shall be prepared in accordance with policies and procedures of the state Office of Environmental Health Hazard Assessment and the applicable air quality management district. If the HRA shows that the incremental cancer risk exceeds ten in one million (I0E-06), that particulate matter concentrations would exceed 2.5 $\mu g/m^3$, or that the appropriate noncancer hazard index exceeds 1.0, the applicant will be required to identify and demonstrate that best available control technologies for toxics (T-BACTs) are capable of reducing potential cancer and noncancer risks to an acceptable level, including appropriate enforcement mechanisms. T-BACTs may include, but are not limited to, restricting idling onsite, electrifying warehousing docks to reduce diesel particulate matter, and requiring use of newer equipment and/or vehicles. T-BACTs identified in the HRA

shall be identified as mitigation measures in the environmental document and/or incorporated into the site development plan as a component of the project.

5.3.8 Level of Significance After Mitigation

Impact 5.3-1

PDF-1 through PDF-9 would minimize criteria air pollutant emissions from transportation and energy use. Mitigation measures applied for Impact 5.3-2 and Impact 5.3-3 would reduce the proposed Project's regional construction-related and operational-phase criteria air pollutant emissions to the extent feasible. However, given the potential increase in growth and associated increase in criteria air pollutant emissions, the proposed Project would continue to be potentially inconsistent with the assumptions in the AQMP. Therefore, Impact 5.3-1 would remain **significant and unavoidable**.

Impact 5.3-2

Construction activities associated with the buildout of the Project would generate criteria air pollutant emissions that would exceed SCAQMD's regional significance thresholds, contribute to the nonattainment designations of the SoCAB, and contribute to known health effects from poor air quality—including worsening of bronchitis, asthma, and emphysema; a decrease in lung function; premature death of people with heart or lung disease; nonfatal heart attacks; irregular heartbeat; decreased lung function; and increased respiratory symptoms. Mitigation Measures AQ-1 through AQ-3 would reduce criteria air pollutants generated from Project-related construction activities. Buildout of the proposed Project would occur over a period of approximately 20 years or longer. Construction time frames and equipment for individual site-specific projects are not available at this time. 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, project-level and cumulative impacts under Impact 5.3-2 would remain **significant and unavoidable.**

Impact 5.3-3

Buildout of the proposed land use plan would generate additional vehicle trips and area sources of criteria air pollutant emissions that exceed SCAQMD's regional significance thresholds and would contribute to the nonattainment designations of the SoCAB and known health effects from poor air quality—including worsening of bronchitis, asthma, and emphysema; a decrease in lung function; premature death of people with heart or lung disease; nonfatal heart attacks; irregular heartbeat; decreased lung function; and increased respiratory symptoms. PDF-1 through PDF-9 would minimize criteria air pollutant emissions from transportation and energy use. Incorporation of Mitigation Measures AQ-4 through AQ-6 would reduce operation-related criteria air pollutants

generated from stationary and mobile sources. Mitigation Measures AQ-5 and AQ-6 would encourage and accommodate use of alternative-fueled vehicles and nonmotorized transportation. However, despite adherence to Mitigation Measures AQ-4 through AQ-6, project-level and cumulative impacts identified under Impact 5.3-3 would remain **significant and unavoidable** due to the magnitude of land use development associated with the proposed Project.

Impact 5.3-4

Mitigation Measures AQ-1 and AQ-2 (applied for Impact 5.3-2) would reduce the proposed Project's regional construction emissions and therefore also reduce the Project's localized construction-related criteria air pollutant 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 SCAQMD's LSTs. Because of the scale of development activity associated with buildout of the Project, for this broad-based Specific Plan it is not possible to determine whether the scale and phasing of individual projects would result in the exceedance of the localized emissions thresholds and contribute to known health effects. Therefore, project-level and cumulative impacts under Impact 5.3-4 would remain **significant and unavoidable**.

Impact 5.3-5

Buildout of the Project could result in new sources of air pollutant emissions near existing or planned sensitive receptors. Review of projects by SCAQMD for permitted sources of air emissions (e.g., industrial facilities, dry cleaners, and gasoline dispensing facilities) would ensure health risks are minimized. Mitigation Measure AQ-7 would ensure that mobile sources of emissions not covered under SCAQMD permits are considered during subsequent project-level environmental review. Development of individual projects would be required to achieve the thresholds established by SCAQMD. However, SEASP is in an area with elevated risk. Therefore, although individual project may achieve the project-level risk thresholds, they would contribute to the high levels of risk in the SoCAB. Therefore, the Project's cumulative contribution to health risk is **significant and unavoidable**.

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