

## 5. Environmental Analysis

### 5.2 AIR QUALITY

This section of the Draft Supplemental Environmental Impact Report (SEIR) evaluates potential impacts to air quality in areas proposed for land use changes under the Newport Beach General Plan LUE Amendment. This section 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. Air pollutant emissions from transportation sources are based on vehicle miles traveled (VMT) provided by Urban Crossroads (see Appendix I of the Draft SEIR). Criteria air pollutant emissions are modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2; assumptions and emissions factors from the CalEEMod User's Guide; and EMFAC2011-PL. Criteria air pollutant emissions modeling is in Appendix D of this Draft SEIR.

#### 5.2.1 Environmental Setting

##### 5.2.1.1 REGULATORY BACKGROUND

Ambient air quality standards (AAQS) have been adopted at state and federal levels for criteria air pollutants. In addition, both the state and federal government regulate the release of toxic air contaminants (TACs). The City of Newport Beach is in the South Coast Air Basin (SoCAB) and is subject to the rules and regulations imposed by the 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 proposed project are summarized below.

#### 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 CAA amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments are 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 based on even greater health and welfare concerns.

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.

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Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 5.2-1, *Ambient Air Quality Standards for Criteria Pollutants*. These pollutants include ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead. In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

**Table 5.2-1 Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O <sub>3</sub> )	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.075 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual 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	
Sulfur Dioxide (SO <sub>2</sub> )	Annual Arithmetic Mean	*	*1	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	*1	
Respirable Particulate Matter (PM <sub>10</sub> )	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	
Respirable Particulate Matter (PM <sub>2.5</sub> )	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m <sup>3</sup>	
Lead (Pb)	30-Day Average	1.5 µg/m <sup>3</sup>	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarterly	*	1.5 µg/m <sup>3</sup>	
	Rolling 3-Month Average	*	0.15 µg/m <sup>3</sup>	
Sulfates (SO <sub>4</sub> )	24 hours	25 µg/m <sup>3</sup>	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid

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**Table 5.2-1 Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
				coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H <sub>2</sub> S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2013b.

Notes: ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter

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

<sup>1</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established, and the existing 24-hour and annual primary standards were revoked.

**Air Pollutants of Concern**

*Criteria Air Pollutants*

The pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. CO, volatile organic compounds (VOC), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), PM<sub>10</sub>, PM<sub>2.5</sub>, and lead are primary air pollutants. Of these, CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are “criteria air pollutants,” which means that AAQS have been established for them. VOC and NO<sub>2</sub> are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. O<sub>3</sub> and NO<sub>2</sub> are the principal secondary pollutants.

A description of each of the primary and secondary criteria air pollutants and their 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

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(SCAQMD 2005; EPA 2012). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2013a).

- **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 of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols (SCAQMD 2005). There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of O<sub>3</sub>, SCAQMD has established a significance threshold for this pollutant.
- **Nitrogen Oxides** are a by-product of fuel combustion and contribute to the formation of ground-level O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The two major forms of NO<sub>x</sub> are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO<sub>2</sub> produced by combustion is NO, but NO reacts with oxygen quickly to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> commonly called NO<sub>x</sub>. NO<sub>2</sub> is an acute irritant and more injurious than NO in equal concentrations. At atmospheric concentrations, however, NO<sub>2</sub> is only potentially irritating. NO<sub>2</sub> absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO<sub>2</sub> exposure concentrations near roadways are of particular concern for susceptible individuals, including people with asthma, children, and the elderly. Current scientific evidence links short-term NO<sub>2</sub> exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO<sub>2</sub> concentrations and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (SCAQMD 2005; EPA 2012). The SoCAB is designated an attainment area for NO<sub>2</sub> under the National AAQS and nonattainment under the California AAQS (CARB 2013a).<sup>1</sup>
- **Sulfur Dioxide** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO<sub>2</sub>. When sulfur dioxide forms sulfates (SO<sub>4</sub>) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO<sub>x</sub>). Thus, SO<sub>2</sub> is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO<sub>2</sub> may irritate the upper respiratory tract. Current scientific evidence links short-term exposures of SO<sub>2</sub>, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects, including bronchoconstriction and increased asthma symptoms. These effects are particularly important for asthmatics at elevated ventilation rates (e.g., while exercising or playing). At lower concentrations and when combined with particulates, SO<sub>2</sub> may do greater harm by injuring lung tissue. Studies also show a connection between short-term exposure and increased visits to emergency facilities and hospital admissions for respiratory illnesses, particularly in at-risk populations, including children, the elderly, and asthmatics (SCAQMD 2005; EPA 2012). The SoCAB is designated attainment under the California and National AAQS (CARB 2013a).

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<sup>1</sup> CARB has proposed to redesignate the SoCAB as attainment for NO<sub>2</sub> under the California AAQS (CARB 2013d).

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- **Suspended Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM<sub>10</sub>, include particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or PM<sub>2.5</sub>, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Both PM<sub>10</sub> and PM<sub>2.5</sub> may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. The EPA's scientific review concluded that PM<sub>2.5</sub>, which penetrates deeply into the lungs, is more likely than PM<sub>10</sub> to contribute to health effects and at concentrations that extend well below those allowed by the current PM<sub>10</sub> standards. 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). Diesel particulate matter (DPM) is classified by the CARB as a carcinogen. Particulate matter can also cause environmental effects such as visibility impairment,<sup>2</sup> environmental damage,<sup>3</sup> and aesthetic damage<sup>4</sup> (SCAQMD 2005; EPA 2012). The SoCAB is a nonattainment area for PM<sub>2.5</sub> and PM<sub>10</sub> under the California AAQS and nonattainment for PM<sub>2.5</sub> under the National AAQS (CARB 2013a).<sup>5</sup>
- **Ozone** is commonly referred to as “smog;” it is a gas that is formed when VOCs and NO<sub>x</sub>, both by-products of internal combustion engine exhaust, undergo photochemical reactions in sunlight. O<sub>3</sub> is a secondary criteria air pollutant. O<sub>3</sub> concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for its formation. O<sub>3</sub> poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O<sub>3</sub> can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O<sub>3</sub> also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O<sub>3</sub> also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O<sub>3</sub> harms sensitive vegetation, including forest trees and plants during the growing season (SCAQMD 2005; EPA 2012). The SoCAB is designated extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2013a).
- **Lead** is a metal found naturally in the environment as well as in manufactured products. 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 on-road motor vehicle gasoline, emissions of lead from the

<sup>2</sup> PM<sub>2.5</sub> is the main cause of reduced visibility (haze) in parts of the United States.

<sup>3</sup> Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic, changing the nutrient balance in coastal waters and large river basins, depleting the nutrients in soil, damaging sensitive forests and farm crops, and affecting the diversity of ecosystems.

<sup>4</sup> Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

<sup>5</sup> CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards from 2004 to 2007. In June 2013, the EPA approved the State of California's request to redesignate the South Coast PM<sub>10</sub> nonattainment area to attainment of the PM<sub>10</sub> National AAQS, effective on July 26, 2013.

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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 to the air today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. 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 lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (SCAMQD 2005; EPA 2012). However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources recorded<sup>6</sup> very localized violations of the new state and federal standards. As a result of these localized violations, the Los Angeles County portion of the SoCAB was designated in 2010 as nonattainment under the California and National AAQS for lead (SCAQMD 2012a).<sup>7</sup> Because emissions of lead are found only in projects that are permitted by SCAQMD, lead is not an air quality of concern for the proposed project.

#### *Toxic Air Contaminants*

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 to reduce exposure to these contaminants to protect the public health. 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.” A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the CCA (42 U.S. Code Section 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), 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 sets 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 designated TACs. 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.

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<sup>6</sup> Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 identified that the Trojan Battery Company and Exide Technologies exceed the federal standards (SCAQMD 2012a).

<sup>7</sup> CARB has proposed to redesignate the SoCAB as attainment for lead under the California AAQS (CARB 2013d).

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Air toxics from stationary sources are also regulated in California under the Air Toxics “Hot Spot” Information and Assessment Act of 1987. 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 (HRA), and if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

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.

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

#### 5.2.1.2 EXISTING CONDITIONS

##### South Coast Air Basin

The project site lies within 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; it is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the 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 City of Newport Beach that best represents the climatological conditions of the City is the Newport Beach Harbor Monitoring Station (ID 046175). The average low is reported at 46.9°F in January, and the average high is 73.4°F in August (WRCC 2013).

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 11 inches per year in the City (WRCC 2013).

##### *Humidity*

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

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

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

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

#### *Inversions*

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of 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).

### **Air Quality Management Planning**

SCAQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

#### *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 and the urgent need to engage in interagency



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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  $PM_{2.5}$  standard by 2014 and the federal 8-hour ozone standard by 2023. 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 of ultrafine ( $PM_{1.0}$ ) particulate matter and near-roadway exposure and an analysis of energy supply and demand.

#### *Lead State Implementation Plan*

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

#### *Nonattainment Areas*

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

Transportation conformity for nonattainment and maintenance areas is required under the federal CAA to ensure federally supported highway and transit projects conform to the SIP. The EPA approved California's SIP revisions for attainment of the 1997 8-hour  $O_3$  National AAQS for the SoCAB in March 2012. Findings for the new 8-hour  $O_3$  emissions budgets for the SoCAB and consistency with the recently adopted 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) were submitted to the EPA for approval.

The attainment status for the SoCAB is shown in Table 5.2-2. The SoCAB is designated in attainment of the California AAQS for sulfates. The SoCAB will have to meet the new federal 8-hour  $O_3$  standard by 2023 and the federal 24-hour  $PM_{2.5}$  standards by 2014 (with the possibility of up to a five-year extension to 2019 if needed). SCAQMD has recently designated the SoCAB as a nonattainment area for  $NO_2$  (entire basin) and lead (Los Angeles County only) under the California AAQS.

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**Table 5.2-2 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 <sub>10</sub>	Serious Nonattainment	Attainment/Maintenance <sup>1</sup>
PM <sub>2.5</sub>	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO <sub>2</sub>	Nonattainment <sup>2</sup>	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Lead	Nonattainment (Los Angeles County only) <sup>2,3</sup>	Nonattainment (Los Angeles County only) <sup>3</sup>
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2013a.

<sup>1</sup> Annual standard revoked September 2006. CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards from 2004 to 2007. In June 2013, the EPA approved the request, effective on July 26, 2013.

<sup>2</sup> CARB has proposed to redesignate the SoCAB as attainment for lead and NO<sub>2</sub> under the California AAQS (CARB 2013d).

<sup>3</sup> In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas in the SoCAB are unclassified.

### Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site and project area are best documented by measurements made by SCAQMD. The City of Newport Beach lies within Source Receptor Area (SRA) 18 (North Orange County Coastal). The air quality monitoring station closest to the City is the Costa Mesa Monitoring Station. However, this station does not monitor PM<sub>10</sub> and PM<sub>2.5</sub>. Consequently, data was obtained from the Mission Viejo Monitoring Station for PM<sub>10</sub> and PM<sub>2.5</sub>. Data from these stations are summarized in Table 5.2-3. The data show that the area regularly exceeds the state and federal one-hour and eight-hour O<sub>3</sub> standards and has exceeded the state PM<sub>10</sub> and federal PM<sub>2.5</sub> standards once within the last five recorded years. The CO and NO<sub>2</sub> standards have not been exceeded in the last five years in the project vicinity.

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Table 5.2-3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2008	2009	2010	2011	2012
<b>Ozone (O<sub>3</sub>)<sup>1</sup></b>					
State 1-Hour ≥ 0.09 ppm	0	0	1	0	0
State 8-hour ≥ 0.07 ppm	5	3	2	2	1
Federal 8-Hour > 0.075 ppm	3	0	1	1	1
Max. 1-Hour Conc. (ppm)	0.094	0.087	0.097	0.093	0.090
Max. 8-Hour Conc. (ppm)	0.080	0.082	0.076	0.077	0.076
<b>Carbon Monoxide (CO)<sup>1</sup></b>					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	1.97	2.16	2.09	2.22	1.71
<b>Nitrogen Dioxide (NO<sub>2</sub>)<sup>1</sup></b>					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	81.0	65.0	70.0	60.5	74.4
<b>Coarse Particulates (PM<sub>10</sub>)<sup>2</sup></b>					
State 24-Hour > 50 µg/m <sup>3</sup>	0	1	0	0	0
Federal 24-Hour > 150 µg/m <sup>3</sup>	0	0	0	0	0
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	42.0	56.0	34.0	48.0	37.0
<b>Fine Particulates (PM<sub>2.5</sub>)<sup>2</sup></b>					
Federal 24-Hour > 35 µg/m <sup>3</sup>	0	1	0	0	0
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	32.6	39.2	19.9	34.4	27.6

Source: CARB 2013c.

ppm: parts per million; µg/m<sup>3</sup>: or micrograms per cubic meter.

<sup>1</sup> Data obtained from the Costa Mesa Monitoring Station

<sup>2</sup> Data obtained from the Mission Viejo Monitoring Station

Existing Emissions

Existing criteria air pollutant emissions generated within the City are shown in Table 5.2-4. Criteria air pollutants within the City are based on CalEEMod and include the following sectors:

- **Transportation:** Transportation emissions are based on vehicle miles traveled (VMT) provided by Urban Crossroads as modeled using the Orange County Transportation Analysis Model (OCTAM). GHG emissions from the transportation sector are modeling using the EMFAC2011-PL. The inventory does not include emissions from use of pleasure-crafts in the harbor.
- **Energy:** Energy emissions are based on natural gas used in cooking and heating, associated with the land uses in the City. Modeling for this sector is based on the CalEEMod defaults for the land uses within the City. Currently, the building stock in the City of Newport Beach is either constructed to achieve the 2005 Building and Energy Efficiency Standards, earlier version, or pre-date the creation of building and energy efficiency standards. Carbon intensity of electricity for Southern California Edison (SCE) is based on the CalEEMod User's Guide, Version 2013.2.2.

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- Area: Area sources include consumer products (e.g., cleaning supplies, cosmetics, etc.), architectural coatings, and fuel from landscape equipment use. Modeling for this sector is based on the CalEEMod defaults for the land uses in the City. Fireplace emissions have been adjusted to account for the fact that not all people who have fireplaces use them, and even if they use the fireplace during the year, not everyone would use it on the same night. SCAQMD also implements a fire curtailment program that restricts fireplace use in the SoCAB. Area sources exclude emissions from beach fire pits, which are not associated with land uses in the City. The inventory does not include emissions from industrial sources, which are permitted by SCAQMD. (see Appendix D).

**Table 5.2-4 Existing Maximum Daily Criteria Air Pollutant Emissions Summary**

Operational Phase	Criteria Air Pollutants (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Transportation	792	6,004	23,460	61	749	346
Energy	41	361	211	2	29	29
Area	5,572	67	6,068	0	389	389
Total	6,406	6,432	29,739	64	1,167	764

Source: CalEEMod 2013.2.2 and EMFAC2011-PL.

Notes: Based on 2013 running exhaust emission rates from VMT provided by Urban Crossroads.

Carbon intensity of electricity for Southern California Edison (SCE) is based on the CalEEMod User's Guide, Version 2013.2.2.

Existing energy use based on the 2005 Building and Energy Efficiency Standards. Includes mandatory sectors associated with the City's land uses.

Fireplace emissions have been revised to account for the fact that not all people who have fireplaces use them, and even if they use the fireplace during the year, not everyone would use it on the same night.

SCAQMD implements a fire curtailment program that restricts fireplace use in the SoCAB. Excludes emissions from beach fire pits, which are not associated with land uses in the City. The inventory does not include emissions from industrial sources, beach bonfires, and use of pleasure-crafts in the harbor.

For assumptions on the existing inventory, see Appendix D.

### Sensitive Receptors

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

Residential areas are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, since 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.

### 5.2.2 Thresholds of Significance

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

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- 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.

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

- Threshold AQ-5

This impact will not be addressed in the following analysis.

### 5.2.2.1 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's CEQA Air Quality Handbook and the significance thresholds on SCAQMD's website.<sup>8</sup> SCAQMD has published two additional guidance documents—Localized Significance Threshold Methodology for CEQA Evaluations (2003) and Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology (2006)—that are intended to provide guidance in evaluating localized effects from emissions. CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed through an analysis of localized CO impacts and localized significance thresholds.

### 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 5.2-5 lists SCAQMD's regional significance thresholds.

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<sup>8</sup> SCAQMD's Air Quality Significance Thresholds are current as of March 2011 and can be found at: <http://www.aqmd.gov/ceqa/hdbk.html>.

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**Table 5.2-5 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 <sub>x</sub> )	100 lbs/day	55 lbs/day
Sulfur Oxides (SO <sub>x</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>10</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>2.5</sub> )	55 lbs/day	55 lbs/day

Source: SCAQMD 2011a

### CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hotspots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hotspots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. Typically, for an intersection to exhibit a significant CO concentration, it would operate at level of service (LOS) E or worse without improvements (Caltrans 1997).

### Localized Significance Thresholds

SCAQMD developed LSTs to determine if emissions of NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> generated at a project site (offsite mobile-source emissions are not included the LST analysis) would expose sensitive receptors to substantial concentrations of criteria air pollutants. Table 5.2-6 shows the localized significance thresholds for projects in the SoCAB.

**Table 5.2-6 SCAQMD Localized Significance Thresholds**

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO <sub>2</sub> Standard (CAAQS)	0.18 ppm
Annual NO <sub>2</sub> Standard (CAAQS)	0.03 ppm
24-Hour PM <sub>10</sub> Standard – Construction (SCAQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Construction (SCAQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>10</sub> Standard – Operation (SCAQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Operation (SCAQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>

Source: SCAQMD 2011a.

ppm – parts per million; µg/m<sup>3</sup> – micrograms per cubic meter

<sup>1</sup> Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM<sub>10</sub> and PM<sub>2.5</sub>, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

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### 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 5.2-7 lists the SCAQMD's TAC incremental risk thresholds for operation of a project. Residential, commercial, and office uses do not use substantial quantities of TACs, so these thresholds are typically applied to new industrial projects.

**Table 5.2-7 SCAQMD Toxic Air Contaminants Incremental Risk Thresholds**

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Chronic and Acute Hazard Index (project increment)	≥ 1.0
Cancer Burden	> excess cancer cases (in areas ≥ 1 in 1 million)
Source: SCAQMD 2011a.	

### *Air Quality Compatibility*

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) identifies potential health risks associated with siting sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities based on data compiled from recent air quality studies. The key observation in the recent studies compiled by CARB is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects relative to the existing background concentrations in the air basin. However, the impact of air pollution from these sources is on a gradient that at some point becomes indistinguishable from the regional air pollution problem. CARB's Handbook includes recommendations based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

Following release of CARB's study, the California Air Pollutant Control Officer's Association (CAPCOA) released *Health Risk Assessments for Proposed Land Use Projects* (2009) to assist agencies in complying with CEQA when addressing TACs and air quality compatibility. CAPCOA's guidance document outlines procedures to identify when a project should undergo further risk evaluation, including projects impacted near major sources of TACs. CAPCOA's guidance document recommends evaluation of health risk when sensitive land uses (i.e., residences, schools, daycare centers, and hospitals) are near major sources of air pollution. The cancer risk and hazard index in Table 5.2-7 are also commonly used to determine air quality land use compatibility of a project with major sources of TACs within 1,000 feet of a proposed project.

### 5.2.3 Environmental Impacts

#### The 2006 General Plan EIR

Air quality related impacts of the 2006 General Plan EIR were analyzed using SCAQMD's CEQA Handbook (1993) methodologies and thresholds. The 2006 General Plan EIR identified the following conclusions regarding the air quality emissions:

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- **AQMP Consistency:** Significant and unavoidable. The 2006 General Plan EIR concluded that the project would potentially conflict with implementation of SCAQMD's 2003 AQMP. The 2006 General Plan EIR identified that the land plan would increase residential growth projections slightly over what was projected by SCAG for Orange County in 2030. Since preparation of the 2006 General Plan EIR, SCAQMD has adopted the 2012 AQMP, which is the current AQMP for the SoCAB.
- **Construction-Related Regional Air Quality Impact:** Significant and unavoidable. The 2006 General Plan EIR concluded that, even after mitigation, construction air emissions could exceed SCAQMD's significance thresholds as a result of the amount of development activity that is anticipated in the City.
- **Operational Phase Regional Air Quality Impact:** Significant and unavoidable. The 2006 General Plan EIR concluded that the operational emissions would cumulatively contribute to the nonattainment designations of the SoCAB. At the time of the 2006 General Plan EIR, the SoCAB was designated as nonattainment for O<sub>3</sub>, CO (Los Angeles County only), and PM<sub>10</sub>.
- **Localized Air Quality Impact:** Less than significant impact. The 2006 General Plan EIR demonstrated that there would be no CO exceedances caused by vehicular emissions idling at intersections, and therefore localized CO hot spot impacts would be less than significant. It should be noted that since the 2006 General Plan EIR, the SoCAB has been designated in attainment of the state and federal AAQS for CO, and the Initial Study determined that CO hotspots are no longer an environmental impact of concern for the proposed project.
- **Odors:** Less than significant impact. The 2006 General Plan EIR identified that odors generated within the City would not affect a substantial number of people, and impacts would be less than significant.

In 2009 CAPCOA adopted guidelines for siting new sensitive receptors near major sources of pollution, including high volume roadways and industrial land uses, based on the recommendations of CARB. The 2006 General Plan EIR did not evaluate air quality compatibility from placement of sensitive receptors near major sources of air pollution.

### General Plan LUE Amendment (Proposed Project)

#### *Methodology*

Criteria air pollutant modeling was conducted using emission factors and methodologies in the CalEEMod Version 2013.2.2 and CalEEMod user's guide (SCAQMD 2013).

The following impact analysis addresses impacts that the Initial Study for the proposed project disclosed as potentially significant impacts of the proposed project, as compared to the 2006 General Plan EIR. The applicable potential impacts are identified in brackets after the impact statement.



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**Impact 5.2-1:** Like the 2006 General Plan, the proposed project is not consistent with the applicable air quality management plan; however, the incremental change associated with the proposed project would be less than significant. [Threshold AQ-1]

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**Impact Analysis:** CEQA requires that general plans 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 efforts of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to clean air goals in the AQMP. Only new or amended general plan elements, specific plans, and major projects need to undergo a consistency review. This is because the AQMP strategy is based on projections from local general plans. Projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan. There are two key indicators of consistency:

**Indicator 1:** Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the AAQS or interim emission reductions in the AQMP.

**Indicator 2:** Whether the project would exceed the assumptions in the AQMP. The AQMP strategy is, in part, based on projections from local general plans.

#### Indicator 1

The SoCAB is designated nonattainment for O<sub>3</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for NO<sub>2</sub> under the California AAQS.<sup>9, 10</sup> Because the proposed project involves long-term growth associated with buildout of the City of Newport Beach, cumulative emissions generated by construction and operation of individual development projects would exceed the SCAQMD regional and localized thresholds (see Impact 5.2-2 and Impact 5.2-3). Consequently, emissions generated by development projects in addition to existing sources within the City are considered to cumulatively contribute to the nonattainment designations of the SoCAB. Buildout of the proposed project would therefore contribute to an increase in frequency or severity of air quality violations and delay attainment of the AAQS or interim emission reductions in the AQMP, and emissions generated from buildout of the 2006 General Plan would result in a significant air quality impact. Therefore, like the 2006 General Plan, the proposed project would not be consistent with the AQMP.

#### Indicator 2

The land use designations in the 2006 General Plan form, in part, the foundation for the emissions inventory for the SoCAB in the AQMP. The AQMP is based on projections in population, employment, and vehicle miles traveled in the SoCAB region projected by SCAG. Table 5.2-8, *Comparison of Population and Employment*

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<sup>9</sup> CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the national AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards during the period from 2004 to 2007. In June 2013, the EPA approved the request, effective on July 26, 2013.

<sup>10</sup> CARB has proposed to redesignate the SoCAB as attainment for lead and NO<sub>2</sub> under the California AAQS (CARB 2013d).

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*Forecasts*, compares the population and employment generation and VMT of the 2006 General Plan to the proposed project based on the OCTAM regional transportation model.

**Table 5.2-8 Comparison of Population and Employment Forecasts**

	2006 General Plan	General Plan LUE Amendment (Proposed Project)	Difference
Population	102,359	105,157	2,798
Employment	85,517	85,905	388
Service Population (SP)	187,876	191,062	3,186
Daily VMT	7,151,980	7,208,539	56,559
VMT/SP	38.07	37.73	-0.34

Source: Based on data provided by Urban Crossroads using the OCTAM regional transportation model.

SCAG projections for a city are typically based on the current general plan. The 2012 AQMP includes SCAG's 2012 RTP/SCS and population and employment projections for the City of Newport Beach. As shown in Table 5.2-8, the City is projected to have more population (and housing) and more employment than was forecast in the 2012 AQMP because of the increase in residential and nonresidential intensity associated with the proposed project. If the General Plan LUE Amendment is adopted, SCAG would incorporate the revised growth projections associated with the land uses identified in the Amendment in their regional planning projections, and the General Plan LUE Amendment would be consistent with the future update of the AQMP. It should be noted that the increase in residential and nonresidential intensity in strategic locations would result in an overall decrease in VMT on a per capita basis, which is consistent with regional goals to reduce per capita passenger vehicle VMT under Senate Bill 375, the Sustainable Communities and Climate Protection Act (2008). However, since full buildout associated with the General Plan LUE Amendment is not currently included in the emissions inventory for the SoCAB, impacts associated with the second indicator are also considered potentially significant.

### Summary

As described above, the proposed project would not be consistent with the AQMP because air pollutant emissions associated with buildout of the City of Newport Beach would cumulatively contribute to the nonattainment designations in the SoCAB. Furthermore, additional control measures to attain AAQS for growth beyond 2035 associated with buildout of the General Plan LUE Amendment is not included in the current regional emissions inventory for the SoCAB. Therefore, like the 2006 General Plan, the proposed project would be considered inconsistent with the AQMP, resulting in a significant impact. However, because the incremental increase in criteria air pollutants from operation of the proposed project would not exceed SCAQMD's regional significance criteria, impacts associated with the General Plan LUE Amendment are less than significant.

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**Impact 5.2-2:** Like the 2006 General Plan, construction activities associated with the proposed project would generate short-term emissions in exceedance of SCAQMD'S threshold criteria; however, the incremental change associated with the proposed project would be less than significant. [Thresholds AQ-2, AQ-3, and AQ-4]

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**Impact Analysis:** Construction activities associated with development anticipated under the General Plan LUE Amendment would occur over the buildout horizon (post-2035) and cause short-term emissions of criteria air pollutants. The primary source of NO<sub>x</sub>, CO, and SO<sub>x</sub> emissions is the operation of construction equipment. The primary sources of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions include activities that disturb the soil (such as grading and excavation road construction, and building demolition and construction) and construction equipment exhaust. Construction equipment exhaust is also a source of DPM. The primary sources of VOC emissions are architectural coatings and asphalt paving. A discussion of health impacts associated with air pollutant emissions generated by construction activities is included under "Air Pollutants of Concern" in section 5.2-1, *Environmental Setting*.

The 2006 General Plan EIR concluded that, even after mitigation, construction air emissions could exceed SCAQMD's significance thresholds as a result of the amount of development activity that is anticipated in the City. Information regarding specific development projects, soil types, and the locations of receptors would be needed in order to quantify the level of impact associated with construction activity. For the broad-based General Plan LUE Amendment, it is not possible to determine whether the scale and phasing of individual projects would exceed SCAQMD's short-term regional or localized construction emissions thresholds. Due to the scale of development activity associated with buildout of the proposed project, emissions would likely exceed the SCAQMD regional significance thresholds; therefore, in accordance with the SCAQMD methodology, emissions would cumulatively contribute to the nonattainment designations of the SoCAB.

The proposed project would result in an increase in development compared to the development forecast in the 2006 General Plan. However, construction emissions associated with the 2006 General Plan and the proposed project would be similar, because the proposed project would result in an increase in land use intensity rather than development of new, previously undeveloped areas of the City that would require substantial landform modification. Consequently, the incremental increase in construction activities associated with the new development would also be less than significant.

The SoCAB is designated nonattainment for O<sub>3</sub> and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Emissions of VOC and NO<sub>x</sub> are precursors to the formation of O<sub>3</sub>. In addition, NO<sub>x</sub> is a precursor to the formation of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Therefore, like the 2006 General Plan, the proposed project would cumulatively contribute to the nonattainment designations of the SoCAB for O<sub>3</sub>, NO<sub>2</sub>, and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>).

The 2006 General Plan includes policies to ensure construction activities reduce air pollutant emissions:

- Natural Resources (NR) Element 8.1 – Management of Construction Activities to Reduce Air Pollution: Require developers to use and operate construction equipment, use building materials and paints, and control dust created by construction activities to minimize air pollutants.

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Adherence to this policy would reduce emissions to the extent feasible. Air quality emissions related to construction must be addressed on a project-by-project basis. In addition to regulatory measures (e.g., SCAQMD Rule 201, Rule 403, Rule 1113, Rule 1403, and CARB Rule 2840), mitigation for future development projects may include extension of construction schedules and/or use of special equipment. Nevertheless, because of the likely scale and extent of construction activities pursuant to the future development anticipated under the General Plan LUE Amendment, at least some projects would likely continue to exceed the relevant SCAQMD thresholds. With the approval of the proposed project, the construction criteria pollutant emissions and resulting impacts would be the similar to the 2006 General Plan's construction criteria pollutant emissions and resulting impacts reported in the 2006 General Plan EIR. The incremental impact of the General Plan LUE Amendment would be less than significant.

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**Impact 5.2-3:** Like the 2006 General Plan, long-term operation of the proposed project would generate criteria air pollutant emissions that would exceed SCAQMD's threshold criteria; however, the incremental change associated with the proposed project would be less than significant. [Thresholds AQ-2 and AQ-3]

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**Impact Analysis:** The City's general plan guides growth and development within Newport Beach by designating land uses in the proposed land use plan and through implementation of its goals and policies. New development would increase air pollutant emissions in the City and contribute to the overall emissions inventory in the SoCAB. The 2006 General Plan includes the planned development of residential, institutional, commercial, office, and industrial uses within developed and undeveloped portions of the City. The 2006 General Plan EIR concluded that the operational emissions associated with buildout of the City would cumulatively contribute to the nonattainment designations of the SoCAB.

To assess the incremental change between criteria air pollutant emissions generated by the 2006 General Plan and the proposed project, emissions were modeled using CalEEMod Version 2013.2.2. and EMFAC2011-PL. The criteria air pollutant emissions inventory for the City under the 2006 General Plan and the proposed project is shown in Table 5.2-9.

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**Table 5.2-9 Maximum Daily Criteria Air Pollutant Emissions Summary**

Operational Phase	Criteria Air Pollutants (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>2006 General Plan</b>						
Transportation	323	2,306	10,522	75	841	365
Energy	47	414	245	3	33	33
Area	6,005	76	6,865	0	407	407
Total	6,376	2,796	17,631	77	1,281	805
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
2006 Approved Project Exceeds Thresholds?	Yes	Yes	Yes	No	Yes	Yes
<b>General Plan LUE Amendment (Proposed Project)</b>						
Transportation	326	2,324	10,605	75	848	368
Energy	47	414	242	3	33	33
Area	6,053	78	7,038	0	410	410
Total	6,427	2,816	17,885	78	1,291	811
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
2006 General Plan Exceeds Thresholds?	Yes	Yes	Yes	No	Yes	Yes
Change from 2006 General Plan EIR	51	20	254	1	10	6
SCAQMD Regional Significance Thresholds	55	55	550	150	150	55
Change from 2006 General Plan Exceeds Thresholds?	No	No	No	No	No	No

Source: CalEEMod 2013.2.2 and EMFAC2011-PL.  
Notes: Based on 2013 running exhaust emission rates from VMT provided by Urban Crossroads. Emissions were calculated using a conservative buildout scenario for the proposed project.  
Carbon intensity of electricity for Southern California Edison (SCE) is based on the CalEEMod User's Guide, Version 2013.2.2.  
Existing energy use based on the 2005 Building and Energy Efficiency Standards. Includes mandatory sectors associated with the City's land uses.  
Fireplace emissions revised to account for the fact that not all people who have fireplaces use them, and even if they use the fireplace during the year, not everyone would use it on the same night.  
SCAQMD implements a fire curtailment program that restricts fireplace use in the SoCAB. Excludes emissions from beach fire pits, which are not associated with land uses in the City. The inventory does not include emissions from industrial sources, beach bonfires, and use of pleasure-crafts in the harbor.  
For assumptions on the existing inventory, see Appendix D.

As shown in this table, the City under both the 2006 General Plan and the proposed project scenario would generate long-term emissions that exceed the daily SCAQMD thresholds for all criteria pollutants except SO<sub>2</sub>. Emissions of VOC and NO<sub>x</sub> are precursors to the formation of O<sub>3</sub>. In addition, NO<sub>x</sub> is a precursor to the formation of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Consequently, emissions of VOC and NO<sub>x</sub> that exceed the SCAQMD regional significance thresholds would contribute to the O<sub>3</sub> nonattainment designation of the SoCAB, and emissions of NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> that exceed the SCAQMD regional significance thresholds would contribute to the particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) nonattainment designation of the SoCAB under the national and California AAQS.<sup>11, 12</sup> The 2006 General Plan includes policies to ensure operational activities reduce air pollutant emissions (see Section 5.2.4, *Relevant General Plan Policies*).

The proposed project would result in an increase in criteria air pollutants compared to the 2006 General Plan. However, as shown in Table 5.2-9, the increase in criteria air pollutants would not be substantially higher than

<sup>11</sup> CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the national AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards during the period from 2004 to 2007. In June 2013, the EPA approved the request, effective on July 26, 2013.

<sup>12</sup> CARB has proposed to redesignate the SoCAB as attainment for lead and NO<sub>2</sub> under the California AAQS (CARB 2013d).

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the increase generated by the 2006 General Plan because the net increase in emissions associated with the proposed project would not exceed the SCAQMD thresholds. With the approval of the proposed project, the operational phase criteria pollutant emissions and resulting impacts would be the similar to the 2006 General Plan's operational phase criteria pollutant emissions and resulting impacts reported in the 2006 General Plan EIR.

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**Impact 5.2-4: Placement of new residents and other sensitive land uses proximate to State Route 73 and major stationary source emitters in the Airport Area would expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]**

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**Impact Analysis:** The 2006 General Plan EIR concluded that there would be no CO exceedances caused by vehicular emissions when idling at intersections and that localized CO hot spot impacts would be less than significant. However, the 2006 General Plan did not evaluate air quality compatibility from placement of sensitive receptors near major sources of air pollution. Since completion of the 2006 General Plan EIR, air pollution studies compiled by CARB have shown an association between proximity to major air pollution sources and a variety of health effects. Following release of CARB's study, CAPCOA released *Health Risk Assessments for Proposed Land Use Projects* (2009), which recommends evaluation of health risk when sensitive land uses (i.e., residences, schools, daycare centers, and hospitals) are near to major sources of air pollution. The CAPCOA guidance document was not available at the time of the 2006 General Plan EIR.

### Siting New Sensitive Receptors

CARB's recommendations on the siting of new sensitive land uses were developed from a compilation of recent studies that evaluated data on the adverse health effects ensuing from proximity to air pollution sources. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic: diesel PM from trucks, and benzene and 1,3-butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000 to 20,000/day), diesel PM makes up approximately 84 percent of the potential cancer risk from the vehicle traffic. Table 5.2-10, *CARB Recommendations for Siting New Sensitive Land Uses*, shows a summary of CARB recommendations for siting new sensitive land uses within the vicinity of air-pollutant-generating sources. Recommendations in this table are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

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**Table 5.2-10 CARB Recommendations for Siting New Sensitive Land Uses**

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units [TRUs] per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult with the local air district. Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Source: CARB 2005.

The proposed project would potentially intensify uses within the Airport Area, which is primarily industrial area that has land uses that generate stationary sources of air pollution. The Airport Area is also near State Route 73 (SR-73), which has roadway volumes that exceed 100,000 vehicles per day within the City of Newport Beach. New development associated with the proposed General Plan LUE Amendment surrounding SR-73 has the potential to expose sensitive receptors to substantial pollutant concentrations from diesel exhaust. The association of truck-related diesel emissions with adverse health effects is generally strongest between 300 and 1,000 feet and diminishes with distance. The impact of traffic emissions is on a gradient that at some point becomes indistinguishable from the regional air pollution problem. No other roadways within the City have or are projected to have more than 100,000 average daily vehicle trips.<sup>13</sup>

Table 5.2-10 lists other air-pollutant-generating sources that can affect localized air quality. If new sensitive development were placed in the vicinity of any of these sources, such as the light and heavy manufacturing/warehousing in the Airport Area, sensitive receptors might be exposed to significant concentrations of air pollutants, and impacts would be potentially significant.

<sup>13</sup> State Route 55 in the City of Newport Beach does not have roadway volumes that exceed 100,000 vehicles per day.

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#### 5.2.4 Relevant General Plan Policies

The 2006 General Plan includes several policies that would reduce air quality emissions associated with future development projects in the City, including:

##### *Natural Resources Element (NR)*

- **NR 6.1 – Walkable Neighborhoods:** Provide for walkable neighborhoods to reduce vehicle trips by siting amenities such as services, parks, and schools in close proximity to residential areas.
- **NR 6.2 – Mixed-Use Development:** Support mixed-use development consisting of commercial or office with residential uses in accordance with the Land Use Element that increases the opportunity for residents to live in proximity to jobs, services, and entertainment.
- **NR 6.3 – Vehicle-Trip Reduction Measures:** Support measures to reduce vehicle-trip generation such as at-work day care facilities, and on-site automated banking machines.
- **NR 6.4 – Transportation Demand Management Ordinance:** Implement the Transportation Demand Management (TDM) Ordinance, which promotes and encourages the use of alternative transportation modes, and provides those facilities such as bicycle lanes that support such alternate modes.
- **NR 6.5 – Local Transit Agency Collaboration:** Collaborate with local transit agencies to: develop programs and educate employers about employee rideshare and transit; establish mass transit mechanisms for the reduction of work-related and non-work-related vehicle trips; promote mass transit ridership through careful planning of routes, headways, origins and destinations, and types of vehicles; and develop bus shelters, bicycle lanes, and other bicycle facilities.
- **NR 6.6 – Traffic Signal Synchronization:** Encourage synchronization of traffic signals throughout the City and with adjoining cities and counties to allow free flow of traffic.
- **NR 6.7 – City Fleet Vehicles:** Implement the program to replace existing vehicles in the City fleet with clean vehicles that are commercially available and will provide needed services.
- **NR 6.8 – Accessible Alternative Fuel Infrastructure:** Support the development of alternative fuel infrastructure that is available and accessible to the public, and provide incentives for alternative fuel vehicles.
- **NR 6.9 – Education on Mobile Source Emission Reduction Techniques:** Provide education to the public on mobile source emission reduction techniques such as using alternative modes of transportation.
- **NR 7.1 – Fuel Efficient Equipment:** Support the use of fuel efficient heating equipment and other appliances.



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- **NR 7.2 – Source Emission Reduction Best Management Practices:** Require the use of Best Management Practices (BMP) to minimize pollution and to reduce source emissions.
- **NR 7.3 – Incentives for Air Pollution Reduction:** Provide incentives to promote siting or to use clean air technologies and building materials (e.g., fuel cell technologies, renewable energy sources, UV coatings, hydrogen fuel).
- **NR 8.1 – Management of Construction Activities to Reduce Air Pollution:** Require developers to use and operate construction equipment, use building materials and paints, and control dust created by construction activities to minimize air pollutants.
- **NR 24.1 – Incentives for Energy Conservation:** Develop incentives that encourage the use of energy conservation strategies by private and public developments.
- **NR 24.2 – Energy-Efficient Design Features:** Promote energy-efficient design features.
- **NR 24.3 – Incentives for Green Building Program Implementation:** Promote or provide incentives for “Green Building” programs that go beyond the requirements of Title 24 of the California Administrative Code and encourage energy efficient design elements as appropriate to achieve “green building” status.
- **NR 24.4 – Incentives for Provision of LEED Certified Buildings:** Provide incentives for implementing Leadership in Environmental and Energy Design (LEED) certified building such as fee waivers, bonus densities, and/or awards recognition programs.

### 5.2.5 Existing Regulations

#### State

- **CARB Rule 2480 (13 CCR 2480):** Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools: limits nonessential idling for commercial trucks and school buses within 100 feet of a school.
- **CARB Rule 2485(13 CCR 2485):** Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling: limits nonessential idling to five minutes or less for commercial trucks.
- **CARB Rule 2449(13 CCR 2449):** In-Use Off-Road Diesel Idling Restricts: limits nonessential idling to five minutes or less for diesel-powered off-road equipment.
- Building Energy Efficiency Standards (Title 24)
- Appliance Energy Efficiency Standards (Title 20)
- Motor Vehicle Standards (AB 1493)

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#### Regional (Air District)

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

#### 5.2.6 Level of Significance Before Mitigation

Without mitigation, the following impacts would be significant (as they were for the 2006 General Plan EIR); however the incremental increase associated with the General Plan LUE Amendment would be less than significant: Impact 5.2-1, Impact 5.2-2, and Impact 5.2-3.

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

- Impact 5.2-4 Placement of new residents and other sensitive land uses proximate to State Route 73 and major stationary source emitters in the Airport Area would expose sensitive receptors to substantial pollutant concentrations.

#### 5.2.7 Mitigation Measures

The policies identified in the 2006 General Plan would reduce air pollutant emissions associated with construction and operational phases of the 2006 General Plan and the proposed project to the maximum extent feasible. The 2006 General Plan EIR identified that there were no additional mitigating policies available to reduce short-term and long-term criteria air pollutant emissions generated by land uses within the City.

##### Impact 5.2-4

The following new mitigation measure has been incorporated into the Draft SEIR.

AQ-1 The City of Newport Beach shall evaluate new development proposals for sensitive land uses (e.g., residential, schools, day care centers) within the City for potential incompatibilities with regard to the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005). Applicants for sensitive land uses that are within the recommended buffer distances shall submit a health risk assessment (HRA) to the City of Newport 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 (OEHHA) and the South Coast Air Quality Management District. The latest OEHHA guidelines shall be used for the analysis, including age sensitivity factors, breathing rates, and body weights appropriate for children age 0 to 6 years. If the HRA shows that the incremental cancer risk exceeds ten in one million (10E-06), the appropriate

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noncancer hazard index exceeds 1.0, or if the PM<sub>10</sub> or PM<sub>2.5</sub> ambient air quality standard exceeds 2.5 µg/m<sup>3</sup>, the applicant will be required to identify and demonstrate that mitigation measures are capable of reducing potential cancer, noncancer, and ambient air quality risks to an acceptable level (i.e., below ten in one million, a hazard index of 1.0, or particulate matter concentrations exceed 2.5 µg/m<sup>3</sup>), including appropriate enforcement mechanisms. Measures to reduce risk may include but are not limited to:

- Air intakes away from high-volume roadways and/or truck loading zones.
- Heating, ventilation, and air conditioning systems of the buildings provided with appropriately sized maximum efficiency rating value (MERV) filters.
- Mitigation measures 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 proposed project. The air intake design and MERV filter requirements shall be noted and/or reflected on all building plans submitted to the City and shall be verified by the City's Planning Division.

### 5.2.8 Level of Significance After Mitigation

#### Impact 5.2-4

The use of heating, ventilation, and air conditioning (HVAC) system filtration is effective in reducing indoor concentrations of particulate matter. Commercially available maximum efficiency rating value (MERV) filters are capable of removing approximately DPM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from air introduced into the HVAC system. Adherence to Mitigation Measure AQ-1 would ensure that new sensitive buildings near SR-73 and major stationary source emitters would be designed to reduce risk by installing high-efficiency MERV filters to reduce indoor concentrations particulates below SCAQMD's threshold (including diesel particulate matter, which comprises the majority of risk). With implementation of Mitigation Measure AQ-1, Impact 5.2-4 would be less than significant.

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