5.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Lincoln Avenue Specific Plan (proposed project) to impact air quality in a local and regional context. The analysis in this section is based on existing and planned land uses associated within the specific plan area and trip generation provided by IBI Group (see Appendix G of this DEIR). The air quality model output sheets are included in Appendix C of this DEIR.

5.2.1 Environmental Setting

South Coast Air Basin

The project site lies within the South Coast Air Basin (SoCAB), which includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the 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 is the Pasadena Monitoring Station (ID 046719). The average low is reported at 42.5°F in January while the average high is 89.2°F in August (WRCC 2012).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall averages 20.24 inches per year in the project area (WRCC 2012).

Humidity

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

Wind

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

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

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

Inversions

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

Air Pollutants of Concern

Criteria Air Pollutants

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 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 (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels.

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. 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. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs to forms of secondary pollutants such as ozone (SCAQMD 2005). There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of O_3, the South Coast Air Quality Management District (SCAQMD) has established a significance threshold for this pollutant (SCAQMD 2005).

Nitrogen Oxides (NO_x) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO.

At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (SCAQMD 2005). The SoCAB is designated as an attainment area for NO_2 under the National AAQS and nonattainment under the California AAQS.

Sulfur Dioxide (SO_2) 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_2 (SCAQMD 2005). 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. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. The SoCAB is designated as attainment under the California and National AAQS.

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) 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 the 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 $PM_{2.5}$, 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. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). 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 (SCAQMD 2005).

The US Environmental Protection Agency's (EPA) 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 concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. Diesel particulate matter (DPM) is classified by the California Air Resources Board (CARB) as a carcinogen. The SoCAB is a nonattainment area for $PM_{2.5}$ and PM_{10} under California and National AAQS.[1]

Ozone (O_3) 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 the presence of 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 the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Additionally, O_3 has been tied to crop damage, typically in the form of stunted growth and premature death. O_3 can also act as a corrosive, resulting in property damage such as the degradation of rubber products (SCAQMD 2005). The SoCAB is designated as extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour).

Lead (Pb) concentrations decades ago exceeded the state and federal AAQS by a wide margin, but have not exceeded state or federal air quality standards at any regular monitoring station since 1982 (SCAQMD 2005).

[1] 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 has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. However, the EPA has not yet approved this request.

However, in 2008 the EPA and CARB adopted more strict lead standards and special monitoring sites immediately downwind of lead sources[2] recorded 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 2010). Most development and industrial projects would not emit lead. Furthermore, release of this pollutant would be regulated by SCAQMD as part of the permitting requirements for new source review.

Toxic Air Contaminants

The public's exposure to air pollutants classified as toxic air contaminants (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 (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §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 determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (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 forth 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, all of which are identified as having no safe threshold.

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, toxic air contaminant 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 in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB has 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 particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 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 lung.

[2] 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 2010).

MATES III

In 2000, SCAQMD conducted a study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,400 in a million. The largest contributor to this risk was diesel exhaust, accounting for 71 percent of the air toxics risk. In 2008, SCAQMD conducted its third update to its study on ambient concentrations of TACs and estimated the potential health risks from air toxics. 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 one million. The largest contributor to this risk was diesel exhaust, accounting for approximately 84 percent of the air toxics risk (SCAQMD 2008). In the vicinity of the Lincoln Avenue Specific Plan Area, excess cancer risk is 496 to 629 in a million (SCAQMD 2012).

Regulatory Framework

AAQS have been promulgated at the local, state, and federal levels for criteria pollutants. The project area is in the SoCAB and is subject to the rules and regulations imposed by the SCAQMD, as well as the California AAQS adopted by CARB and federal AAQS.

Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 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 (CCAA), 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.

These National AAQS 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 those “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. As shown in Table 5.2-1, these pollutants include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 5.2-1
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	0.075 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_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	
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]	
	24 hours	0.04 ppm	0.014 ppm[2]	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	15 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)	Monthly	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	*	1.5 µg/m^3	
	3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles[1]	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H2S) 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 5.2-1
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	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 2012.
ppm: parts per million; µg/m³: micrograms per cubic meter
[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.
* Standard has not been established for this pollutant/duration by this entity.

Air Quality Management Planning

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

2007 AQMP

The current plan was adopted on June 1, 2007. The 2007 AQMP proposes attainment demonstration of the federal $PM_{2.5}$ standards through a more focused control of SO_x, directly emitted $PM_{2.5}$, and focused control of NO_x and VOC by 2015. The eight-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NO_x and VOC reductions to meet the standard by 2024, assuming an extended attainment date is obtained.

Draft 2012 AQMP

On July 18, 2012, the SCAQMD released the Draft 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-road and off-road mobile sources, and area sources. The Draft Plan 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 Draft 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 coordinated planning to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria air pollutant standards within the timeframes allowed under the federal CAA. The Draft 2012 AQMP demonstrates attainment of federal 24-hour $PM_{2.5}$ standard by 2014 and the federal 8-hour ozone standard by 2023. The Draft 2012 AQMP 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 nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and in the City of Industry exceeding the new standard in the 2007–2009 period of data used. The remainder of the SoCAB, outside the Los Angeles County nonattainment area, remain 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 in magnitude 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 also designated in attainment of the California AAQS for sulfates. According to the 2007 AQMP, the SoCAB will have to meet the new federal 8-hour O_3 standard by 2024, $PM_{2.5}$ standards by 2015, and the recently revised 24-hour $PM_{2.5}$ standard by 2020. SCAQMD has recently designated the SoCAB as nonattainment for NO_2 (entire basin) and lead (Los Angeles County only) under the California AAQS.

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	Severe-17 Nonattainment[1]
PM_{10}	Serious Nonattainment	Nonattainment[2]
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Nonattainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Nonattainment (Los Angeles County only)[3]	Nonattainment (Los Angeles County only)[3]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2011.
Notes:
1 SCAQMD may petition for Extreme Nonattainment designation.
2 Annual standard revoked September 2006. 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 has not violated federal 24-hour PM_{10} standards from 2004 to 2007. However, the EPA has not yet approved this request.
3 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 within 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 Pasadena lies within Source Receptor Areas (SRA) 8 – West San Gabriel Valley. The air quality monitoring station within the SRA closest to the project is the Pasadena Monitoring Station. However, this station does not monitor PM_{10} or SO_2. Consequently, data was obtained from the Azusa and Burbank Monitoring Stations for these criteria pollutants, respectively. Data from these stations are summarized in Table 5.2-3. The data show that the area frequently exceeds the state one-hour and state and federal eight-hour O_3 standards, state PM_{10} standard, and occasionally exceeds the federal $PM_{2.5}$ standards. The CO, SO_2, and NO_2 standards have not been exceeded in the last five years in the project vicinity.

Table 5.2-3
Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2007	2008	2009	2010	2011
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm	13	16	12	1	5
State 8-hour ≥ 0.07 ppm	21	26	19	6	13
Federal 8-Hour > 0.075 ppm	11	19	12	3	5
Max. 1-Hour Conc. (ppm)	0.149	0.122	0.176	0.101	0.107
Max. 8-Hour Conc. (ppm)	0.101	0.100	0.114	0.082	0.085
Carbon Monoxide (CO)[1]					
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)	2.28	2.30	2.53	1.94	2.26
Nitrogen Dioxide (NO_2)[1]					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.092	0.105	0.080	0.071	0.102
Sulfur Dioxide (SO_2)[2]					
State 1-Hour ≥ 0.04 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.003	0.003	0.003	0.004	0.034
Coarse Particulates (PM_{10})[2]					
State 24-Hour > 50 µg/m^3	11	12	7	5	8
Federal 24-Hour > 150 µg/m^3	1	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	165[3]	98.0	74.0	70.0	65.0
Fine Particulates ($PM_{2.5}$)[1]					
Federal 24-Hour > 35 µg/m^3	3	2	3	0	0
Max. 24-Hour Conc. (µg/m^3)	68.8	66.0	51.9	35.2	26.3

Source: CARB 2012.
ppm: parts per million; µg/m^3: or micrograms per cubic meter.
[1] Data obtained from the Pasadena Monitoring Station.
[2] Data obtained from the Burbank Monitoring Station.
[3] Data obtained from the Azusa Monitoring Station.
[4] Includes data related to an exceptional event (e.g., forest fire). The second highest PM_{10} concentration recorded was 81.0 µg/m^3.

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 to be 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, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

Existing residential land uses are located within and adjacent to the Lincoln Avenue Specific Plan area.

5.2.2 Thresholds of Significance

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

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

AQ-2 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.

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.[3] 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 (LSTs).

[3] SCAQMD's Air Quality Significance Thresholds are current as of March 2011 and can be found here: http://www.aqmd.gov/ceqa/hdbk.html.

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 5.2-4 lists SCAQMD's regional significance thresholds.

Table 5.2-4
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

Source: SCAQMD 2011.

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9.0 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. 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 localized significance thresholds (LSTs) for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (off-site mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS. LST analysis for construction is applicable for all projects of five acres and less. LSTs are based on the ambient concentrations of that pollutant within the project SRA and the distance to the nearest sensitive receptor compared to the most stringent AAQS. Thresholds are based on the California AAQS, which are the most stringent AAQS established 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. AAQS from which the LSTs are based on are shown in Table 5.2-5.

Table 5.2-5
SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[1]	10.4 µg/m3
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[1]	10.4 µg/m3
24-Hour PM_{10} Standard – Operation (SCAQMD)[1]	2.5 µg/m3
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[1]	2.5 µg/m3

Source: SCAQMD 2011.
ppm – parts per million; μg/m3 – micrograms per cubic meter
[1] Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM_{10} and $PM_{2.5}$, the threshold is established as an "allowable change" in concentration. Therefore, background concentration is irrelevant.

Health Risk Analysis

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 Assembly Bill 1807 (AB 1807), Air Contaminant Identification and Control Act (1983), or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment (HRA) is required by the SCAQMD. Table 5.2-6 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, and these thresholds are typically applied for new industrial projects. Although not officially adopted by SCAQMD, these thresholds 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.

Table 5.2-6
SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Individual Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0

Source: SCAQMD 2011.

5.2.3 Environmental Impacts

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 the type and scale of development associated with redevelopment within the Lincoln Avenue Specific Plan. SCAQMD has published the *CEQA Air Quality Handbook* (Handbook) and updates on its website that are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports and was used extensively in the preparation of this analysis. The 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 generated by a project. These documents were also used in the preparation of this analysis. The analysis also makes use of: the California Emissions

Estimator Model (CalEEMod), Version 2011.1.1, for determination of daily construction and operational emissions.

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 5.2-1: ***THE LINCOLN AVENUE SPECIFIC PLAN IS A REGIONALLY SIGNIFICANT PROJECT WHOSE OPERATIONAL PHASE EMISSIONS WOULD SUBSTANTIALLY CONTRIBUTE TO AIR POLLUTANT EMISSIONS IN THE SOUTH COAST AIR BASIN AND POTENTIALLY CONFLICT WITH THE ASSUMPTIONS IN THE AIR QUALITY MANAGEMENT PLAN. [THRESHOLD AQ-1]***

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 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 clean air goals contained 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.

The regional emissions inventory for the SoCAB is compiled by the SCAQMD and SCAG as part of the AQMP. The current AQMP is the 2007 AQMP; however, SCAQMD has recently released the Draft 2012 AQMP, which builds upon the attainment strategies of the 2007 AQMP and includes updated emissions inventories based on SCAG's 2012 RTP/SCS and regional growth projections. Regional population, housing, and employment projections developed by SCAG are based, in part, on the City's general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into the RTP, compiled by SCAG to determine priority transportation projects and vehicle miles traveled (VMT) within the SCAG region. Per CEQA Guideline Section 15206, the proposed project is considered regionally significant by SCAG because it would result in the development of over 250,000 square feet of commercial office space. 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. The proposed project would increase the land use intensity within the Lincoln Avenue Specific Plan area, resulting in an increase in jobs and a slight increase in population growth within the specific plan area. While the proposed project is consistent with regional growth forecasts for the City of Pasadena (see Section 5.9, *Population and Housing*), the proposed project would require a General Plan Amendment to accommodate the change in land uses and increase in development intensity. Because regional transportation modeling is based on the underlying General Plan land use designation, the project 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 the proposed project are compared to SCAQMD's regional significance thresholds (see Impact 5.2-3), which were established to determine whether a project has the potential to cumulatively contribute to the SoCAB's nonattainment designations. The proposed project would exceed SCAQMD's regional operational threshold. As a result, the proposed project could potentially exceed the assumptions in the AQMP and would not be considered consistent with the AQMP.

IMPACT 5.2-2: ***SHORT-TERM CONSTRUCTION EMISSIONS GENERATED BY DEVELOPMENT WITHIN THE LINCOLN AVENUE SPECIFIC PLAN WOULD RESULT IN EMISSIONS THAT EXCEED SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S REGIONAL SIGNIFICANCE THRESHOLDS AND CUMULATIVELY CONTRIBUTE TO THE OZONE, PARTICULATE MATTER, AND NITROGEN DIOXIDE NONATTAINMENT DESIGNATIONS OF THE SOUTH COAST AIR BASIN. [THRESHOLDS AQ-2 AND AQ-3]***

Impact Analysis: Construction activities produce combustion emissions from various sources, such as on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Site preparation activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$) from demolition and soil-disturbing activities, such as grading and excavation. Exhaust emissions from construction activities on-site would vary daily as construction activity levels change. An estimate of maximum daily construction emissions from transition of the Lincoln Avenue Specific Plan from industrial to office, commercial, and retail land uses are provided in Table 5.2-7.

Table 5.2-7
Maximum Daily Construction Regional Emissions
(in pounds per day)

Construction Phase	*VOC*	*NO_X*	*CO*	*SO_2*	*PM_{10}[1]*	*$PM_{2.5}$[1]*
Demolition	7	57	35	<1	4	3
Site Preparation	7	58	35	<1	11	7
Grading	9	69	39	<1	7	5
Construction Building	9	56	60	<1	9	3
Paving	4	28	18	<1	2	2
Architectural Coating	139	3	7	<1	1	<1
Assuming Overlap of Construction from Multiple Sites[2]	175	272	194	<1	34	20
SCAQMD Regional Significance Threshold	75	100	550	150	150	55
Significant?	Yes	Yes	No	No	No	No

Source: CalEEMod, Version 2011.1.1
Note: Construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.
1 PM_{10} and $PM_{2.5}$ fugitive dust emissions assume application of Rule 403, which includes watering exposed surfaces at least two times daily, managing haul road dust by watering two times daily, street sweeping, and restricting speeds onsite to 15 miles per hour.
2 Assumes that construction of multiple projects within the Lincoln Avenue Specific Plan could overlap. To approximate the potential for multiple projects to be constructed at the same time, emissions from construction sub-phases were aggregated.

Table 5.2-7 provides an estimate of the magnitude of criteria air pollutant emissions generated by the project for each construction subphase based on the change in land use in the specific plan area. Buildout of the Lincoln Avenue Specific Plan would occur over a period of approximately 10 years or longer and would comprise several smaller projects constructed with their own construction timeframe and construction equipment. Therefore, there is a potential for multiple developments to be constructed at any one time. To approximate the construction of multiple overlapping development projects, construction emissions from each of the construction subphases were aggregated (e.g., seven overlapping construction phases) (see Appendix C). As shown in this table, adherence to SCAQMD Rule 403 would minimize particulate matter emissions generated by fugitive dust generation, and total particulate matter (PM_{10} and $PM_{2.5}$) emissions would be under SCAQMD's regional significance thresholds even if multiple phases overlap. However, NO_x emissions and VOC emissions would exceed the SCAQMD regional thresholds. Off-road construction equipment and vendor/haul trucks are the primary source of NO_x emissions. Emissions of NO_x are precursors to the formation of O_3. In addition, NO_x is a precursor to the formation of particulate matter (PM_{10} and $PM_{2.5}$). Consequently, emissions of NO_x that exceed the SCAQMD regional significance thresholds would contribute

to the O_3, NO_2, and particulate matter (PM_{10} and $PM_{2.5}$) nonattainment designation of the SoCAB under the national and California AAQS. VOC emissions are generated primarily from application of architectural coatings and contribute to the O_3 nonattainment designation. Therefore, the project would result in a significant impact because it would significantly contribute to the nonattainment designations of the SoCAB.

IMPACT 5.2-3: ***LONG-TERM OPERATION OF LAND USES ASSOCIATED WITH REDEVELOPMENT OF THE LINCOLN AVENUE SPECIFIC PLAN WOULD GENERATE CRITERIA AIR POLLUTANT EMISSIONS THAT EXCEED SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT'S REGIONAL SIGNIFICANCE THRESHOLDS AND WOULD SIGNIFICANTLY CONTRIBUTE TO THE OZONE, PARTICULATE MATTER, AND NITROGEN DIOXIDE NONATTAINMENT DESIGNATIONS OF THE SOUTH COAST AIR BASIN. [THRESHOLDS AQ-2 AND AQ-3]***

Impact Analysis: Buildout of the Lincoln Avenue Specific Plan 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 IBI Group (Appendix G of this DEIR). The project would generate a net increase of 21,179 weekday average daily trips (ADT) (see Section 5.11, *Transportation and Traffic*). The results of the CalEEMod modeling are included in Table 5.2-8.

Table 5.2-8
Maximum Daily Operational Phase Regional Emissions
(in pounds per day)

Phase	*VOC*	*NO_X*	*CO*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*
Existing						
Area	18	<1	18	0	<1	<1
Energy	<1	3	2	<1	<1	<1
Transportation	37	85	307	1	97	6
Total	56	88	326	1	98	6
Project						
Area	34	0	25	0	1	1
Energy	<1	3	2	<1	<1	<1
Transportation	107	243	868	2	268	16
Total	142	247	895	2	269	16
Less Existing Emissions	-56	-88	-236	-1	-98	-6
Net Increase	86	159	569	2	171	10
SCAQMD Regional Threshold	55	55	550	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	No

Source: CalEEMod Version 2011.1.1. Based on highest winter or summer emissions. Totals may not equal 100 percent due to rounding.

As shown in this table, operation of the project would generate air pollutant emissions that exceed SCAQMD's regional significance thresholds for VOC, NO_x, CO, and PM_{10} at buildout. Emissions of NO_x that exceed SCAQMD's regional significance thresholds would cumulatively contribute to the O_3, particulate matter (PM_{10} and $PM_{2.5}$), and NO_2 nonattainment designations of the SoCAB. Emissions of PM_{10} would contribute to the PM_{10} nonattainment designation. Consequently, the project would result in a significant impact because it would significantly contribute to the nonattainment designations of the SoCAB.

IMPACT 5.2-4: CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE LINCOLN AVENUE SPECIFIC PLAN COULD EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS. [THRESHOLD AQ-4]

Impact Analysis: The proposed project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevating levels. Unlike the mass of construction emissions shown in Table 5.2-7, 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 ambient air quality standards for criteria air pollutants for which the SoCAB is designated nonattainment.

Table 5.2-7 provides an estimate of the magnitude of criteria air pollutant emissions generated by the project for each construction subphase based on the change in land use in the specific plan area. Buildout of the Lincoln Avenue Specific Plan would occur over a period of approximately 10 years or longer and would comprise several smaller projects with their own construction timeframe and construction equipment. Concentrations of criteria air pollutants generated by a project depend on the emissions generated on-site 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 project 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 5.2-5: OPERATION OF THE PROPOSED PROJECT WOULD NOT EXPOSE OFF-SITE SENSITIVE RECEPTORS TO SUBSTANTIAL CONCENTRATIONS OF AIR POLLUTANTS. [THRESHOLD AQ-4]

Impact Analysis: Operation of the Lincoln Avenue Specific Plan would not generate substantial quantities of onsite, stationary 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, and warehousing operations where substantial truck idling could occur onsite. These types of industrial land uses are not proposed under the Specific Plan, and the plan shows a phasing out of existing industrial uses to less intensive neighborhood commercial, retail and housing for the plan area. Operation of residential and nonresidential structures would include occasional use of landscaping equipment, natural gas consumption for heating, and nominal truck idling for vendor deliveries. Emissions generated from these activities are nominal and no significant impact would occur.

CO Hotspot Analysis

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. At the time of the 1993 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. As identified in SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2011). The proposed project would not produce the volume of traffic required to generate a CO hotspot. Therefore, CO hotspots

are not an environmental impact of concern for the proposed project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

IMPACT 5.2-6: THE LINCOLN AVENUE SPECIFIC PLAN MAY RESULT IN PLACEMENT OF SENSITIVE LAND USES PROXIMATE TO MAJOR SOURCES OF AIR POLLUTION. [THRESHOLD AQ-4]

Impact Analysis: A project would normally have a significant effect on the environment if it would expose on-site sensitive receptors (new residents) to substantial pollutant concentrations emitted from off-site sources. Recent air pollution studies have shown an association between proximity to major air pollution sources and a variety of health effects. Because sensitive land uses are outside CARB jurisdiction, CARB established the *Air Quality and Land Use Handbook: A Community Health Perspective* in May 2005 to address the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed as a tool for assessing compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB recommendations 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, as shown in Table 5.2-9.

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 from proximity to air pollution sources. The key observation in these studies is that close 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.

Portions of the Lincoln Avenue Specific Plan are within 500 feet of I-210. In addition, several light industrial land uses that may generate stationary (e.g., Robertson Ready Mix) or mobile sources of TACs (e.g., truck idling) are within the boundaries of the project site. Many of the existing light industrial land uses would transition to commercial, office, or residential land uses. However, the project introduces the LASP-CL zone allowing mixed use (including residential) on the west side of Lincoln Avenue between the I-210 and Pepper Street. Therefore, new residential land uses could be exposed to substantial concentrations of TACs from I-210 or stationary sources within or proximate to the specific plan area. Consequently, air quality compatibility impacts for new sensitive land uses are potentially significant.

Table 5.2-9
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.

5.2.4 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 within the local area include new development and general growth within the project area. The greatest source of emissions within the SoCAB is mobile sources. Due to the extent of the area potentially impacted from cumulative project emissions, the SCAQMD considers a project cumulatively significant when project-related emissions exceed the SCAQMD regional emissions thresholds shown in Table 5.2-4.

Construction

The SoCAB is designated nonattainment for O_3, $PM_{2.5}$, PM_{10}, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for NO_2 under the California AAQS.[4] Construction of cumulative projects will further degrade the regional and local air quality. Air quality will be temporarily impacted during construction activities that occur. Implementation of mitigation measures for related projects would reduce cumulative impacts. Project-related construction emissions would potentially exceed the

[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 has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. However, the EPA has not yet approved this request.

SCAQMD significance thresholds on a project and cumulative basis. Consequently, the project's contribution to cumulative air quality impacts would be cumulatively considerable and would therefore 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 the SCAQMD to be a substantial source of air pollution and does not add significantly to a cumulative impact. Operation of the project would result in emissions in excess of the SCAQMD regional emissions thresholds for VOC, NO_x, CO, and PM_{10} for long-term operation. Therefore, the project's air pollutant emissions would be cumulatively considerable and therefore significant.

Consideration of the Temporary Use of the Rose Bowl by the NFL

In a scenario where an NFL team would be playing games at the Rose Bowl, operational emissions from vehicles traveling to the Rose Bowl would be significant. Project related emissions were considered cumulatively considerable for long-term operation since they exceed SCAQMD's daily regional threshold values. With or without the use of the Rose Bowl by the NFL, the proposed project would be cumulatively considerable and therefore significant.

5.2.5 Existing Regulations and Standard Conditions

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)

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

Local

- City of Pasadena Zoning Code Chapter 17.46.320, Bicycle Parking Standards. Sets required number of bicycle spaces for any new structure, or an addition to any existing structure that exceeds 15,000 square feet in gross floor area.

- City of Pasadena Municipal Code Chapter 14.04, Green Building Standards Code. Makes select voluntary components of CALGreen mandatory.

    - All buildings required to be constructed to achieve 15 percent more energy efficiency than the 2008 Building and Energy Efficiency standards (Section 14.04.508) and include access for solar systems (i.e., solar readiness).

    - Buildings required to comply with Tier 1, as amended (Section 14.04.504):

        - Municipal buildings of 5,000 square feet or more of new construction

        - Non-residential buildings with 25,000 square feet or more of new construction.

        - Tenant improvements of 25,000 square feet or more mixed-use and multi-family residential buildings four stories in height or more.

      Buildings are required to have a 20 percent reduction in energy use (Section 14.04.540) and include prerequisite and elective measures to achieve an equivalent 40 Leadership in Energy Efficiency and Design (LEED) points including: installation of cool roofs, installation of dual plumbing where recycled water is available, and have 10 percent parking capacity designated for fuel efficient vehicles, and 65 percent reduction in construction waste.

    - Buildings required to comply with Tier 2, as amended (Section 14.04.504):

        - New municipal buildings.

        - Municipal renovations of 15,000 square feet or more.

        - Commercial buildings over 50,000 square feet.

      Buildings are required to have a 30 percent reduction in energy use (Section 14.04.540) and include prerequisite and elective measures to achieve an equivalent 50 LEED points including: installation of cool roofs, installation of dual plumbing where recycled water is available, and have 12 percent parking capacity designated for fuel efficient vehicles, and 80 percent reduction in construction waste.

5.2.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impact would be less than significant: Impact 5.2-5

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

- Impact 5.2-1 The Lincoln Avenue Specific Plan is a regionally significant project whose operational phase emissions would substantially contribute to air pollutant emissions

in the South Coast Air Basin and potentially conflict with the assumptions in the Air Quality Management Plan.

- Impact 5.2-2 Short-term construction emissions generated by development within the Lincoln Avenue Specific Plan would result in emissions that exceed South Coast Air Quality Management District's regional significance thresholds and cumulatively contribute to the ozone, particulate matter, and nitrogen dioxide nonattainment designations of the SoCAB.

- Impact 5.2-3 Land uses associated with redevelopment of the Lincoln Avenue Specific Plan would generate criteria air pollutant emissions that exceed South Coast Air Quality Management District's regional significance thresholds and would significantly contribute to the ozone, particulate matter, and nitrogen dioxide nonattainment designations of the SoCAB.

- Impact 5.2-4 Construction activities associated with the Lincoln Avenue Specific Plan could expose sensitive receptors to substantial pollutant concentrations

- Impact 5.2-6 The Lincoln Avenue Specific Plan may result in placement of sensitive land uses proximate to major sources of air pollution

5.2.7 Mitigation Measures

Impact 5.2-1

Mitigation measures applied for Impact 5.2-2 and Impact 5.2-3 would reduce the project's regional construction-related and operational phase criteria air pollutant emissions to the extent feasible.

Impact 5.2-2

2-1 Applicants for new development projects within the Lincoln Avenue Specific Plan shall require the construction contractor to use equipment that meets the United States Environmental Protection Agency (EPA)-Certified emissions standards according to the following schedule.

- From the end of 2011 to December 31, 2014, all project-related off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 3 off-road emissions standards. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine, as defined by CARB regulations.

- After January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 4 emission standards. 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 CARB regulations.

Prior to construction, the project engineer shall ensure that all demolition and grading plans clearly show the requirement for EPA Tier 3 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 project site for verification by the Building Official or their designee. The construction equipment list shall state the makes, models, and numbers of construction equipment onsite. Equipment shall properly service and maintain construction

equipment 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.

2-2 Applicants for new development projects within the Lincoln Avenue 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 Rule 403 to further reduce PM_{10} and $PM_{2.5}$ emissions. The Building Official or their designee shall verify compliance 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 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 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.

2-3 Applicants for new development projects within the Lincoln Avenue Specific Plan shall require the construction contractor to use coatings and solvents with a volatile organic compound (VOC) content lower than required under Rule 1113 (i.e., super compliant paints). All architectural coatings shall be applied either by (1) using a high-volume, low-pressure spray method operated at an air pressure between 0.1 and 10 pounds per square inch gauge to achieve a 65 percent application efficiency; or (2) manual application using a paintbrush, hand-roller, trowel, spatula, dauber, rag, or sponge, to achieve a 100 percent applicant efficiency. 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 Building Official or their designee during construction.

Impact 5.2-3

The City of Pasadena's Green Building Practices Ordinance (Municipal Code Chapter 14.90) ensures new buildings are more energy efficient than the current building code. The following additional measures would encourage use of nonmotorized or alternative modes of transportation and energy-efficient appliances and reduce both criteria air pollutant and greenhouse gas emissions.

2-4 Residential developments that include garage parking shall be electrically wired to accommodate electric vehicle charging. The location of the electrical outlets shall be specified on building plans and proper installation shall be verified by the Building Division prior to issuance of a Certificate of Occupancy.

2-5 Applicant-provided appliances shall be Energy Star appliances (dishwashers, refrigerators, clothes washers, and dryers). Installation of Energy Star appliances shall be verified by the Building Division during plan check.

Impact 5.2-4

Mitigation measures applied for Impact 5.2-2 would also reduce the project's localized construction-related criteria air pollutant emissions to the extent feasible.

Impact 5.2-6

2-6 The Project Applicant for residential or residential mixed-use projects within: 1) 1,000 feet from the truck bays of an existing distribution centers that accommodate more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units, or where transport refrigeration unit operations exceed 300 hours per week; 2) 1,000 feet of an industrial facility which emits toxic air contaminants; or 3) 500 feet of Interstate 210 (I-210) shall submit a health risk assessment (HRA) 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 (SCAQMD).

The HRA shall be submitted to the Zoning Administrator prior to approval of any future discretionary residential or residential mixed-use project. If the HRA shows that the incremental cancer risk exceeds one in one hundred thousand (1.0E-05), or the appropriate noncancer hazard index exceeds 1.0, the HRA shall identify the level of high-efficiency Minimum Efficiency Reporting Value (MERV) filter required to reduce indoor air concentrations of pollutants to achieve the cancer and/or noncancer threshold.

The Applicant shall be required to install high efficiency MERV filters in the intake of residential ventilation systems, consistent with the recommendations of the HRA. Heating, air conditioning and ventilation (HVAC) systems shall be installed with a fan unit power designed to force air through the MERV filter. To ensure long-term maintenance and replacement of the MERV filters in the individual units, the following shall occur:

a) Developer, sale, and/or rental representative shall provide notification to all affected tenants/residents of the potential health risk for affected units.

b) For rental units, the owner/property manager shall maintain and replace MERV filters in accordance with the manufacture's recommendations. The property owner shall inform renters of increased risk of exposure to diesel particulates when windows are open.

c) For residential owned units, the Homeowner's Association (HOA) shall incorporate requirements for long-term maintenance in the Covenant Conditions and Restrictions and inform homeowners of their responsibility to maintain the MERV filter in accordance with the manufacturer's recommendations. The HOA shall inform homeowners of increased risk of exposure to diesel particulates when windows are open.

d) Outdoor active-use public recreational areas associated with development projects shall be located more than 500 feet from the nearest lane of traffic on the Interstate 210.

5.2.8 Level of Significance After Mitigation

Impact 5.2-1

Mitigation measures applied for Impact 5.2-2 and Impact 5.2-3 would reduce the 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 project would continue to be potentially inconsistent with the assumptions in the AQMP. Impact 5.2-1 would remain significant and unavoidable.

Impact 5.2-2

Mitigation Measures 2-1 through 2-3 would reduce criteria air pollutants generated from project-related construction activities. Buildout of the Lincoln Avenue Specific Plan would occur over a period of approximately 10 years or longer Construction time frames and equipment for individual site specific projects are not available. 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 2-1 through 2-3, Impact 5.2-2 would remain significant and unavoidable.

Impact 5.2-3

Compliance with the City of Pasadena Zoning Code Chapter 17.46.320 and Mitigation Measure 2-4 would require applicants for new development projects within the Lincoln Avenue Specific Plan to designate spaces for bicycle storage and for electric vehicle charging in residential units, respectively, in order to encourage residents to take zero- or near-zero emission vehicles or alternative modes of transportation. Mitigation Measure 2-5 would require installation of energy efficient appliances to reduce natural gas consumption and energy demand from new buildings. Furthermore, adherence to the City's Green Building Standards Code (Municipal Code Section 14.04) would ensure that new buildings are energy efficient by requiring both residential and nonresidential construction to be constructed to be more energy efficient than the existing 2008 Building and Energy Efficiency Standards, depending on the size of the project (i.e., all projects would be a minimum of 15 percent more efficient, nonresidential over 25,000 square feet would be 20 percent more efficient, and nonresidential over 50,000 square feet would be 30 percent more efficient). Compliance with the City's Green Building Standards Code, Zoning Code Chapter 17.46.320 and Mitigation Measures 2-4 through 2-5 would reduce operational phase criteria air pollutants to the extent practicable. However, criteria air pollutant emissions would continue to exceed the SCAQMD regional significance thresholds and Impact 5.2-3 would remain significant and unavoidable.

Impact 5.2-4

Mitigation Measures 2-1 and 2-2 applied for Impact 5.2-2 would reduce the 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 project have the potential to exceed SCAMQD's LSTs. Impact 5.2-4 would remain significant and unavoidable.

Impact 5.2-6

The proposed project would result in construction of 91 new residential units within the Lincoln Avenue Specific Plan boundaries at build out. The exact location of new sensitive land uses is not known at this time, although residential uses would be allowed near the I-210 as part of a mixed-use development or near existing light industrial in the interim period until these industrial sites transition into new land uses. Existing sources of toxic air contaminants that have the potential to affect new sensitive land uses within the Lincoln

Avenue Specific Plan boundaries include I-210 and stationary sources (e.g., Robertson's Ready Mix), and mobile sources (e.g., truck idling) at light industrial land uses. Adherence to Mitigation Measure 2-6 would ensure that new residential land uses proximate to these major sources of toxic air contaminants reduce risk by installing high-efficiency MERV filters to reduce indoor concentrations particulates (including diesel particulate matter, which comprises the majority of risk) below SCAQMD's threshold. With implementation of Mitigation Measure 2-6, Impact 5.2-6 would be less than significant.

This page intentionally left blank.