4.5 AIR QUALITY

INTRODUCTION

This section describes the ambient air quality of the local and regional area and provides a comparison of existing air quality to applicable state and federal pollutant standards. In addition, sources of air emissions in the vicinity of the project site are identified and discussed. This section also identifies the plans and policies developed in efforts to improve air quality. Finally, this section evaluates potential air quality impacts associated with the Project, and identifies mitigation measures to reduce potential impacts. Sources utilized in this discussion include the South Coast Air Quality Management District (SCAQMD) California Environmental Quality Act (CEQA) Air Quality Handbook*, and air quality data from the California Air Resources Board (CARB). Air quality modeling conducted for the Project is contained within* ***Appendix 4.5*** *of this EIR.*

ENVIRONMENTAL SETTING

Regional Climate

Air quality is affected by both the rate and location of pollutant emissions. It is also heavily influenced by meteorological conditions that affect the movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, strongly affect the relationship between pollutant emissions and air quality.

The Project lies within the South Coast Air Basin (SCAB or Basin). The Basin consists of all or portions of four counties, including all of Orange County, most of Los Angeles County, and the western, non-desert portions of San Bernardino and Riverside Counties.

The atmospheric pollution potential of an area is largely dependent on winds, atmospheric stability, solar radiation, and topography. The combination of low wind speeds and low inversions produce the greatest concentration of air pollutants. Smog potential is greatly reduced on days without inversions, or on days with winds averaging over 15 miles per hour (mph).[1]

The regional climate significantly influences the air quality in the Basin. Temperature, wind, humidity, precipitation, and even the amount of sunshine influence the quality of the air. In addition, the Basin is frequently subjected to an inversion layer that traps air pollutants. Temperature has an important influence on Basin wind flow, pollutant dispersion, vertical mixing, and photochemistry.

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1 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (Diamond Bar, California: South Coast Air Quality Management District, November 1993), page A8-1.

Annual average temperatures throughout the Basin vary from the low to middle 60s Fahrenheit (°F). However, due to decreased marine influence, the eastern portion of the Basin shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the Basin, and annual average minimum temperatures are 56°F in downtown Los Angeles, 49°F in San Bernardino, and 55°F in Long Beach. July and August are the warmest months in the Basin, and annual average maximum temperatures are 83°F in downtown Los Angeles, 95°F in San Bernardino, and 85°F in Long Beach. All portions of the Basin have recorded maximum temperatures above 100°F.

Although the climate of the Basin can be characterized as semi arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of Basin climate. Humidity restricts visibility in the Basin, and the conversion of sulfur dioxide (SO_2) to sulfates is heightened in air with high relative humidity. The marine layer is an excellent environment for that conversion process, especially during the spring and summer months. The annual average relative humidity is 71 percent along the coast and 59 percent inland. Because the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90 percent of the Basin's rainfall occurs from November through April. Annual average rainfall varies from approximately 9 inches in Riverside to 14 inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thundershowers near the coast and slightly heavier shower activity in the eastern portion of the region and near the mountains.

Existing Air Quality

Regional Air Quality

The air pollutants within the Basin are primarily generated by two categories of sources: stationary and mobile. Stationary sources are known as "point sources," which have one or more emission sources at a single facility, or "area sources," which are widely distributed and produce many small emissions. Point sources are usually associated with manufacturing and industrial uses and include sources such as refinery boilers or combustion equipment that produces electricity or process heat. Examples of "area sources" include residential water heaters, painting operations, lawn mowers, agricultural fields, landfills, and consumer products, such as barbecue lighter fluid or hair spray. "Mobile sources" refer to operational and evaporative emissions from motor vehicles. Mobile sources account for over 90 percent of the carbon monoxide (CO) emissions, approximately 50 percent of the oxides of sulfur (SO_X) emissions, over 90 percent of the oxides of nitrogen (NO_X) emissions, and over 50 percent of the volatile organic

compounds (VOC) found within the Basin.[2] Smog is formed when VOC and NO_X undergo photochemical reactions in sunlight to form ozone (O_3).

The determination of whether a region's air quality is healthful or unhealthful is evaluated by comparing contaminant levels in ambient air samples to national and state standards. Health-based air quality standards have been established by California and the federal government for the following seven "criteria" air pollutants: (1) O_3, (2) CO, (3) nitrogen dioxide (NO_2), (4) SO_2, (5) respirable particulate matter less than 10 microns in diameter (PM_{10}), (6) fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and (7) lead (Pb). These standards were established to protect sensitive receptors from adverse health impacts due to exposure to air pollution with a margin of safety. The California standards are more stringent than the federal standards and in the case of PM_{10} and SO_2, much more stringent. California has also established standards for sulfates, visibility reducing particles, hydrogen sulfide and vinyl chloride, none of which have corresponding federal standards. Generally, the sources for hydrogen sulfide emissions include decomposition of human and animal wastes and industrial activities, such as food processing, coke ovens, kraft paper mills, tanneries, and petroleum refineries. There are no such uses or sources generated by the Project. Similarly, the sources for vinyl chloride emissions include manufacturing of plastic products, hazardous waste sites, and landfills, and there are no such uses or sources generated by the Project. As a result, there is no need for any further evaluation of the hydrogen sulfide or vinyl chloride emissions associated with this Project. In addition, according to the SCAQMD 2003 Air Quality Management Plan, the sulfate and visibility reducing particle standards have not been exceeded anywhere in the Basin; therefore, due to its size and associated types of air pollution sources, the Project is not expected to have any direct impact on those pollutants. Accordingly, this air quality analysis will focus primarily on the seven "criteria" air pollutants identified above and their precursors.

Each of the air pollutants that are relevant to this project and that are of concern in the Basin is briefly described below.

- Ozone (O_3). O_3 is a gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

- Carbon Monoxide (CO). CO is a colorless, odorless gas produced by the incomplete combustion of fuels. 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, unlike ozone, and motor vehicles operating at slow speeds are the

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2 California Air Resources Board. "2005 Estimated Basin Data – South Coast Air Basin." [Online] [July 7, 2006]. <http://www.arb.ca.gov/ei/maps/basins/abscmap.htm >

primary source of CO in the Basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.

- Nitrogen Dioxide (NO_2). A reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO_2 is also a byproduct of fuel combustion. The principle form of NO_X produced by combustion is NO, but NO reacts quickly to form NO_2, creating the mixture of NO and NO_2. 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. NO_2 absorbs blue light; the result of which is a brownish-red cast to the atmosphere and reduced visibility.

- Volatile Organic Compounds (VOCs). VOCs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by VOCs, but rather by reactions of VOCs to form secondary air pollutants, including ozone. VOCs are also referred to as reactive organic compounds (ROCs) or reactive organic gases (ROGs). VOCs themselves are not "criteria" pollutants; however, they contribute to formation of O_3, $PM_{2.5}$, and PM_{10}.

- Respirable Particulate Matter (PM_{10}). PM_{10} consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM_{10}, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM_{10} is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.

- Fine Particulate Matter ($PM_{2.5}$). $PM_{2.5}$ refers to particulate matter that is 2.5 micrometers or smaller in diameter. The sources of $PM_{2.5}$ include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as SO_2, NO_X, and VOCs are transformed in the air by chemical reactions.

- Sulfur dioxide (SO_2). SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO_4).

- Lead (Pb). Pb occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so most such combustion emissions are associated with off-road vehicles such as racecars that use leaded gasoline. Other sources of Pb include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters.

Air quality of a region is considered to be in attainment of the state standards if the measured ambient air pollutant levels for O_3, CO, NO_2, PM_{10}, $PM_{2.5}$, SO_2 (1- and 24-hour), and lead are not exceeded, and all other standards are not equaled or exceeded at any time in any consecutive three-year period. The National Ambient Air Quality Standards (NAAQS) (other than O_3, PM_{10}, $PM_{2.5}$ and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant.

The Basin is currently designated as nonattainment for O_3 and PM_{10}, and $PM_{2.5}$ with respect to federal and state standards. These violations are largely due to automotive vehicle emissions from the Los Angeles metropolitan area. Once designated as nonattainment, the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) require the particular air basin to develop a plan that will reach attainment status. This usually involves the local air quality district (e.g., the SCAQMD), along with the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (U.S. EPA) adopting emission control measures to cumulatively reduce a particular pollutant emission. Those criteria pollutants currently in attainment within the Basin are expected to continue to decrease as control measures and strategies are developed to improve air quality.

The state and national ambient air quality standards for each of the "criteria" pollutants and their effects on health are summarized in **Table 4.5-1**, **Ambient Air Quality Standards**. **Table 4.5-1** also sets forth the state ambient air quality standards and health effects applicable to sulfates, visibility reducing particles, hydrogen sulfide and vinyl chloride, even though such pollutants are generally not applicable to the proposed uses on the Project site.

Table 4.5-1
Ambient Air Quality Standards

Air Pollutant	State Standard	Federal Primary Standard	Most Relevant Health Effects
Ozone (O_3)	0.070 ppm, 8-hr avg. 0.09 ppm, 1-hr avg.	0.08 ppm, 8-hr avg. (3-year average of annual 4th-highest daily maximum)	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals; and (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; and (d) Property damage
Carbon Monoxide (CO)	9.0 ppm, 8-hr avg. 20 ppm, 1-hr avg.	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses
Nitrogen Dioxide (NO_2)	0.25 ppm, 1-hr avg.	0.053 ppm, annual arithmetic mean	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extrapulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration

Air Pollutant	State Standard	Federal Primary Standard	Most Relevant Health Effects
Sulfur Dioxide (SO_2)	0.04 ppm, 24-hr avg. 0.25 ppm, 1-hr. avg.	0.030 ppm, annual arithmetic mean 0.14 ppm, 24-hr avg.	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in person with asthma
Respirable Particulate Matter (PM_{10})	20 µg/m^3, annual arithmetic mean 50 µg/m^3, 24-hr avg.	150 µg/m^3, 24-hr avg.	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; and (b) Excess seasonal declines in pulmonary function, especially in children
Fine Particulate Matter ($PM_{2.5}$)	12 µg/m^3, annual arithmetic mean	15 µg/m^3, annual arithmetic mean (3-year average) 35 µg/m^3, 24-hr avg. (3-year average of 98th percentile)	(a) Increased hospital admissions and emergency room visits for heart and lung disease; (b) Increased respiratory symptoms and disease; and (c) Decrease lung functions and premature death
Lead[3]	1.5 µg/m^3, 30-day avg.	1.5 µg/m^3, calendar quarterly average	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction
Sulfates	25 µg/m^3, 24-hr avg.	None	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardiopulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Visibility-Reducing Particles	In sufficient amount to produce extinction of 0.23 per kilometer due to particles when relative humidity less than 70%, 8-hour average (10 AM–6 PM)	None	Visibility impairment on days when relative humidity is less than 70 percent
Hydrogen Sulfide	0.03 ppm, 1-hr avg.	None	Odor annoyance
Vinyl Chloride[3]	0.01 ppm, 24-hr avg.	None	Known carcinogen

Source:

[1] *California Air Resources Board. "Air Quality Standards." [Online] [February 22, 2007]. <http://www.arb.ca.gov/research/aaqs/aaqs.htm>*

[2] *South Coast Air Quality Management District. Final Program Environmental Impact Report to the 2003 Draft AQMP (Diamond Bar, California: South Coast Air Quality Management District, August 2003), Table 3.1-1, p. 3.1-2. This report may be reviewed on the SCAQMD website at http://www.aqmd.gov/ceqa/documents/2003/aqmd/finalEA/aqmp/AQMP_FEIR.html*

[3] *CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.*

µg/m^3 = microgram per cubic meter.

ppm = parts per million by volume.

Local Air Quality

The SCAQMD oversees various stations that monitor air quality throughout the Basin. To monitor the concentrations of criteria pollutants, the SCAQMD has divided its jurisdictional territory into source receptor areas (SRAs) in which 33 air quality-monitoring stations are operated. The Project is located within SRA 7, which encompasses the East San Fernando Valley, including a portion of the City of Glendale. State Route 134 (SR-134), Interstate 5 (I-5), surface arterials, residential, and commercial uses characterize the Project area. Sources of emissions in the area include stationary activities, such as space heating, cooking, water heating, and mobile activities—primarily automotive traffic and aircraft operations.

As shown in **Table 4.5-2, Ambient Pollutant Concentrations Registered in SRA 7**, air quality in SRA 7 indicates the various monitored emission levels in the vicinity of the Project site. The ambient air quality standards for carbon monoxide and sulfur dioxide have not been exceeded during the period shown.

Table 4.5-2
Ambient Pollutant Concentrations Registered in SRA 7

Pollutant	Standards[1,2]	Year 2002	2003	2004	2005	2006
EAST SAN FERNANDO VALLEY MONITORING STATION						
OZONE (O_3)						
Maximum 1-hour concentration monitored (ppm)		0.128	0.134	0.137	0.142	0.170
Maximum 8-hour concentration monitored (ppm)		0.097	0.108	0.109	0.107	0.128
Number of days exceeding state 1-hour standard	0.09 ppm	17	37	27	13	25
Number of days exceeding federal 8-hour standard	0.08 ppm	6	20	7	2	12
CARBON MONOXIDE (CO)						
Maximum 1-hour concentration monitored (ppm)		6	5	5	4	4
Maximum 8-hour concentration monitored (ppm)		4.6	4.7	3.7	3.3	3.5
Number of days exceeding state 8-hour standard	9.0 ppm	0	0	0	0	0
Number of days exceeding federal 8-hour standard	9 ppm	0	0	0	0	0
NITROGEN DIOXIDE (NO_2)						
Maximum 1-hour concentration monitored (ppm)		0.26	0.14	0.12	0.09	0.10
Annual arithmetic mean concentration (ppm)		0.0402	0.0356	0.0332	0.0294	0.0274
Number of days exceeding state 1-hour standard	0.25 ppm	1	0	0	0	0
SULFUR DIOXIDE (SO_2)						
Maximum 1-hour concentration monitored (ppm)		0.01	0.01	0.02	0.02	0.01
Maximum 24-hour concentration monitored (ppm)		0.007	0.005	0.010	0.012	0.004
Number of days exceeding state 1-hour standard	0.25 ppm	0	0	0	0	0

Pollutant	Standards[1,2]	Year 2002	2003	2004	2005	2006
Number of days exceeding state 24-hour standard	0.04 ppm	0	0	0	0	0
Number of days exceeding federal 24-hour standard	0.14 ppm	0	0	0	0	0
RESPIRABLE PARTICULATE MATTER (PM_{10})						
Maximum 24-hour concentration ($\mu g/m^3$)		71	81	74	72	71
Number of samples exceeding state standard	50 $\mu g/m^3$	0	0	0	0	0
Number of samples exceeding federal standard	150 $\mu g/m^3$	7	7	7	6	10
FINE PARTICULATE MATTER ($PM_{2.5}$)						
Maximum 24-hour concentration ($\mu g/m^3$)		63.0	120.6	60.1	62.1	50.7
Number of samples exceeding federal standard[3]	35 $\mu g/m^3$	0	1	0	0	6

Sources: South Coast Air Quality Management District, Air Quality Data (for, 2002, 2003, 2004, 2005, and 2006), (Diamond Bar, California: South Coast Air Quality Management District, 2002, 2003, 2004, 2005, and 2006); California Air Resources Board, Technical Support Division, California Air Quality Data [for 2002, 2003, 2004, 2005, and 2006], (Sacramento, California: California Air Resources Board, 2002, 2003, 2004, 2005, and 2006).

[1] *Parts per million of air by volume (ppm), micrograms per cubic meter of air ($\mu g/m3$), or annual arithmetic mean (aam).*

[2] *Federal and state standards are for the same time period as the maximum concentration measurement unless otherwise indicated.*

[3] *The federal $PM_{2.5}$ standard was revised from 65 to 35 $\mu g/m^3$ in September 2006. Statistics from 2002 to 2005 are based on the 65 $\mu g/m^3$ standard, 2006 data is based on the 35 $\mu g/m^3$standard.*

Lead and sulfates are not monitored in SRA 7, but the standard for these pollutants has not been exceeded in the SCAB since 1982 and 2001, respectively. Hydrogen sulfide, vinyl chloride, and visibility reducing particles were not monitored by CARB or the SCAQMD in Los Angeles County during the period of 2002 to 2006.

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. Any facilities that house these sensitive receptors are considered sensitive land uses.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time. It is, therefore, a primary goal to avoid subjecting these populations to sustained exposure of any pollutants. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions that can magnify the damage caused by air pollution. Industrial and commercial workers are considered the least sensitive to air pollution. Exposure periods

are relatively short and intermittent due to a majority of the workers staying indoors. In addition, the working population is generally the healthiest segment of the public.

The Project is surrounded by retail-commercial land uses, which are not considered sensitive receptors. There are, however, residential uses in the vicinity of the Project to the east and west of the downtown core, which are considered sensitive.

REGULATORY FRAMEWORK

United States Environmental Protection Agency

The U.S. EPA is responsible for enforcing the federal CAA and the NAAQS that it establishes. These standards identify levels of air quality for seven "criteria" pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The threshold levels are considered to be the maximum concentration of ambient (background) air pollutants determined safe (within an adequate margin of safety) to protect the public health and welfare. The federal ambient air quality standards are listed in **Table 4.5-1**. As indicated, the averaging times for the various pollutants range from one hour to annual. The standards are reported as a concentration, in parts per million (ppm) by volume, or as a weighted mass of material per a volume of air, in micrograms of pollutant per cubic meter of air ($\mu g/m^3$).

The U.S. EPA designates air basins as being in "attainment" or "nonattainment" for each of the seven "criteria" pollutants. Nonattainment air basins are ranked (marginal, moderate, serious, severe, or extreme) according to the degree of the threshold violation. The air basin is then required to submit a State Implementation Plan (SIP) that describes how the state will achieve the federal standards by specified dates. The stringency of emission control measures in a given SIP depends on the severity of the air quality within specific air basin. The status of the Basin with respect to NAAQS attainment is summarized in **Table 4.5-3**, **National Ambient Air Quality Standards and Status – South Coast Air Basin.**

The 1990 CAA Amendments were enacted in order to better protect the public's health and create more efficient methods of lowering pollutant emissions. The major areas of improvement from the amendments include air basin designations, automobile/heavy duty engine emissions, and toxic air pollutants. In response to the rapid population growth and its subsequent rise in automobile operations, the 1990 CAA Amendments address tailpipe emissions from automobiles, heavy-duty engines, and diesel fuel engines. The 1990 Amendments established more stringent standards for hydrocarbons, NO_x, and CO emissions in order to reduce ozone and carbon monoxide levels in heavily populated areas. Fuels became more strictly regulated by requiring new fuels to be less volatile, contain less sulfur (regarding diesel fuels), and have higher levels of oxygenates (oxygen-containing substances to improve fuel

combustion). The U.S. EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

Table 4.5-3
National Ambient Air Quality Standards and Status
South Coast Air Basin

Pollutant	Averaging Time	Designation/Classification
Ozone (O_3)	8 Hour	Nonattainment/Severe 17
Carbon Monoxide (CO)	1 Hour, 8 Hour	Attainment
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	Attainment/Unclassifiable
Sulfur Dioxide (SO_2)	24 Hour, Annual Arithmetic Mean	Attainment
Respirable Particulate Matter (PM_{10})	24 Hour	Nonattainment/Serious
Fine Particulate Matter ($PM_{2.5}$)	24 Hour, Annual Arithmetic Mean	Nonattainment
Lead (Pb)	Calendar Quarter	Attainment

Source: Environmental Protection Agency. "Region 9: Air Programs, Air Quality Maps." [Online] [July 19, 2007]. <http://www.epa.gov/region9/air/maps/maps_top.html>

Due to the lack of toxic emissions reduction by the 1977 CAA, the 1990 CAA Amendments listed 189 hazardous air pollutants (HAPs) that are carcinogenic, mutagenic, and/or reproductive toxins to be reduced. Title III of the 1990 federal CAA Amendments amended Section 112 of the CAA to replace the former program with an entirely new technology-based program. This program involves identifying all major sources (greater than 10 tons/year of a single HAP or 25 tons/year of combined HAPs) and area sources (i.e., non-major sources) in order to implement Maximum Achievable Control Technology (MACT) that will reduce health impacts.

California Air Resource Board

CARB, a branch of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California. It is primarily responsible for ensuring the implementation of the CCAA, responding to the federal CAA requirements, and for regulating emissions from motor vehicles and consumer products within the state. CARB also sets health-based air quality standards and control measures for toxic air contaminants (TACs). The focus of most of its research goes toward automobile emissions, since it is the largest concern regarding air pollution in California. CARB establishes new standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

Enacted in 1988, the CCAA established a legal mandate for air basins to achieve the California ambient air quality standards by the earliest practical date. These standards apply to the same seven criteria pollutants as the federal ambient air quality standards and also include sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. State standards are more stringent than the federal standards, and in the case PM_{10} and SO_2, far more stringent.

CARB approved staff recommendations to amend the ozone standard on April 28, 2005, by adding a new 8-hour standard. On April 17, 2006, the regulation implementing the new state 8-hour ozone standard was approved by the Office of Administrative Law (OAL), and became effective on May 17, 2006. The new 8-hour state standard of 0.070 ppm is more stringent than the federal 8-hour standard of 0.08 ppm. CARB is currently evaluating monitoring data to designate air basins under the new 8-hour state ozone standard.

CARB supervises and supports the regulatory activities of local air quality districts as well as monitors air quality itself. Health and Safety Code Section 39607(e) requires CARB to establish and periodically review area designation criteria. These designation criteria provide the basis for CARB to designate areas of the state as "attainment," "nonattainment," or "unclassified" according to state standards. CARB will designate an area as nonattainment for a pollutant if monitoring data shows that a California Ambient Air Quality Standards (CAAQS) for a particular pollutant was violated at least once during the previous three years. In addition, Health and Safety Code §39608 requires CARB to use the designation criteria to designate areas of California and to annually review those area designations. CARB makes area designations for ten criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, sulfates, lead, hydrogen sulfide, and visibility reducing particles. The status of the Basin with respect to attainment for the CAAQS is summarized in **Table 4.5-4**, **California Ambient Air Quality Standards and Status – South Coast Air Basin**.

South Coast Air Quality Management District

The SCAQMD is responsible for regional air quality to be in attainment with both federal and state ambient air quality standards. The SCAQMD primarily regulates emissions from stationary sources such as manufacturing and power generation. Mobile sources such as buses, automotive vehicles, trains, and airplanes are largely outside the SCAQMD's jurisdiction, and, therefore, CARB and U.S. EPA regulate these sources. In order to achieve air quality standards, the SCAQMD adopts an Air Quality Management Plan (AQMP) that serves as a guideline to bring pollutant concentrations into attainment with federal and state standards. The SCAQMD adopts rules, control measures, and permitting programs that are appropriate for their specific region according to technical feasibility, cost effectiveness,

and the severity of nonattainment. The SCAQMD must then implement and enforce compliance with those rules and programs.

Table 4.5-4
California Ambient Air Quality Standards and Status
South Coast Air Basin

Pollutant	Averaging Time	Designation/Classification
Ozone (O_3)	1 Hour, 8 Hour	Nonattainment[1]
Carbon Monoxide (CO)	1 Hour, 8 Hour	Attainment
Nitrogen Dioxide (NO_2)	1 Hour	Attainment
Sulfur Dioxide (SO_2)	1 Hour, 24 Hour	Attainment
Respirable Particulate Matter (PM_{10})	24 Hour, Annual Arithmetic Mean	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	Nonattainment
Lead (Pb)[2]	30 Day Average	Attainment
Sulfates (SO_4)	24 Hour	Attainment
Hydrogen Sulfide (H_2S)	1 Hour	Unclassified
Vinyl Chloride[2]	24 Hour	Unclassified
Visibility Reducing Particles	8 Hour (10 AM–6 PM)	Unclassified

Source: California Air Resources Board. "Area Designations Maps/State and National." [Online] [July 26, 2007]. <http://www.arb.ca.gov/desig/adm/adm.htm>

[1] CARB has not issued area classifications based on the new state 8-hour standard. The previous classification for the 1-hour ozone standard was Extreme.

[2] CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined.

Among the SCAQMD rules applicable to the Project are Rule 403 (Fugitive Dust) Rule 1113 (Architectural Coatings) and Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities). Rule 403 requires the use of stringent best available control measures to minimize PM_{10} emissions during grading and construction activities. Rule 1113 will require reductions in the VOC content of coatings, with a substantial reduction in the VOC content limit for flat coatings in July 2008. Compliance with SCAQMD Rule 1403 requires the owner or operator of any demolition or renovation activity to have an asbestos survey performed prior to demolition and to minimize the release of asbestos during these activities.

Southern California Association of Governments

Southern California Association of Governments (SCAG) is a council of governments for the Counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. As a regional planning agency, SCAG serves as a forum for regional issues relating to transportation, economy, community development, and the environment. SCAG also serves as the regional clearinghouse for projects

requiring environmental documentation under federal and state law. In this role, SCAG reviews projects to analyze their impacts on SCAG's regional planning efforts.

Although SCAG is not an air quality management agency, it is responsible for several air quality planning issues. As the designated Metropolitan Planning Organization (MPO) for the Southern California region, it is responsible, pursuant to §176(c) of the 1990 amendments to the CAA, for providing current population, employment, travel, and congestion projections for regional air quality planning efforts.

Rules and Regulations

Air Quality Plans

For this Project, the SCAQMD and SCAG have the responsibility of preparing the AQMP that addresses both federal and state CAA requirements.[3] The AQMP must specify goals, policies, and programs for improving air quality, and it establishes thresholds for daily operation emissions. Environmental review of individual projects within the region must demonstrate whether daily construction and operational emissions exceed thresholds established by the SCAQMD.[4]

The 2003 AQMP[5] is the most recent plan that has been submitted to the U.S. EPA. It addressed CAA requirements that are intended to bring the Basin into compliance with federal and state ambient air quality standards. The AQMP focuses on the reduction of O_3 precursor and CO emissions through public and private sources. On November 8, 2005, the U.S. EPA issued a final rule outlining the requirements for a new plan to achieve the 8-hour standard. The SCAQMD has published the Draft Final 2007 AQMP, which was adopted by the SCAQMD Governing Board on June 1, 2007. The purpose of the 2007 AQMP for the Basin (and those portions of the Salton Sea Air Basin under the SCAQMD's jurisdiction) is to set forth a comprehensive program that will lead these areas into compliance with federal and state air quality planning requirements for ozone and $PM_{2.5}$. In addition, as part of the 2007 AQMP, the SCAQMD is requesting U.S. EPA's approval of a "bump-up" to the "extreme" nonattainment classification for the Basin, which would extend the attainment date to 2024 and allow for the attainment demonstration to rely on emission reductions from measures that anticipate the development of new technologies or improvement of existing control technologies. Although $PM_{2.5}$ plans for nonattainment areas are due in April 2008, the 2007 AQMP also focuses on attainment strategies for the $PM_{2.5}$ standard through stricter control of sulfur oxides, directly-emitted $PM_{2.5}$, NO_X, and VOCs. The need to commence $PM_{2.5}$ control

3 SCAQMD, 2003, Draft 2003 Air Quality Management Plan.

4 Ibid.

5 Ibid.

strategies before April 2008 is due to the attainment date for $PM_{2.5}$ (2015) being much earlier than that for ozone (2021 for the current designation of severe-17 or 2024 for the extreme designation). Control measures and strategies for $PM_{2.5}$ will also help control ozone generation in the region because $PM_{2.5}$ and ozone share similar precursors (e.g., NO_X). The District has integrated $PM_{2.5}$ and ozone reduction control measures and strategies in the 2007 AQMP. In addition, the AQMP focuses on reducing VOC emissions, which have not been reduced at the same rate as NO_X emissions in the past. Hence, the Basin has not achieved the reductions in ozone as were expected in previous plans. The AQMP was based on assumptions provided by both CARB and SCAG in the new EMFAC2007 model for the most recent motor vehicle and demographics information, respectively.

The CCAA requires that these plans be updated triennially in order to incorporate the most recent available technical information.[6] In addition, the U.S. EPA requires that transportation conformity budgets be established based on the most recent planning assumptions (i.e., within the last five years). Plan updates are necessary to ensure continued progress toward attainment and to avoid a transportation conformity lapse and associated federal funding losses.

A multi-level partnership of governmental agencies at the federal, state, regional, and local levels implement the programs contained in these plans. Agencies involved include the U.S. EPA, CARB, local governments, SCAG, and the SCAQMD.

CEQA Guidelines

In 1993, the SCAQMD prepared its *CEQA Air Quality Handbook* to assist local government agencies and consultants in preparing environmental documents for projects subject to CEQA. There has been one full update to the document in November 1993, and it is currently undergoing an update process. The document describes the criteria that SCAQMD uses when reviewing and commenting on the adequacy of environmental documents. The handbook recommends thresholds of significance in order to determine if a project will have a significant adverse environmental impact. Other important contents are methodologies for predicting project emissions and mitigation measures that can be taken to avoid or reduce air quality impacts. Although the Governing Board of the SCAQMD has adopted the *CEQA Air Quality Handbook*, it does not, nor does it intend to, supersede a local jurisdiction's CEQA procedures.

As of August 2007, the *CEQA Air Quality Handbook* was still undergoing revision. However, the air quality significance thresholds have been revised, and a new procedure referred to as localized significance thresholds has been added. The *CEQA Air Quality Handbook* and these revised methodologies were used in preparing the air quality analysis in this EIR section.

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6 California Clean Air Act (CCAA) of 1988.

ENVIRONMENTAL IMPACTS

Methodology

Development of the Project would generate air emissions from a wide variety of stationary and mobile sources. Stationary source emissions would be generated by on-site construction activities, equipment, and consumption of natural gas and electricity once the proposed uses are occupied. During construction, mobile source emissions would be generated by motor vehicle travel and heavy-duty equipment usage associated with construction activities. During operation of the project, mobile source emissions would be generated by motor vehicle travel associated with occupancy of the proposed development. An assessment of construction and operational emissions is presented below and is based on the methodologies recommended in the SCAQMD's *CEQA Air Quality Handbook* and emission factors contained in the URBEMIS2007 Air Quality Impact Model. The URBEMIS2007 model is designed to estimate construction, mobile, and area source air pollutant emission quantities generated by land development projects. URBEMIS2007 uses on-road motor vehicle emission factors from the CARB motor vehicle emissions inventory computer model EMFAC2007.

Thresholds of Significance

The following thresholds for determining the significance of impacts related to air quality are contained in the environmental checklist form contained in Appendix G of the most recent update of the *CEQA Guidelines*. The *CEQA Guideline*s state that, where available the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

- Conflict with or obstruct the implementation of the applicable air quality plan?
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- Expose sensitive receptors to substantial pollutant concentrations?
- Create objectionable odors affecting a substantial number of people?

As the agency principally responsible for comprehensive air pollution control in the Basin, the SCAQMD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SCAQMD and published in the *CEQA Air Quality Handbook*. These thresholds were developed by the

SCAQMD to provide quantifiable levels to which individual projects can be compared. The following quantifiable thresholds are currently recommended by the SCAQMD and are used to determine the significance of air quality impacts associated with the Project.

Construction – The following significance thresholds for air quality have been established by the SCAQMD on a daily basis for construction emissions:

- 75 pounds per day of VOC;
- 100 pounds per day of NO_x;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10};
- 55 pounds per day of $PM_{2.5}$; and
- 150 pounds per day of SO_x.

During construction, if any of the identified daily air pollutant thresholds are exceeded by the Project, then the Project's air quality impacts would be considered significant.

In addition to the above listed emission-based thresholds, the SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the Project as a result of construction activities. This evaluation requires that anticipated ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance thresholds for PM_{10}, $PM_{2.5}$, NO_2, and CO.[7] The significance threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust), while the thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of the Project that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The significance threshold for $PM_{2.5}$ is intended to constrain emissions so as to aid in progress toward attainment of the ambient air quality standards.[8] For project sites of 5 acres or less, the SCAQMD Localized Significance Threshold Methodology (LST document) includes "lookup tables" that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., not cause an exceedance of the applicable concentration limits) without project-specific dispersion modeling. The allowable emission rates depend on (a) the SRA in which the project is located, (b) the size of the project site, and (c) the distance between

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7 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology* (Diamond Bar, California: South Coast Air Quality Management District, June 2003).

8 South Coast Air Quality Management District, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds* (Diamond Bar, California: South Coast Air Quality Management District, October 2006).

the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals). The Project site is 1.3 acres and the distance to the nearest sensitive receptor is 700 feet (213 meters). As the site is less than 5 acres, the SCAQMD lookup tables for SRA 7 (East San Fernando Valley) were used to determined compliance with LST document. The applicable thresholds are shown in **Table 4.5-5**, **Localized Significance Criteria for SRA 7.**

Table 4.5-5
Localized Significance Criteria for SRA 7

Pollutant	Threshold Pounds/day
Respirable Particulate Matter (PM_{10})	148
Fine Particulate Matter ($PM_{2.5}$)	21
Nitrogen Dioxide (NO_2)	206
Carbon Monoxide (CO)	2,247

Source: SCAQMD, Final Localized Significance Threshold Methodology*, June 2003, Appendix C and* Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds*, October 2006, Appendix B. LST thresholds are interpolated from the values in these documents, based on the project size and the distance to the nearest sensitive receptor.*

Operational – Specific criteria air pollutants have been identified by the SCAQMD as pollutants of special regional concern. Based upon this categorization, the following significance thresholds for operational emissions have been established by the SCAQMD for all types of project operations:

- 55 pounds per day of VOC;
- 55 pounds per day of NO_X;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10};
- 55 pounds per day of $PM_{2.5}$;
- 150 pounds per day of SO_X; and
- California state 1-hour or 8-hour CO standards.

Projects within the Basin with daily operation-related emissions that exceed any of the above emission thresholds would be considered significant.

In order to assess cumulative impacts, the *Air Quality Handbook* recommends that projects be evaluated to determine whether they would be consistent with AQMP performance standards and emission reduction targets.

The SCAQMD has indicated in Chapter 6 of the *Air Quality Handbook* that the agency considers a project to be mitigated to a level of less than significant if the project's primary effects are mitigated below the thresholds provided above.

Impact Analysis

Each applicable threshold of significance is listed below followed by analysis of the significance of any potential impacts and the identification of mitigation measures that would lessen or avoid potential impacts. Finally, the significance of potential impacts after implementation of all identified mitigation measures is presented.

Project Impacts

Threshold: **Conflict with or obstruct the implementation of the applicable air quality plan.**

Impact Analysis: The 2007 AQMP, discussed previously, was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment), developed by SCAG for their 2004 Regional Transportation Plan (RTP) were used to estimate future emission within the 2007 AQMP (refer to 2007 AQMP, Chapter 3). Projects that are consistent with the projections of population forecasts are considered consistent with the AQMP. The population projection used to estimate emissions in the AQMP for the Year 2010 assumed a population in Glendale of 210,482 persons. While the Project when added to the existing population of Glendale would result in 207,768 persons and would come close to exceeding the 2004 RTP population estimates (as discussed in **Section 4.2**, **Population and Housing**), the population increase would be below that estimated in the AQMP. Consequently, the Project would be consistent with this component of the

AQMP, since it would not induce growth over the projections that were used for future emission estimates.

Another measurement tool in assessing consistency with the AQMP is to determine how a project accommodates the expected increase in population or employment. Generally, if a project is planned in a way that results in the minimization of vehicle miles traveled (VMT) both within the project and the community in which it is located, and consequently the minimization of air pollutant emissions, that aspect of the project is consistent with the AQMP. The design of the Project and its objectives are consistent with the goals of the AQMP for reducing the emissions associated with new development. The Project's location within an urban area with both mixed-use residential and hotel uses would minimize the need for or the distance of some motor vehicle trips, thereby reducing motor vehicle emissions from such trips. The Project would include some retail uses (including a café and restaurant) that would meet some daily needs of residents on the site, reducing the need to leave during the day. This type of development is consistent with the goals of the AQMP for reducing motor vehicle emissions. In addition, the Project is linked to various residential neighborhoods in Glendale through the local transit system and sidewalks. As a result of reduced commutes and other vehicle trips, VMT, and resulting air pollutant emissions would be reduced. These types of development are consistent with the goals of the AQMP for reducing the impacts and emissions associated with new development.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation as a result of construction activity.**

Impact Analysis: The construction period for the Project is anticipated to consist of four phases, tentatively beginning in March 2008 and lasting approximately 32 months. Phase I would consist of grading/excavation and would involve tree removal and gross abatement. Tree removal and gross abatement would require the removal of existing vegetation on site. A total of 1,100 cubic yards of organic material is estimated to be exported from the Project site and will require an average of 11 round truck trips per day for one week. Phase II would consist of the excavation of existing fill materials and replacement with properly compacted fill materials. In addition, Phase II would also include mass grading. Grading for the residential subgrade parking lot would require excavation up to depths of 40 feet below the ground surface. A total of 86,830 cubic yards of soil is estimated to be exported from the site and will require an average of 49 round truck trips per day. These activities would involve the use of various heavy-duty construction equipment, which would be stored on site during construction to

minimize disruption of the surrounding land uses. The equipment mix has been estimated using the URBEMIS2007 Air Quality Impact Model. This phase is anticipated to take four months to complete.

Phase III would consist of subgrade construction, and Phase IV would involve building construction. Activities during these phases would involve the use of multiple pieces of heavy-duty construction equipment that would also be stored on site during construction to minimize disruption of surrounding land uses. The equipment mix has been estimated using the URBEMIS2007 Air Quality Impact Model. Paving operations during Phase IV would involve the use of one grader, one paver, one roller, and three mortar mixers. Activities during Phase III would involve up to 23 concrete trucks per day while activities during Phase IV would involve less than five material delivery trucks per day. Phase III will take approximately eight months to complete while Phase IV will take approximately 20 months to complete. Phase IV would commence following the completion of Phase III. Full build-out and occupancy of the Project is planned to be complete by 2010.

Construction Emissions – Construction emissions were calculated using construction emission factors contained in the URBEMIS2007 Air Quality Impact Model. **Table 4.5-6**, **Emissions Impacts of Construction**, identifies estimated daily emissions, which are associated with construction by year. These estimates are based on the expected location, size, and development of the Project. The analysis assumes that some activities (e.g., construction, architectural coatings, and asphalt paving) would overlap. In reality, this may not occur, and activities could be conducted on separate days. Therefore, **Table 4.5-6** represents a worst-case scenario for construction activities. These calculations also assume that appropriate dust control measures would be implemented during each construction activity of the Project as required by SCAQMD Rule 403-Fugitive Dust.

Table 4.5-6
Emissions Impacts of Construction

Emissions Source	Emissions in Pounds per Day					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2008						
Phase I (Demolition)	2.23	19.88	10.73	0.01	10.32	3.00
Phase II (Grading/Excavation)	6.52	68.23	31.32	0.04	16.03	5.66
Phase III (Sub grade Construction)	5.71	29.24	42.88	0.04	1.99	1.73
Maximum Daily 2008 Emissions:	6.52	68.23	42.88	0.04	16.03	5.66
2009						
Phase III (Sub grade Construction)	5.38	27.67	40.49	0.04	1.90	1.65
Phase IV (Super grade Construction)	22.89	40.41	49.60	0.04	3.00	2.66
Maximum Daily 2009 Emissions:	22.89	40.41	49.60	0.04	3.00	2.66
2010						
Phase IV (Super grade Construction)	22.56	26.01	38.75	0.04	1.78	1.54
Maximum Daily 2010 Emissions:	22.56	26.01	38.75	0.04	1.78	1.54
Maximum Daily Emission Totals:	**22.89**	**68.23**	**49.60**	**0.04**	**16.03**	**5.66**
SCAQMD Threshold:	75	100	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Source: Impact Sciences, Inc. Detailed URBEMIS2007 output files and calculations are provided in ***Appendix 4.5***
Note: Assumes compliance with Rule 403: Fugitive Dust

The emissions from concrete and material delivery trucks were estimated using emission factors derived from EMFAC2007 contained in URBEMIS2007. URBEMIS2007 estimates vendor truck trips and associated emissions based on the proposed land uses. The emissions associated with vendor (i.e., concrete and material delivery) trips are shown in the URBEMIS2007 outputs in **Appendix 4.5**.

As shown in **Table 4.5-6**, construction emissions would not exceed the thresholds of significance recommended by the SCAQMD for any air pollutant during any of the construction years. Therefore, the impacts resulting from construction of the Project are considered less than significant.

As indicated in the discussion of the threshold of significance, the SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the Project site. The SCAQMD Localized Significance Threshold Methodology (LST document) includes "lookup tables" that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., not cause an

exceedance of the applicable concentration limits). The allowable emission rates depend on (a) the SRA in which the Project is located, (b) the size of the site, and (c) the distance between the site and the nearest sensitive receptor (e.g., residences, schools, hospitals). The project-specific localized significance thresholds for SRA 7 (East San Fernando Valley) are shown in **Table 4.5-7, Localized Significance Thresholds Analysis during Construction**, and are compared with the maximum daily on-site construction emissions. The construction site is 1.3 acres. The LST construction emission thresholds shown below were interpolated for a 1.3-acre site from the LST lookup tables for 1-acre and 2-acre project sites. The nearest sensitive receptors (multi-family residences) are located approximately 700 feet (213 meters), or two blocks, west of the construction site boundary on Wilson Avenue across Central Avenue and about 725 feet (221 meters), or two blocks, east of the construction site boundary on Wilson Avenue across Brand Boulevard near Louise Street. For the purpose of this analysis, the more conservative 700 feet was used as the nearest sensitive receptor during construction. As shown in **Table 4.5-7**, construction activities would not generate emissions in excess of site-specific localized significance thresholds, and impacts would be less than significant.

Table 4.5-7
Localized Significance Thresholds Analysis during Construction

Pollutant	Averaging Period	On-Site Emissions lbs/day	LST Criteria[1,2] lbs/day	Exceeds LST?
Respirable Particulate Matter (PM_{10})	24 hours	14.05	148	NO
Fine Particulate Matter ($PM_{2.5}$)	24 hours	3.94	21	NO
Nitrogen Dioxide (NO_2)	1 hour	28.00	206	NO
Carbon Monoxide (CO)	1 hour	18.55	2,247	NO
	8 hours	18.55	2,247	NO

Source: Impact Sciences, Inc. Detailed URBEMIS2007 output files and calculations are provided in ***Appendix 4.5.***

[1] *South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, June 2003, http://www.aqmd.gov/ceqa/handbook/LST/appC.pdf.*

[2] *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, October 2006, http://www.aqmd.gov/CEQA/handbook/PM2_5/finalmeth.doc*

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation as a result of project operation.**

Impact Analysis:

Mobile and Area Source Emissions – Operational emissions would be generated by both area and mobile sources as a result of normal day-to-day activity on the Project site after occupancy. Area source emissions would be generated by the consumption of natural gas for space and water heating devices, use of consumer products, maintenance of architectural coatings, and landscape maintenance. Mobile emissions would be generated by the motor vehicles traveling to and from the Project site. Operational emissions of the Project are compared to the SCAQMD thresholds of significance.

The analysis of daily operational emissions has been prepared using the data, methodologies, and current motor vehicle emission factors in the URBEMIS2007 Air Quality Impact Model. The predicted emissions are based upon development of all the proposed land uses on the Project site, and are presented in **Table 4.5-8, Operational Emissions of Proposed Project – Year 2010.**

Table 4.5-8
Operational Emission of Proposed Project – Year 2010

	Emissions in Pounds per Day					
Emissions Source	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Summertime Emissions[1]						
Operational (Mobile) Sources	17.17	19.23	171.48	0.17	27.68	5.40
Area Sources	10.89	3.28	6.60	0.00	0.03	0.03
Summertime Emission Totals	28.06	22.51	178.08	0.17	27.71	5.43
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	NO	NO	NO	NO	NO	NO
Wintertime Emissions[2]						
Operational (Mobile) Sources	18.12	23.15	167.11	0.15	27.68	5.40
Area Sources	10.58	4.24	2.39	0.01	0.09	0.09
Wintertime Emission Totals	28.70	27.39	169.50	0.16	27.77	5.49
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	NO	NO	NO	NO	NO	NO

Source: Impact Sciences, Inc. Detailed URBEMIS2007 output files and calculations are provided in ***Appendix 4.5****.*
Totals in table may not appear to add exactly due to rounding in the computer model calculations.

[1] *Summertime Emissions" are representative of the conditions that may occur during the ozone season (May 1 to October 31).*

[2] *Wintertime Emissions" are representative of the conditions that may occur during the balance of the year (November 1 to April 30).*

The emissions associated with the Project would not exceed the SCAQMD's recommended operational emission thresholds of significance for any air pollutant. As a result, the operational impacts associated with the Project are considered less than significant.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**

Impact Analysis: The SCAQMD's *CEQA Air Quality Handbook* identifies methods to determine the cumulative significance of land use projects.[9] These methods are different than the methodology for construction and operational emissions used throughout the remainder of this Draft EIR in which all foreseeable future development within a given service boundary or geographical area is predicted and its impacts measured. Instead, the SCAQMD staff has suggested that the emissions-based thresholds be used to determine if a project's contribution to regional cumulative emissions is cumulatively considerable.[10] In addition, the relevant methods for determining cumulative impacts in the *CEQA Air Quality Handbook*, which are based on performance standards and emission reduction targets necessary to attain the federal and state air quality standards identified in the AQMP, are also evaluated.

The 2007 AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within the Basin, to meet state and federal air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. If the analysis shows that an individual project is consistent with the AQMP performance standards, the project's cumulative impact could be considered less than significant.[11] If the analysis shows that the project does not comply with the standards, then cumulative impacts are considered to be significant, unless there is other pertinent information to the contrary.[12]

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9 South Coast Air Quality Management District, *CEQA Air Quality Handbook* (Diamond Bar, California: South Coast Air Quality Management District, November 1993), p. 9-12.

10 Personal communication with Steve Smith, Program Supervisor, South Coast Air Quality Management District, Diamond Bar, California, with David Deckman, Impact Sciences, April 19, 2006.

11 South Coast Air Quality Management District, *CEQA Air Quality Handbook* (Diamond Bar, California: South Coast Air Quality Management District, November 1993), p. 9-12.

12 Ibid.

The following analysis assesses the Project's cumulative impacts based on the performance standard that are recommended in the SCAQMD's *CEQA Air Quality Handbook* and that are appropriate to the Project. As specified in the *CEQA Air Quality Handbook*, the ratio of project VMT or average daily trips (ADT) to anticipated VMT or ADT in the City or County in which the Project is located is compared to the ratio of the project population to the anticipated population in the same City or County.[13] If the growth of VMT or ADT is greater than the population growth, then the Project is considered to have a significant cumulative air quality impact, unless there is other pertinent information to the contrary. The relevant values are shown in **Table 4.5-9, Comparison of Growth of VMT to Population Growth**. As shown in **Table 4.5-9**, this criterion has been met; therefore, the Project would be considered to have a less-than-significant cumulative impact on air quality under this criterion.

Table 4.5-9
Comparison of Growth of VMT to Population Growth

	Vehicle Miles Traveled	Population
Proposed Project	6,475	494
Los Angeles County	211,882,048	10,373,469
Ratio of Project to Los Angeles County	0.000031	0.000048

*Source: Impact Sciences, Inc., Estimated project VMT from URBEMIS2007 output data (see **Appendix 4.5** of this EIR). Estimated VMT in the SCAB portion of Los Angeles County in 2010 (project buildout year) as determined by EMFAC2007. Estimated aggregated population in the SCAB portion of Los Angeles County in 2010. Source: Southern California Association of Governments. "City Projections." [Online] [August 8, 2007]. <http://scag.ca.gov/forecast/index.htm>.*

Because the SCAB is nonattainment for ozone, PM_{10}, and $PM_{2.5}$, the Project's construction and operational emissions could contribute to the cumulative air quality impacts in the Basin if the Project's contribution to regional emissions were significant. As shown in **Tables 4.5-6 and 4.5-8**, however, the Project's construction and operational emissions, respectively, would not exceed the project-level threshold of significance for any criteria pollutant. Accordingly, the Project's emissions would not be considered cumulatively considerable, and the cumulative air quality impact would be less than significant under this criterion.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

13 Ibid., p. A9-126.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis: Carbon monoxide is produced in greatest quantities from vehicle combustion, and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere. As a result, potential air quality impacts to sensitive receptors are assessed through an analysis of localized CO concentrations. Areas of vehicle congestion have the potential to create "pockets" of CO called "hotspots." These pockets have the potential to exceed the state ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm. Note that the federal levels are based on 1- and 8-hour standards of 35 and 9 ppm, respectively. Thus, an exceedance condition would occur based on the state standards prior to exceedance of the federal standard. As such, exceedance of the state ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm would constitute a significant air quality impact from the creation of substantial concentrations of CO.

The Project was evaluated to determine if it would cause a CO hotspot utilizing a simplified CALINE4 screening model developed by the Bay Area Air Quality Management District (BAAQMD). The simplified model is intended as a screening analysis that identifies a potential CO hotspot. If a hotspot is identified, the complete CALINE4 model is then utilized to determine precisely the CO concentrations predicted at the intersections in question. This methodology assumes worst-case conditions (i.e., wind direction is parallel to the primary roadway and 90 degrees to the secondary road, wind speed of less than one meter per second and extreme atmospheric stability) and provides a screening of maximum, worst-case, CO concentrations. According to the BAAQMD *CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans*, the simplified approach is acceptable for projects and plans that generate fewer than 10,000 new trips per day.[14] The simplified approach is acceptable to the SCAQMD as long as it is used consistently with the BAAQMD *Guidelines*.[15] This model is used to predict existing and future CO concentrations 0 and 25 feet from the intersections in the study area based on projected traffic volumes from these intersections contained in the project traffic study. Post-project maximum future CO concentrations were calculated for peak hour traffic volumes. The results of these CO concentration calculations are presented in **Table 4.5-10, Predicted Future Carbon Monoxide Concentrations – With Project**, for representative receptors located 0 and 25 feet from the intersection.

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14 Bay Area Air Quality Management District, BAAQMD *CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans* (San Francisco, California: Bay Area Air Quality Management District, December 1999), p. 37.

15 Personal communication with Steve Smith, Program Supervisor, South Coast Air Quality Management District, Diamond Bar, California, May 12, 2004.

Table 4.5-10
Predicted Future Carbon Monoxide Concentrations – With Project

	0 Feet		25 Feet	
Intersection	**1-Hour[1]**	**8-Hour[2]**	**1-Hour[1]**	**8-Hour[2]**
Central Avenue and SR-134 Westbound On-Ramp-Goode Avenue	8.0	7.5	7.4	7.1
Central Avenue and SR-134 Eastbound Off-Ramp-Sanchez Drive	7.8	7.4	7.3	7.1
Brand Boulevard and Goode Avenue-SR-134 Westbound Off-Ramp	8.4	7.9	7.6	7.3
Brand Boulevard and Sanchez Drive-SR-134 Eastbound On-Ramp	7.9	7.5	7.4	7.1

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 4.5****.*

[1] *State standard is 20 parts per million. Federal standard is 35 parts per million.*

[2] *State standard is 9.0 parts per million. Federal standard is 9 parts per million.*

As shown, the CALINE4 screening procedure predicts that, under worst-case conditions, future CO concentrations at each intersection would not exceed the state 1-hour and 8-hour standards with the development of the Project. No significant CO hotspot impacts would occur to sensitive receptors in the vicinity of these intersections. As a result, no significant project-related impacts would occur relative to future carbon monoxide concentrations.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project create objectionable odors affecting a substantial number of people.**

Impact Analysis: The Project would develop additional urban uses on the site, similar to uses already existing on and around the site, and it does not include uses that would generate significant objectionable odors, although it is possible that odors from restaurant operations may be occasionally perceptible. Operation of the Project would involve the disposal of refuse, including domestic and food service refuse from residential, hotel and retail uses. Existing restaurants may also dispose of refuse in trash containers near to proposed residential uses. This refuse would be disposed of in outdoor trash receptacles and could generate occasional odors pending regular collection and ultimate disposal into a sanitary landfill. However, Project-generated refuse would be disposed into appropriate trash collection containers, which

would be covered and enclosed as required by the City. As a result, impacts from odors would remain less than significant.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Cumulative Impacts

The geographic context for cumulative air quality impacts is SRA 7 of the Basin. This area covers the east San Fernando Valley. SCAQMD methodology is employed to evaluate potentially significant cumulative impacts resulting from implementation of the Project along with related projects in SRA 7.

Threshold: **Would the project conflict with or obstruct the implementation of the applicable air quality plan.**

Impact Analysis: Cumulative development (i.e., related projects) is not expected to result in a significant impact in terms of conflicting with, or obstructing implementation of, the AQMP. The AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of the SCAQMD, to return clean air to the region, and to minimize the impact on the economy. Growth considered to be consistent with the AQMP would not interfere with attainment because this growth is included in the projections utilized in the formulation of the AQMP. Consequently, as long as growth in the Basin is within the projections for growth identified in the AQMP, the plan would not be obstructed by such growth, and cumulative impacts would be less than significant. Additionally, since growth under the Project is consistent with growth under the AQMP and because of the mixed-use character of the Project, the impact of the Project is not cumulatively considerable and is less than significant.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

Impact Analysis: Because the Basin is currently in nonattainment for ozone, PM_{10}, and $PM_{2.5}$, cumulative development (i.e., related projects) could violate an air quality standard or contribute to an existing or projected air quality violation. Therefore, this is considered to be a potentially significant cumulative

impact. For purposes of this EIR, individual projects that exceed the SCAQMD recommended daily thresholds for project-specific impacts would be considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment. As discussed previously (see **Table 4.5-6**), construction of the Project would not generate emissions that would exceed any of the thresholds of significance recommended by the SCAQMD during peak construction activities. In addition, as shown in **Table 4.5-8**, long-term operational emissions associated with the day-to-day activities of the Project would not exceed any of the thresholds of significance recommended by the SCAQMD. Therefore, the Project would not cumulatively cause a violation of any air quality standard or contribute substantially to the existing ozone, PM_{10}, and $PM_{2.5}$ violation.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**

Impact Analysis: Reference to **Table 4.5-8** and the analysis contained therein shows that the Project's contribution to daily operational emissions is not expected to be cumulatively considerable. Furthermore, the Project's regional construction impacts would be below the significance thresholds as shown in **Table 4.5-6**. As recommended in the SCAQMD's *CEQA Air Quality Handbook*, this comparison suggests that the cumulative impacts with respect to operation and construction of the Project would be less than significant.

Furthermore, with regard to growth of VMT versus growth of population in the region, there would be a less-than-significant cumulative impact as discussed previously. The SCAQMD methods are based on performance standards necessary to attain federal and state air quality standards as predicted in the AQMP. Under the SCAQMD methodology, if the Project's relative contribution to VMT in the region is less than its relative increase in population, it would not cause a significant cumulative impact.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis: Cumulative development (i.e., related projects) is not expected to expose sensitive receptors to substantial pollutant concentrations. Traffic levels associated with future development, as well as those associated with the Project, would not result in localized CO levels that exceed national or state standards. Please refer to **Table 4.5-10**. Consequently, no significant cumulative impact would occur. It is also unlikely that future projects will result in long-term future exposure of sensitive receptors to substantial pollutant concentrations, because CO levels are projected to be lower in the future due to improvements in vehicle emission rates predicted by the ARB. Therefore, this is considered to be a less than significant impact.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.

Threshold: **Would the project create objectionable odors affecting a substantial number of people.**

Impact Analysis: Cumulative development would not have a significant impact in terms of the creation of objectionable odors affecting a substantial number of people. Projects to be built in the area of the Project include residential and commercial developments and institutional facilities. Odor impacts resulting from these projects, or from the existing retail-commercial uses adjacent to the Project site, are also not expected to affect a substantial amount of people, as restaurant odors would not be significant and garbage would be stored in areas and in containers as required by the City. Cumulative odor impacts would thus be less than significant. As discussed previously, the proposed Project's contribution to odor impacts is also less than significant and, therefore, not cumulatively considerable. Therefore, this is considered to be a less than significant impact.

Level of Significance Before Mitigation: Less than significant.

Mitigation Measures: None are required.

Level of Significance After Mitigation: Less than significant.