

### **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 to the extent feasible. 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 emission calculations conducted for the project is contained within **Appendix 4.2** of this environmental impact report (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 proposed project lies within the South Coast Air Basin (SCAB or the 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).<sup>1</sup>

The regional climate significantly influences the air quality in the basin. Temperature, wind, humidity, precipitation, and even the amount of sunshine all 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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<sup>1</sup> South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) 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<sub>2</sub>) 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. In 2006, mobile sources accounted for over 95 percent of the carbon monoxide (CO) emissions, approximately 58 percent of the oxides of sulfur (SO<sub>x</sub>) emissions, over 91 percent of the oxides of nitrogen (NO<sub>x</sub>) emissions, and over 60 percent of the volatile

organic compounds (VOC) found within the basin.<sup>2,3</sup> Smog is formed when VOC and NO<sub>x</sub> undergo photochemical reactions in sunlight to form ozone (O<sub>3</sub>).

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) ozone (O<sub>3</sub>), (2) CO, (3) nitrogen dioxide (NO<sub>2</sub>), (4) sulfur dioxide (SO<sub>2</sub>), (5) respirable particulate matter less than 10 microns in diameter (PM<sub>10</sub>), (6) fine particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and (7) lead. 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<sub>10</sub> and SO<sub>2</sub>, 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 proposed project. Similarly, the sources for vinyl chloride emissions include manufacturing of plastic products, hazardous waste site, and landfills and, there are no such uses or sources generated by the proposed 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 and, therefore, the project due to its size and associated types of air pollution sources 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.

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<sub>3</sub>). O<sub>3</sub> is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>), 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.

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<sup>2</sup> California Air Resources Board, "2006 Estimated Basin Data – South Coast Air Basin," <http://www.arb.ca.gov/ei/maps/basins/absmap.htm>. 2007.

<sup>3</sup> Percentages do not include natural sources.

- Carbon Monoxide (CO). CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, 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 primary source of CO in the basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- Nitrogen Dioxide (NO<sub>2</sub>). A reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO<sub>2</sub> is also a byproduct of fuel combustion. The principle form of NO<sub>2</sub> produced by combustion is NO, but NO reacts quickly to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> referred to as oxides of nitrogen (NO<sub>x</sub>). NO<sub>2</sub> acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO<sub>x</sub> is only potentially irritating. NO<sub>2</sub> 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<sub>3</sub>.
- Respirable Particulate Matter (PM<sub>10</sub>). PM<sub>10</sub> consists of extremely small, suspended particles or droplets 10 microns or smaller in diameter. Some sources of PM<sub>10</sub>, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM<sub>10</sub> is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- Fine Particulate Matter (PM<sub>2.5</sub>). PM<sub>2.5</sub> refers to particulate matter that is 2.5 micrometers or smaller in size. The sources of PM<sub>2.5</sub> 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 sulfur dioxide, NO<sub>x</sub>, and VOCs are transformed in the air by chemical reactions.
- Sulfur dioxide (SO<sub>2</sub>). SO<sub>2</sub> 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<sub>4</sub>).
- 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<sub>3</sub>, CO, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> (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<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are based on statistical calculations over one- to three-year periods, depending on the pollutant.

The basin is currently designated as nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and CO (federal). 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 CARB and the US Environmental Protection Agency (USEPA) 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 4.2-1, Ambient Air Quality Standards**. **Table 4.2-1** 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 4.2-1  
Ambient Air Quality Standards**

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard	Federal Primary Standard	
Ozone	0.070 ppm, 8-hr avg. 0.09 ppm, 1-hr. avg.	0.075 ppm, 8-hr avg. (3-year average of annual 4 <sup>th</sup> -highest daily maximum) <sup>1</sup>	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) 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; (e) Vegetation damage; and (f) Property damage

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard	Federal Primary Standard	
Carbon Monoxide	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	0.18 ppm, 1-hr avg. 0.030 ppm, annual arithmetic mean	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 extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg. 0.25 ppm, 1-hr. avg.	0.030 ppm, annual arithmetic mean 0.14 ppm, 24-hr avg.	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 <sub>10</sub> )	20 µg/m <sup>3</sup> , annual arithmetic mean 50 µg/m <sup>3</sup> , 24-hr avg.	150 µg/m <sup>3</sup> , 24-hr avg.	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Fine Particulate Matter (PM <sub>2.5</sub> )	12 µg/m <sup>3</sup> , annual arithmetic mean	15 µg/m <sup>3</sup> , annual arithmetic mean (3-year average) 35 µg/m <sup>3</sup> , 24-hr avg. (3-year average of 98 <sup>th</sup> percentile)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Sulfates	25 µg/m <sup>3</sup> , 24-hr avg.	None	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Lead <sup>2</sup>	1.5 µg/m <sup>3</sup> , 30-day avg.	1.5 µg/m <sup>3</sup> , calendar quarterly average	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	Reduction of visual range to less than 10 miles at relative humidity less than 70%, 8-hour avg. (10 AM – 6 PM)	None	Visibility impairment on days when relative humidity is less than 70 percent

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard	Federal Primary Standard	
Hydrogen Sulfide	0.03 ppm, 1-hr avg.	None	Odor annoyance
Vinyl Chloride <sup>2</sup>	0.01 ppm, 24-hr avg.	None	Known carcinogen

$\mu\text{g}/\text{m}^3$  = microgram per cubic meter.

ppm = parts per million by volume.

Source: South Coast Air Quality Management District, Final Program Environmental Impact Report for the 2007 Air Quality Management Plan, (2007) Table 3.1-1, p. 3.1-3.

<sup>1</sup> On March 12, 2008, the US EPA revised the federal ozone standard from 0.08 ppm to 0.075 ppm. The standard became effective on May 27, 2008.

<sup>2</sup> 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.

### Local Air Quality

The proposed project site is located in the City of Glendale. State Route (SR)-134, Interstate 5, Glendale Freeway (SR-2), surface arterials, residential, and commercial uses characterize the surrounding 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.

The project site is located in Source Receptor Area (SRA) 7, East San Fernando Valley. As shown in **Table 4.2-2, 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. Motor vehicles are the primary sources of pollutants within the project vicinity. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed state and/or federal standards are termed CO “hotspots.”

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 2003 to 2007.

## Global Climate Change

### *Description of the Greenhouse Effect*

Heat retention within the atmosphere is an essential process to sustain life on Earth. The natural process through which heat is retained in the troposphere<sup>4</sup> is called the “greenhouse effect.” The greenhouse effect traps heat in the troposphere through a three-fold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and greenhouse gases (GHGs) in the upper atmosphere absorb this long-wave radiation and emit this long-wave radiation into space and toward the Earth. This “trapping” of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. Without the greenhouse effect, the Earth’s average temperature would be approximately -18 degrees Celsius (°C) (0°F) instead of its present 14°C (57°F).<sup>5</sup> The most abundant GHGs are water vapor and carbon dioxide. Many other trace gases have greater ability to absorb and re-radiate long-wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long-wave radiation. The GWP of a gas is determined using carbon dioxide as the reference gas with a GWP of 1.

**Table 4.2-2**  
**Ambient Pollutant Concentrations registered in SRA 7**

Pollutant	Standards <sup>1,2</sup>	Year				
		2003 <sup>3</sup>	2004	2005	2006	2007
<b>OZONE (O<sub>3</sub>)</b>						
Maximum 1-hour concentration monitored (ppm)		0.134	0.137	0.142	0.17	0.116
Maximum 8-hour concentration monitored (ppm)		0.108	0.109	0.108	0.128	0.096
Number of days exceeding state 1-hour standard	0.09 ppm	37	27	13	25	13
Number of days exceeding state 8-hour standard	0.070 ppm	NA	37	12	23	19
Number of days exceeding federal 8-hour standard <sup>4</sup>	0.075 ppm	20	7	2	12	6
<b>CARBON MONOXIDE (CO)</b>						
Maximum 1-hour concentration monitored (ppm)		5	5	4	4	4
Maximum 8-hour concentration monitored (ppm)		4.7	3.7	3.4	3.5	2.8
Number of days exceeding state 8-hour standard	9.0 ppm	0	0	0	0	0
Number of days exceeding federal 8-hour standard	9.0 ppm	0	0	0	0	0

<sup>4</sup> The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth’s surface to 10 to 12 kilometers).

<sup>5</sup> National Climatic Data Center. “Global Warming Frequently Asked Questions,” <http://www.ncdc.noaa.gov/oa/climate/globalwarming.html>. 2008.

Pollutant	Standards <sup>1, 2</sup>	Year				
		2003 <sup>3</sup>	2004	2005	2006	2007
<b>NITROGEN DIOXIDE (NO<sub>2</sub>)</b>						
Maximum 1-hour concentration monitored (ppm)		0.14	0.12	0.09	0.10	0.09
Annual average concentration monitored (ppm)		0.036	0.033	0.029	0.027	0.029
Number of days exceeding state 1-hour standard <sup>5</sup>	0.18 ppm	0	0	0	0	0
<b>RESPIRABLE PARTICULATE MATTER (PM<sub>10</sub>)<sup>6</sup></b>						
Maximum 24-hour concentration monitored (µg/m <sup>3</sup> )		81	74	92	71	109
Annual average concentration monitored (µg/m <sup>3</sup> )		38.1	37.5	34.3	35.6	40.0
Number of samples exceeding state standard	50 µg/m <sup>3</sup>	7	7	5	10	11
Number of samples exceeding federal standard	150 µg/m <sup>3</sup>	0	0	0	0	0
<b>FINE PARTICULATE MATTER (PM<sub>2.5</sub>)<sup>7</sup></b>						
Maximum 24-hour concentration monitored (µg/m <sup>3</sup> )		120.6	60.1	63.2	50.7	56.5
Annual average concentration monitored (µg/m <sup>3</sup> )		20.9	19.2	17.9	16.6	16.8
Number of samples exceeding federal standard	35 µg/m <sup>3</sup>	1	0	0	0 (6)	9
<b>SULFUR DIOXIDE (SO<sub>2</sub>)</b>						
Maximum 1-hour concentration monitored (ppm)		0.01	0.02	0.01	0.01	0.01
Maximum 24-hour concentration monitored (ppm)		0.005	0.010	0.006	0.004	0.003
Number of samples exceeding 24-hour state standard	0.04 ppm	0	0	0	0	0
Number of samples exceeding federal 24-hour standard	0.14 ppm	0	0	0	0	0

NA = not available

Source: South Coast Air Quality Management District, "Historical Data by Year," <http://www.aqmd.gov/smog/historicaldata.htm>. 2008.

<sup>1</sup> Parts by volume per million of air (ppm), micrograms per cubic meter of air (µg/m<sup>3</sup>), or annual arithmetic mean (aam).

<sup>2</sup> Federal and state standards are for the same time period as the maximum concentration measurement unless otherwise indicated.

<sup>3</sup> Less than 12 months of data were available for 2003 in SRA 7, except for PM<sub>2.5</sub>. The statistics may not be representative for O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, and PM<sub>10</sub>.

<sup>4</sup> The 8-hour federal O<sub>3</sub> standard was revised to 0.075 ppm in March 2008. The statistics shown are based on the previous standard of 0.08 ppm.

<sup>5</sup> The NO<sub>2</sub> state standard was amended on February 22, 2007, to lower the 1-hour state standard from 0.25 ppm to 0.18 ppm and to establish a new annual state standard of 0.030 ppm. These changes became effective March 20, 2008. Statistics shown are based on the standards in effect at the time.

<sup>6</sup> PM<sub>10</sub> samples were collected every 6 days in SRA 7.

<sup>7</sup> PM<sub>2.5</sub> samples were collected daily in SRA 7. The federal standard for PM<sub>2.5</sub> was changed to 35 µg/m<sup>3</sup>, which became effective on December 17, 2006. Statistics shown are based on the 65 µg/m<sup>3</sup> standard for years 2003–2006. The statistic shown in parenthesis ( ) for year 2006 is based on the 35 µg/m<sup>3</sup> standard.

## Greenhouse Gases

### Primary Greenhouse Gases

The six major greenhouse gases that cause the greenhouse effect described above, include, but are not limited to, the following compounds:<sup>6</sup>

- Water vapor (H<sub>2</sub>O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Water vapor and clouds contribute 66 to 85 percent of the greenhouse effect (water vapor alone contributes 36 to 66 percent).<sup>7</sup> Natural processes such as evaporation from oceans and rivers and transpiration from plants contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively.<sup>8</sup> The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than 1 percent) to atmospheric concentrations of water vapor.<sup>9</sup> Therefore, the control and reduction of water vapor emissions is not within reach of human actions. The Intergovernmental Panel on Climate Change (IPCC) has not determined a GWP for water vapor.
- Carbon dioxide (CO<sub>2</sub>). Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent.<sup>10</sup> Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs for other GHGs. In 2004, 83.8 percent of California's GHG emissions were carbon dioxide.<sup>11</sup>
- Methane (CH<sub>4</sub>). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane come from landfills, natural gas systems, and enteric fermentation.<sup>12</sup> Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.
- Nitrous oxide (N<sub>2</sub>O). Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage

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<sup>6</sup> All GWPs are given as 100-year GWP. Unless noted otherwise, all GWPs were obtained from the Intergovernmental Panel on Climate Change. *Climate Change 1995: The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*. Cambridge (UK): Cambridge University Press, 1996.

<sup>7</sup> Gavin A. Schmidt, "Water Vapour: Feedback or Forcing?" <http://www.realclimate.org/index.php?p=142>. 2005.

<sup>8</sup> US Geological Survey, "The Water Cycle: Evaporation," <http://ga.water.usgs.gov/edu/watercycleevaporation.html>. 2007.

<sup>9</sup> US Department of Energy, Energy Information Administration, "Alternatives to Traditional Transportation Fuels 1994," <http://www.eia.doe.gov/cneaf/alternate/page/environment/exec2.html>. 2008.

<sup>10</sup> US Environmental Protection Agency, *Inventory of US Greenhouse Gas Emissions and Sinks 1990-2006 (EPA 430-R-08-005)*, (2008) 1-3.

<sup>11</sup> California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, (2006).

<sup>12</sup> US Environmental Protection Agency, "Methane: Sources and Emissions," <http://www.epa.gov/methane/sources.html>. n.d.

treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.

- Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing as the continued phaseout of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.
- Perfluorocarbons (PFCs). Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semiconductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).<sup>13</sup> The GWPs of PFCs range from 5,700 to 11,900.
- Sulfur hexafluoride. Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the IPCC with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).<sup>14</sup>

### Other Greenhouse Gases

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric ozone depleters; therefore, their gradual phaseout is currently in effect. A few of these compounds are discussed below:

- Hydrochlorofluorocarbons (HCFCs). HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the protocol are subject to a consumption cap and gradual phaseout of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.<sup>15</sup>

<sup>13</sup> US Department of Energy, Energy Information Administration, "Other Gases: Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride," [http://www.eia.doe.gov/oiaf/1605/gg00rpt/other\\_gases.html](http://www.eia.doe.gov/oiaf/1605/gg00rpt/other_gases.html). n.d.

<sup>14</sup> US Environmental Protection Agency, "High GWP Gases and Climate Change," <http://www.epa.gov/highgwp/scientific.html#sf6>. n.d.

<sup>15</sup> US Environmental Protection Agency, "Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone-Depleting Substances," <http://www.epa.gov/fedrgstr/EPA-AIR/1996/January/Day-19/pr-372.html>. 1996.

- 1,1,1-trichloroethane. 1,1,1-trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. In 1992, the US EPA issued Final Rule 57 FR 33754, which scheduled the phaseout of methyl chloroform by 2002.<sup>16</sup> Therefore, the threat posed by methyl chloroform as a GHG will diminish. Nevertheless, the GWP of methyl chloroform is 110 times that of carbon dioxide.<sup>17</sup>
- Chlorofluorocarbons (CFCs). CFCs are used as refrigerants, cleaning solvents, and aerosol spray propellants. CFCs were also part of the US EPA's Final Rule 57 FR 3374 for the phaseout of ozone depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere, contributing to the greenhouse effect. CFCs are potent GHGs with GWPs ranging from 4,600 for CFC-11 to 14,000 for CFC-13.<sup>18</sup>
- Ozone. Ozone occurs naturally in the stratosphere where it is largely responsible for filtering harmful ultraviolet (UV) radiation. In the troposphere, ozone acts as a GHG by absorbing and re-radiating the infrared energy emitted by the Earth. As a result of the industrial revolution and rising emissions of oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOCs) (ozone precursors), the concentrations of ozone in the troposphere have increased.<sup>19</sup> Due to the short life span of ozone in the troposphere, its concentration and contribution as a GHG is not well established. However, the greenhouse effect of tropospheric ozone is considered small, as the radiative forcing<sup>20</sup> of ozone is 25 percent of that of carbon dioxide.<sup>21</sup>

## Contributions to Greenhouse Gas Emissions

### Global

Anthropogenic GHG emissions worldwide as of 2005 (the latest year for which data are available for Annex I countries) totaled approximately 30,800 CO<sub>2</sub> equivalent million metric tons (MMTCo<sub>2</sub>E).<sup>22</sup>

<sup>16</sup> US Environmental Protection Agency, "The Accelerated Phase-Out of Class 1 Ozone-Depleting Substances," <http://www.epa.gov/ozone/title6/phaseout/acfact.html>. 2007.

<sup>17</sup> US Environmental Protection Agency, "Protection of Stratospheric Ozone."

<sup>18</sup> US Environmental Protection Agency, "Class I Ozone Depleting Substances," <http://www.epa.gov/ozone/ods.html>. 2006.

<sup>19</sup> Intergovernmental Panel on Climate Change, "Climate Change 2001: Tropospheric Ozone," [http://www.grida.no/climate/ipcc\\_tar/wg1/142.htm](http://www.grida.no/climate/ipcc_tar/wg1/142.htm). n.d.

<sup>20</sup> Radiative forcing, measured in Watts/m<sup>2</sup>, is an externally imposed perturbation (e.g., stimulated by greenhouse gases) in the radiative energy budget of the Earth's climate system (i.e., energy and heat retained in the troposphere minus energy passed to the stratosphere).

<sup>21</sup> Intergovernmental Panel on Climate Change, "Climate Change 2007: The Physical Science Basis, Summary for Policymakers," [http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4\\_SPM\\_PlenaryApproved.pdf](http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_PlenaryApproved.pdf). 2007.

<sup>22</sup> The CO<sub>2</sub> equivalent emissions are commonly expressed as "million metric tons of carbon dioxide equivalent (MMTCo<sub>2</sub>E)" The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that MMTCo<sub>2</sub>E = (million metric tons of a GHG) × (GWP of the GHG). For example, the GWP for methane is 21. This means that emissions of one million metric tons of methane are equivalent to emissions of 21 million metric tons of CO<sub>2</sub>.

It should be noted that global emissions inventory data are not all from the same year and may vary depending on the source of the emissions inventory data.<sup>23</sup> Six countries and the European Community accounted for approximately 70 percent of the total global emissions (see **Table 4.2-3, Six Top GHG Producer Countries and the European Community**). The GHG emissions in more recent years may be substantially different from those shown in **Table 4.2-3**.

### United States

As noted in **Table 4.2-3**, the United States was the top producer of greenhouse gas emissions as of 2005. Based on GHG emissions in 2004, six of the states—Texas, California, Pennsylvania, Ohio, Illinois, and Florida, in ranked order—would each rank among the top 30 GHG emitters internationally.<sup>24</sup> The primary greenhouse gas emitted by human activities in the United States was CO<sub>2</sub>, representing approximately 84 percent of total greenhouse gas emissions.<sup>25</sup> Carbon dioxide from fossil fuel combustion, the largest source of US GHG emissions, accounted for approximately 80 percent of US GHG emissions.<sup>26</sup>

### California

Based upon the 2004 GHG inventory data (the latest year available) compiled by CARB for the California 1990 greenhouse gas emissions inventory, California emitted emissions of 484 MMTCO<sub>2</sub>E, including emission resulting from out-of-state electrical generation.<sup>27</sup> Based on the CARB inventory and GHG inventories for countries contributing to the worldwide GHG emissions inventory compiled by the United Nations Framework Convention on Climate Change (UNFCCC) for 2005, California's GHG emissions rank second in the United States (Texas is number one) with emissions of 423 MMTCO<sub>2</sub>E

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<sup>23</sup> The global emissions are the sum of Annex I and non-Annex I countries without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries that 2005 data were unavailable, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," [http://unfccc.int/ghg\\_emissions\\_data/ghg\\_data\\_from\\_unfccc/time\\_series\\_annex\\_i/items/3841.php](http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php) and "Flexible GHG Data Queries" with selections for total GHG emissions excluding LULUCF/LUCF, all years, and non-Annex I countries, <http://unfccc.int/di/FlexibleQueries/Event.do?event=showProjection> n.d.

<sup>24</sup> World Resources Institute, "How US State GHG Emissions Compare Internationally," <http://earthtrends.wri.org/updates/node/106>. 2006.

<sup>25</sup> US EPA, *Inventory of US Greenhouse Gas Emissions and Sinks*, (2008).

<sup>26</sup> Ibid.

<sup>27</sup> California Air Resources Board. *California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit*. November 16, 2007.

(excluding emissions related to imported power) and internationally between Ukraine (418.9 MMTCO<sub>2</sub>E) and Spain (440.6 MMTCO<sub>2</sub>E).<sup>28</sup>

**Table 4.2-3**  
**Six Top GHG Producer Countries and the European Community**

<b>Emitting Countries</b>	<b>GHG Emissions (MMTCo<sub>2</sub>E)*</b>
United States	7,241.5 <sup>1</sup>
China	4,882.7 <sup>2</sup>
European Community	4,192.6 <sup>1</sup>
Russian Federation	2,132.5 <sup>1</sup>
India	1,606.5 <sup>1</sup>
Japan	1,359.9 <sup>2</sup>
Germany <sup>3</sup>	1,001.5 <sup>1</sup>
Total:	21,415.7

*Sources:*

<sup>1</sup> United Nations Framework Convention on Climate Change, "GHG total without LULUCF," [http://unfccc.int/ghg\\_emissions\\_data/ghg\\_data\\_from\\_unfccc/time\\_series\\_annex\\_i/items/3841.php](http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php). n.d.

<sup>2</sup> GHG emissions for China and India (Calendar Year 2000) were obtained from the World Resources Institute's Climate Analysis Indicators Tool (CAIT) <http://www.cait.wri.org/cait.php>

<sup>3</sup> Germany's GHG emissions are included in the European Community.

\* Excludes emissions/removals from land use, land-use change and forestry (LULUCF)

A California Energy Commission (CEC) emissions inventory report placed CO<sub>2</sub> produced by fossil fuel combustion in California as the largest source of GHG emissions in 2004, accounting for 81 percent of the total GHG emissions.<sup>29</sup> CO<sub>2</sub> emissions from other sources contributed 2.8 percent of the total GHG emissions, methane emissions 5.7 percent, nitrous oxide emissions 6.8 percent, and the remaining 2.9 percent was composed of emissions of high-GWP gases.<sup>30</sup> These high-GWP gases are largely composed of refrigerants and a small contribution of sulfur hexafluoride (SF<sub>6</sub>) used as insulating materials in electricity transmission and distribution.

The primary contributors to GHG emissions in California are transportation, electric power production from both in state and out-of-state sources, industry, agriculture and forestry, and other sources, which

<sup>28</sup> United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," [http://unfccc.int/ghg\\_emissions\\_data/ghg\\_data\\_from\\_unfccc/time\\_series\\_annex\\_i/items/3841.php](http://unfccc.int/ghg_emissions_data/ghg_data_from_unfccc/time_series_annex_i/items/3841.php)

<sup>29</sup> CEC, *Inventories of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, (2006).

<sup>30</sup> CEC, *Inventories of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, (2006)

include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions are presented in **Table 4.2-4, GHG Sources in California**.

**Table 4.2-4  
GHG Sources in California**

Source Category	Annual GHG Emissions (MMTCO <sub>2</sub> E) <sup>1</sup>	Percent of Total	Annual GHG Emissions (MMTCO <sub>2</sub> E) <sup>1</sup>	Percent of Total
Agriculture	27.9	5.8%	27.9	6.6%
Commercial Uses	12.8	2.6%	12.8	3.0%
Electricity Generation	119.8	24.7%	58.5	13.8%
Forestry (excluding sinks)	0.2	0.0%	0.2	0.0%
Industrial Uses	96.2	19.9%	96.2	22.7%
Residential Uses	29.1	6.0%	29.1	6.9%
Transportation	182.4	37.7%	182.4	43.1%
Other <sup>1</sup>	16.0	3.3%	16.0	3.8%
Totals	484.4	100.0%	423.1	100.0%

Source: California Air Resources Board, California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit, (2007).

<sup>1</sup> Includes emissions associated with imported electricity, which account for 61.3 MMTCO<sub>2</sub>E annually.

<sup>2</sup> Excludes emissions associated with imported electricity.

<sup>3</sup> Unspecified combustion and use of ozone-depleting substances.

## *Influences and Effects of Global Climate Change*

### **Definition of Global Climate Change**

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer).<sup>31</sup> Climate change may result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of GHG and other gases to the atmosphere from volcanic eruptions); and
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).

<sup>31</sup> US Environmental Protection Agency, "Glossary of Climate Change Terms," [http://www.epa.gov/climatechange/glossary.html#Climate\\_change](http://www.epa.gov/climatechange/glossary.html#Climate_change). 2008.

### Indication of Anthropogenic Influences

The impact of anthropogenic activities on global climate change is readily apparent in the observational record. For example, surface temperature data shows that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.<sup>32</sup> In addition, the atmospheric water vapor content has increased since at least the 1980s over land, sea, and in the upper atmosphere, consistent with the capacity of warmer air to hold more water vapor; ocean temperatures are warmer to depths of 3,000 feet; and a marked decline has occurred in mountain glaciers and snowpack in both hemispheres, and in polar ice and ice sheets in both the Arctic and Antarctic regions.<sup>33</sup>

### Influences of Industrialization

Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of carbon dioxide, methane, and nitrous oxide from before the start of the industrialization, around 1750, to over 650,000 years ago. For that period, it was found that carbon dioxide concentrations ranged from 180 ppm to 300 ppm. For the period from around 1750 to the present, global carbon dioxide concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.<sup>34</sup> Global methane and nitrous oxide concentrations show similar increases for the same period (see **Table 4.2-5, Comparison of Global Pre-Industrial and Current GHG Concentrations**).

**Table 4.2-5  
Comparison of Global Pre-Industrial and Current GHG Concentrations**

<b>Greenhouse Gas</b>	<b>Early Industrial Period Concentrations (ppm)</b>	<b>Natural Range for Last 650,000 Years (ppm)</b>	<b>2005 Concentrations (ppm)</b>
Carbon Monoxide (CO)	280	180 to 300	379
Methane (CH <sub>4</sub> )	715	320 to 790	1774
Nitrous Oxide (N <sub>2</sub> O)	270	NA	319

*Source: Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policymakers, (2007).*

<sup>32</sup> Intergovernmental Panel on Climate Change, "Climate Change 2007."

<sup>33</sup> Ibid.

<sup>34</sup> Intergovernmental Panel on Climate Change, "Climate Change 2007."

## Effects of Global Climate Change

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2°C per decade, determined from meteorological measurements worldwide between 1990 and 2005.<sup>35</sup> Climate change modeling using 2000 emission rates shows that further warming would occur, which would induce further changes in the global climate system during the current century.<sup>36</sup> Changes to the global climate system and ecosystems and to California would include, but would not be limited to,

- the loss of sea ice and mountain snowpack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;<sup>37</sup>
- a rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps, the Greenland and Antarctic ice sheets;<sup>38</sup>
- changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;<sup>39</sup>
- the decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;<sup>40</sup>
- an increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21<sup>st</sup> century;<sup>41</sup> and
- high potential for erosion of California's coastlines and sea water intrusion into the Delta and associated levee systems due to the rise in sea level.<sup>42</sup>

## 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,

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35 Ibid.

36 Ibid.

37 Ibid.

38 Ibid.

39 Intergovernmental Panel on Climate Change, "Climate Change 2007."

40 California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

41 Ibid.

42 Ibid.

and the chronically ill, especially those with cardiorespiratory diseases. Any facilities that house these sensitive receptors are considered sensitive land uses.

The SCAQMD *Final Localized Significance Threshold Methodology*<sup>43</sup> document (LST document) defines sensitive receptors as persons who could potentially remain at a location for a specific length of time (1 hour, 8 hours, or 24 hours) depending on the pollutant being analyzed. The SCAQMD considers residences, hospitals, and convalescent facilities as sensitive receptors. Commercial and industrial facilities and other land uses may be considered sensitive receptors if it is possible that an individual could remain in a particular location for the aforementioned lengths of time.

Land uses around the project site include commercial and retail uses to the north, south and west, and the Glendale Memorial Hospital to the east of the project site across Central Avenue. In addition, residential land uses are located to the southwest of the project site.

## REGULATORY FRAMEWORK

The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county basin (Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties) and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The project site is located within the basin, which is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east (refer to **Figure 3.0-1**).

Air quality within the basin is addressed through the efforts of various federal, state, regional and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policymaking, education and a variety of programs. The agencies primarily responsible for improving the air quality within the basin are discussed below along with their individual responsibilities.

### United States Environmental Protection Agency

The US EPA is responsible for enforcing the federal CAA and the NAAQS. These standards identify levels of air quality for seven “criteria” pollutants: O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, 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 4.2-1**. As indicated, the averaging times for the

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<sup>43</sup> South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, (2008).

various pollutants range from 1 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 ( $\mu\text{g}/\text{m}^3$ ).

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 hazardous air pollutants (HAPs). The US 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 4.2-6, National Ambient Air Quality Standards and Status – South Coast Air Basin (Los Angeles County)**.

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,  $\text{NO}_x$ , 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 US 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.

Due to the lack of toxic emissions reduction by the 1977 CAA, the 1990 CAA Amendments listed 189 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.

**Table 4.2-6  
National Ambient Air Quality Standards and Status  
South Coast Air Basin (Los Angeles County)**

<b>Pollutant</b>	<b>Averaging Time</b>	<b>Designation/Classification</b>
Ozone (O <sub>3</sub> )	8 Hour	Nonattainment/Severe 17
Carbon Monoxide (CO)	1 Hour, 8 Hour	Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	Attainment/Unclassifiable
Sulfur Dioxide (SO <sub>2</sub> )	24 Hour, Annual Arithmetic Mean	Attainment
Respirable Particulate Matter (PM <sub>10</sub> )	24 Hour	Nonattainment/Serious
Fine Particulate Matter (PM <sub>2.5</sub> )	24 Hour, Annual Arithmetic Mean	Nonattainment
Lead (Pb)	Calendar Quarter	Attainment

*Source: United States Environmental Protection Agency, "Region 9: Air Programs, Air Quality Maps," [http://www.epa.gov/region9/air/maps/maps\\_top.html](http://www.epa.gov/region9/air/maps/maps_top.html). 2008.*

## California Air Resources Board

CARB, a branch of the California Environmental Protection Agency (Cal/EPA), oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the CCAA, responding to the federal CAA requirements and for regulating emissions from motor vehicles and consumer products within the state. CARB has established emission 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 CAA and also include sulfates, visibility reducing particles, hydrogen sulfide and vinyl chloride. The state standards are more stringent than the federal standards and, in the case of PM<sub>10</sub> and SO<sub>2</sub>, far more stringent.

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" for the state standards. In addition, Health and Safety Code Section 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 10 criteria pollutants:

O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, sulfates, lead, hydrogen sulfide and visibility-reducing particles.<sup>44</sup> CARB will designate an area as nonattainment for a pollutant if monitoring data shows that a California Ambient Air Quality Standard (CAAQS) for a particular pollutant was violated at least once during the previous three years. The status of the basin with respect to attainment with the CAAQS is summarized in **Table 4.2-7, California Ambient Air Quality Standards and Status – South Coast Air Basin (Los Angeles County)**, below.

**Table 4.2-7  
California Ambient Air Quality Standards and Status  
South Coast Air Basin (Los Angeles County)**

Pollutant	Averaging Time	Designation/Classification
Ozone (O <sub>3</sub> )	1 Hour, 8 Hour	Nonattainment <sup>1</sup>
Carbon Monoxide (CO)	1 Hour, 8 Hour	Attainment
Nitrogen Dioxide (NO <sub>2</sub> )	1 Hour	Attainment
Sulfur Dioxide (SO <sub>2</sub> )	1 Hour, 24 Hour	Attainment
Respirable Particulate Matter (PM <sub>10</sub> )	24 Hour, Annual Arithmetic Mean	Nonattainment
Fine Particulate Matter (PM <sub>2.5</sub> )	Annual Arithmetic Mean	Nonattainment
Lead (Pb) <sup>2</sup>	30 Day Average	Attainment
Sulfates (SO <sub>4</sub> )	24 Hour	Attainment
Hydrogen Sulfide (H <sub>2</sub> S)	1 Hour	Unclassified
Vinyl Chloride <sup>2</sup>	24 Hour	Unclassified
Visibility-Reducing Particles	8 Hour (10 AM–6 PM)	Unclassified

Source: California Air Resources Board, "Area Designations Maps/State and National," <http://www.arb.ca.gov/design/adm/adm.htm>. 2007.

<sup>1</sup> 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.

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

## South Coast Air Quality Management District

The management of air quality in the South Coast Air Basin is the responsibility of the SCAQMD. This responsibility was given to SCAQMD by the state legislature's adoption of the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional

<sup>44</sup> California Air Resources Board, "Area Designations (Activities and Maps)," <http://www.arb.ca.gov/design/design.htm>. 2007. Written communication with Marcy Nystrom, California Air Resources Board, December 24, 2003, stating that state law states requires ARB to make area designations for pollutants with state standards listed in California Code of Regulations, Title 17, Section 70200. However, vinyl chloride is not included in this section of the California Code of Regulations; therefore, the ARB does not make area designations for vinyl chloride.

district. Under the Lewis-Presley Air Quality Act, SCAQMD is responsible for bringing air quality in the areas under its jurisdiction into conformity with federal and state air quality standards. Specifically, SCAQMD is responsible for monitoring ambient air pollutant levels throughout the basin and for developing and implementing attainment strategies to ensure that future emissions will be within federal and state 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 out of the SCAQMD's jurisdiction and are up to CARB and the US EPA to regulate. 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 determines if certain rules and control measures are appropriate for their specific region according to technical feasibility, cost effectiveness, and the severity of nonattainment. Once the SCAQMD has adopted the proper rules, control measures, and permit programs, it is responsible to implement and enforce compliance with those rules, control measures, and programs.

### ***SCAQMD CEQA Air Quality Handbook***

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. Minor revisions to the document were made in November 1993. 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 September 2008, the *CEQA Air Quality Handbook* was 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 draft EIR section.

### ***SCAQMD Air Quality Management Plan***

The SCAQMD is required to produce plans describing how air quality will be improved. The CCAA requires that these plans be updated triennially in order to incorporate the most recent available technical information. In addition, the US 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 US EPA, CARB, local governments, SCAG, and the SCAQMD.

The SCAQMD is the agency responsible for preparing the AQMP for the basin. Since 1979, a number of AQMPs have been prepared. The SCAQMD adopted the Final 2007 Air Quality Management Plan (2007 AQMP) on June 1, 2007. CARB approved the 2007 AQMP as the comprehensive SIP component for the basin on September 27, 2007. Because the 2007 AQMP has been approved by the SCAQMD and CARB, it is an “applicable regional plan” in terms of CEQA requirements for assessing plan consistency. Federal approval is only relevant as to the federal CAA components of the 2007 AQMP. Like previous basin AQMPs, the 2007 AQMP includes elements that are beyond the scope of the federal requirements.

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<sub>2.5</sub>. In addition, as part of the 2007 AQMP, the SCAQMD is requesting US 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<sub>2.5</sub> plans for nonattainment areas are due in April 2008, the 2007 AQMP also focuses on attainment strategies for the PM<sub>2.5</sub> standard through stricter control of sulfur oxides, directly emitted PM<sub>2.5</sub>, NO<sub>x</sub>, and VOCs. The need to commence PM<sub>2.5</sub> control strategies before April 2008 is due to the attainment date for PM<sub>2.5</sub> (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<sub>2.5</sub> will also help control ozone generation in the region because PM<sub>2.5</sub> and ozone share similar precursors (e.g., NO<sub>x</sub>). The District has integrated PM<sub>2.5</sub> 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<sub>x</sub> 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 2007 Emission Factors (EMFAC2007) motor vehicle model and the most recent demographics information, respectively.

### ***SCAQMD Rules and Regulations***

The SCAQMD is responsible for limiting the amount of emissions that can be generated throughout the basin by various stationary, area and mobile sources. Specific rules and regulations have been adopted by the SCAQMD Governing Board, which limit the emissions that can be generated by various

uses/activities and that identify specific pollution reduction measures, which must be implemented in association with various uses and activities. These rules not only regulate the emissions of the federal and state criteria pollutants but also toxic air contaminants (TACs) and acutely hazardous materials. The rules are also subject to ongoing refinement by SCAQMD.

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<sub>10</sub> 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 that the owner or operator of any demolition or renovation activity to have an asbestos survey performed prior to demolition and provide notification to the SCAQMD prior to commencing demolition activities. Additional details regarding these rules and other potentially applicable rules are presented below.

- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement Best Available Control Measures for all sources and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM<sub>10</sub> emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust (see also Rule 1186).
- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.
- **Rule 1121 (Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters)** – This rule prescribes NO<sub>x</sub> emission limits for natural gas-fired water heaters with heat input rates less than 75,000 Btu per hour. It applies to manufacturers, distributors, retailers, and installers of natural gas-fired water heaters. In lieu of meeting these NO<sub>x</sub> limits, this rule allows emission mitigation fees to be collected from water heater manufacturers to fund stationary and mobile source emission reduction projects targeted at offsetting NO<sub>x</sub> emissions from water heaters that do not meet Rule 1121 emission standards.
- **Rule 1146.2 (Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters)** – This rule requires manufacturers, distributors, retailers, refurbishers, installers and operators of new and existing units to reduce NO<sub>x</sub> emissions from natural gas-fired water heaters, boilers, and process heaters as defined in this rule.
- **Rule 1186 (PM<sub>10</sub> Emissions from Paved and Unpaved Roads, and Livestock Operations)** – This rule applies to owners and operators of paved and unpaved roads and livestock operations. The rule is intended to reduce PM<sub>10</sub> emissions by requiring the cleanup of material deposited onto paved roads, use of certified street sweeping equipment, and treatment of high-use unpaved roads (see also Rule 403).

Stationary emissions sources subject to these rules are regulated through SCAQMD's permitting process. Through this permitting process, SCAQMD also monitors the amount of stationary emissions being generated and uses this information in developing AQMPs. The project would be subject to SCAQMD rules and regulations to reduce specific emissions and to mitigate potential air quality impacts.

## Local Governments

Local governments have the authority and responsibility to reduce air pollution through their police power and land use decision-making authority. Specifically, local governments are responsible for the mitigation of emissions resulting from land use decisions and for the implementation of transportation control measures as outlined in the AQMP.<sup>45</sup> The AQMP assigns local governments certain responsibilities to assist the basin in meeting air quality goals and policies. In general, the first step towards assigning a local government's responsibility is accomplished by identifying the air quality goals, policies and implementation measures in its general plan, such as the Air Quality section in the City of Glendale General Plan. Through capital improvement programs, local governments can fund infrastructure that contributes to improved air quality, by requiring improvements such as bus turnouts, energy-efficient streetlights, and synchronized traffic signals.<sup>46</sup> In accordance with the CEQA requirements and the CEQA review process, local governments assess air quality impacts, require mitigation of potential air quality impacts by conditioning discretionary permits, and monitor and enforce implementation of such mitigation.<sup>47</sup>

## Southern California Association of Governments

The 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, the 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. Specifically, as the designated Metropolitan Planning Organization (MPO) for the Southern California region, it is responsible, pursuant to Section 176(c) of the 1990 amendments to the

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<sup>45</sup> South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) 2-2.

<sup>46</sup> Ibid.

<sup>47</sup> Ibid.

CAA, for providing current population, employment, travel and congestion projections for regional air quality planning efforts.

## Greenhouse Gas Regulatory Programs

### *International Activities*

#### **Kyoto Protocol**

The original Kyoto Protocol was negotiated in December 1997 and came into force on February 16, 2005. As of April 2008, 180 countries and the European Economic Community have ratified the agreement.<sup>48</sup> Notably, however, the United States has not ratified the protocol. Participating nations are separated into Annex 1 (i.e., industrialized countries) and Non-Annex 1 (i.e., developing countries) countries that have differing requirements for GHG reductions. The goal of the protocol is to achieve overall emissions reduction targets for six GHGs by the period 2008 to 2012. The six GHGs regulated under the protocol are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, HFCs, and PFCs. Each nation has an emissions reduction target under which they must reduce GHG emissions a certain percentage below 1990 levels (e.g., 8 percent reduction for the European Union, 6 percent reduction for Japan). The average reduction target for nations participating in the Kyoto Protocol is approximately 5 percent below 1990 levels.<sup>49</sup> Although the United States has not ratified the protocol, it has established a target of 18 percent reduction in GHG emissions intensity by 2012.<sup>50</sup> Greenhouse gas intensity is the ratio of GHG emissions to economic output (i.e., gross domestic product).

#### **Intergovernmental Panel on Climate Change**

The World Meteorological Organization (WMO) and United Nations Environmental Program (UNEP) established the IPCC in 1988. The goal of the IPCC is to evaluate the risk of climate change caused by human activities. Rather than performing research or monitoring climate, the IPCC relies on peer-reviewed and published scientific literature to make its assessment. The IPCC assesses information (i.e., scientific literature) regarding human-induced climate change, impacts of human-induced climate change, and options for adaptation and mitigation of climate change. The IPCC reports its evaluation through special reports called “assessment reports.” The latest assessment report (i.e., Fourth Assessment

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<sup>48</sup> United Nations Framework Convention on Climate Change, “Status of Ratification,” [http://unfccc.int/kyoto\\_protocol/background/status\\_of\\_ratification/items/2613.php](http://unfccc.int/kyoto_protocol/background/status_of_ratification/items/2613.php). n.d.

<sup>49</sup> Pew Center on Global Climate Change, “Bush Policy vs. Kyoto,” [http://www.pewclimate.org/what\\_s\\_being\\_done/in\\_the\\_world/bush\\_intensity\\_targe\\_2.cfm](http://www.pewclimate.org/what_s_being_done/in_the_world/bush_intensity_targe_2.cfm). n.d.

<sup>50</sup> The White House, “Addressing Global Climate Change,” <http://www.whitehouse.gov/ceq/global-change.html>. n.d.

Report, consisting of three working group reports and a synthesis report based on the first three reports) was published in 2007.<sup>51</sup>

### ***Federal Activities***

In *Massachusetts vs. EPA*, the Supreme Court held that US EPA has the statutory authority under Section 202 of the CAA to regulate GHGs from new motor vehicles. The court did not hold that the USEPA was required to regulate GHG emissions; however, it indicated that the agency must decide whether GHGs from motor vehicles cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. Upon the final decision, President Bush signed Executive Order 13432 on May 14, 2007, directing the US EPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision. The order requires the US EPA to coordinate closely with other federal agencies and to consider the president's Twenty-in-Ten plan in this process. The Twenty-in-Ten plan would establish a new alternative fuel standard that would require the use of 35 billion gallons of alternative and renewable fuels by 2017. The US EPA will be working closely with the Department of Transportation in developing new automotive efficiency standards.

### ***California Activities***

#### **AB 1493**

In a response to the transportation sector accounting for more than half of California's CO<sub>2</sub> emissions, Assembly Bill 1493 (AB 1493, Pavley) was enacted on July 22, 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set the GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. In setting these standards, CARB must consider cost-effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. CARB adopted the standards in September 2004. These standards are intended to reduce emissions of carbon dioxide and other greenhouse gases (e.g., nitrous oxide, methane). The new standards would phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent. Some currently used technologies that achieve GHG reductions include small engines with superchargers, continuously variable transmissions, and hybrid electric drive.

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<sup>51</sup> The IPCC's Fourth Assessment Report is available online at <http://www.ipcc.ch/>.

In December 2004, these regulations were challenged in federal court by the Alliance of Automobile Manufacturers, who claimed that the law regulated vehicle fuel economy, a duty assigned to the federal government. The case had been put on hold by a federal judge in Fresno pending the US Supreme Court's decision in *Massachusetts vs. EPA*. The US Supreme Court's ruling in favor of the state of Massachusetts has been discussed as a likely vindication of state efforts to control GHG emissions. In December 2007, Judge Ishii of the US District Court for the Eastern District dismissed the case by the Alliance of Automobile Manufacturers. However, before these regulations may go into effect, the US EPA must grant California a waiver under the federal Clean Air Act, which ordinarily preempts state regulation of motor vehicle emission standards. Following the issuance of the *Massachusetts vs. EPA* decision, the US EPA announced that it would decide whether to grant California a waiver by December 2007. On December 19, 2007, Stephen Johnson, the US EPA Administrator, denied the waiver citing the need for a national approach to reducing greenhouse gas emissions, the lack of a "need to meet compelling and extraordinary conditions," and the benefits to be achieved through the Energy Independence and Security Act of 2007.<sup>52</sup> The California Attorney General subsequently filed suit in January 2008 to overturn the administrator's decision.

#### **Executive Order S-3-05**

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. The Secretary of Cal/EPA is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Some of the agency representatives involved in the GHG reduction plan include the Secretary of the Business, Transportation and Housing Agency, the Secretary of the Department of Food and Agriculture, the Secretary of the Resources Agency, the Chairperson of CARB, the Chairperson of the CEC, and the President of the Public Utilities Commission. Representatives from each of the aforementioned agencies comprise the Climate Action Team. The Climate Action Team is responsible for implementing global warming emissions reduction programs. In order to achieve these goals, the Climate Action Team is organized into two subgroups: the market-based options subgroup and the scenario analysis subgroup. The Cal/EPA secretary is required to submit a biannual progress report from the Climate Action Team to the governor and state legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline, and forestry, and reporting possible mitigation and adaptation plans to combat these impacts. The Climate Action Team has fulfilled both of

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<sup>52</sup> Letter to Governor Arnold Schwarzenegger from Stephen L. Johnson, December 19, 2007.

these report requirements through its March 2006 Climate Action Team Report to Governor Schwarzenegger and the legislature.<sup>53</sup> Some strategies currently being implemented by state agencies include CARB introducing vehicle climate change standards and diesel anti-idling measures, the Energy Commission implementing building and appliance efficiency standards, and the Cal/EPA implementing their green building initiative. The Climate Action Team also recommends future emission reduction strategies, such as using only low-GWP refrigerants in new vehicles, developing ethanol as an alternative fuel, reforestation, solar power initiatives for homes and businesses, and investor-owned utility energy efficiency programs. According to the report, implementation of current and future emission reduction strategies have the potential to achieve the goals set forth in Executive Order S-3-05.

### **AB 32**

In furtherance of the goals established in Executive Order S-3-05, the legislature enacted Assembly Bill 32 (AB 32, Nuñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. AB 32 represents the first enforceable statewide program to limit GHG emissions from all major industries with penalties for noncompliance.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. The foremost objective of CARB is to adopt regulations that require the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. The first GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted. In order to advise CARB, it must convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee. By January 2008, the first deadline for AB 32, a statewide cap for 2020 emissions based on 1990 levels and mandatory reporting rules for significant sources of GHGs must be adopted. The following year (January 2009), CARB must adopt a scoping plan indicating how reductions in significant GHG sources will be achieved through regulations, market mechanisms, and other actions.

The first action under AB 32 resulted in the adoption of a report listing early action greenhouse gas emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules.

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<sup>53</sup> Cal/EPA, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. These early action GHG reduction measures are to be adopted and enforced before January 1, 2010, along with 32 other climate-protecting measures CARB is developing between now and 2011. The report divides early actions into three categories:

- Group 1 - GHG rules for immediate adoption and implementation
- Group 2 - Several additional GHG measures under development
- Group 3 - Air pollution controls with potential climate co-benefits

The original three adopted early action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” include:

- A low-carbon fuel standard to reduce the “carbon intensity” of California fuels;
- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants; and
- Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early action regulations adopted on October 25, 2007, also meeting the narrow legal definition of “discrete early action GHG reduction measures,” include:

- Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology;
- Reduction of auxiliary engine emissions of docked ships by requiring port electrification;
- Reduction of perfluorocarbons from the semiconductor industry;
- Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products);
- Require that all tune-up, smog check and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency; and
- Restriction on the use of sulfur hexafluoride (SF<sub>6</sub>) from non-electricity sectors if viable alternatives are available.

As required under AB 32, on December 6, 2007, CARB approved the 1990 greenhouse gas emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMTCO<sub>2</sub>E. The inventory revealed that in 1990 transportation, with 35 percent of the state’s total emissions, was the largest single sector, followed by industrial emissions, 24 percent; imported electricity,

14 percent; in-state electricity generation, 11 percent; residential use, 7 percent; agriculture, 5 percent; and commercial uses, 3 percent.

In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of greenhouse gases for large facilities on December 6, 2007. The mandatory reporting regulations require annual reporting from the largest facilities in the state, which account for 94 percent of greenhouse gas emissions from industrial and commercial stationary sources in California. About 800 separate sources that fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 tons of carbon dioxide each year from on-site stationary combustion sources. Transportation sources, which account for 38 percent of California's total greenhouse gas emissions, are not covered by these regulations but will continue to be tracked through existing means. Affected facilities will begin tracking their emissions in 2008, to be reported beginning in 2009 with a phase-in process to allow facilities to develop reporting systems and train personnel in data collection. Emissions for 2008 may be based on best available emission data. Beginning in 2010, however, emissions reports will be more rigorous and will be subject to third-party verification. Verification will take place annually or every three years, depending on the type of facility.

As indicated above, AB 32 requires CARB to adopt a scoping plan by January 2009 indicating how reductions in significant GHG sources will be achieved through regulations, market mechanisms, and other actions. After receiving public input on their discussion draft of the proposed scoping plan released in June 2008, CARB released the Climate Change Proposed Scoping Plan in October 2008 that contains an outline of the proposed state strategies to achieve the 2020 greenhouse gas emission limits. Key elements of the proposed scoping plan include the following recommendations:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
- Achieving a statewide renewables energy mix of 33 percent
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard

- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation

Under the proposed scoping plan, approximately 85 percent of the state's emissions are subject to a cap-and-trade program where covered sectors are placed under a declining emissions cap that. The emissions cap incorporates a margin of safety whereas the 2020 emissions limit will still be achieved even in the event that uncapped sectors do not fully meet their anticipated emission reductions. Emissions reductions will be achieved through regulatory requirements and the option to reduce emissions further or purchase allowances to cover compliance obligations. It is expected that emission reduction from this cap-and-trade program will account for a large portion of the reductions required by AB 32. The proposed scoping plan will be considered for approval at a two-day meeting of the CARB Governing Board on December 11–12, 2008.

### **SB 1368**

Two days after signing AB 32, Governor Schwarzenegger signed Senate Bill 1368 (SB 1368, Perata) into law. SB 1368 required the CEC and the California Public Utilities Commission (CPUC) to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local publicly owned utilities. The CEC adopted its standard on May 23, 2007 and the CPUC adopted its standard on January 25, 2007. SB 1368 includes measures that protect energy customers from financial risks by allowing new capital investments in power plants with GHG emissions that are as low as or lower than new combined-cycle natural gas plants, requiring imported electricity from out-of-state to meet GHG performance standards in California, and requiring that the standards be developed and adopted in a public process.<sup>54</sup>

### **Executive Order S-1-07**

On January 18, 2007, California further solidified its dedication to reducing GHGs by setting a new Low Carbon Fuel Standard (LCFS) for transportation fuels sold within the state. Executive Order S-1-07 sets a declining standard for GHG emissions measured in CO<sub>2</sub>-equivalent gram per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The LCFS will apply to refiners, blenders, producers, and importers of transportation fuels and will use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle" using the most economically feasible methods. The executive order requires the Secretary of Cal/EPA to coordinate with actions of the CEC, CARB, the University of

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<sup>54</sup> The adopted SB 1368 regulations are available on the California Energy Commission's website at: [http://www.energy.ca.gov/emission\\_standards/regulations/index.html](http://www.energy.ca.gov/emission_standards/regulations/index.html).

California, and other agencies to develop a protocol to measure the “life-cycle carbon intensity” of transportation fuels. CARB is anticipated to complete its review of the LCFS protocols no later than June 2007 and implement the regulatory process for the new standard by December 2008.

#### **SB 97**

In August 2007, as part of the legislation accompanying the state budget negotiations, the legislature enacted SB 97 (Dutton), which directs the Governor’s Office of Planning and Research (OPR) to develop guidelines under CEQA for the mitigation of greenhouse gas emissions. OPR is to develop proposed guidelines by July 1, 2009, and the Resources Agency is directed to adopt guidelines by January 1, 2010. Until such guidelines are promulgated, there is no guidance from OPR or other agencies regarding the analysis of greenhouse gas emissions in EIRs.

#### **SB 375**

The California Legislature passed SB 375 (Steinberg) on September 1, 2008. SB 375 would require CARB to set regional greenhouse gas reduction targets after consultation with local governments. The target must then be incorporated within that region’s Regional Transportation Plan (RTP), which is used for long-term transportation planning, in a Sustainable Communities Strategy. SB 375 also requires each region’s Regional Housing Needs Assessment (RHNA) to be adjusted based on the Sustainable Communities Strategy in its RTP. Additionally, SB 375 will reform the environmental review process to create incentives to implement the strategy, especially transit priority projects. The governor signed SB 375 into law on September 30, 2008.

#### **California Climate Action Registry**

The California Climate Action Registry (CCAR) is a private non-profit organization formed by the State of California and serves as a voluntary GHG registry to protect and promote early actions to reduce GHG emissions by organizations. Senate Bill 1771 (SB 1771, Sher) formally established the CCAR with technical changes made to the statute in SB 527, which finalized the structure for the California Registry. The CCAR began with 23 Charter Members and currently has over 300 corporations, universities, cities and counties, government agencies and environment organizations voluntarily measuring, monitoring, and publicly reporting their GHG emissions using the CCAR protocols. The CCAR has published a General Reporting Protocol, as well as project- and industry-specific protocols for landfill activities, livestock activities, the cement sector, the power/utility sector, and the forest sector. The protocols provide the principles, approach, methodology, and procedures required for participation in the CCAR.

## **CAPCOA CEQA and Climate Change White Paper**

The California Air Pollution Control Officers Association (CAPCOA) prepared a white paper on CEQA and Climate Change in January 2008. The white paper was intended to be used as a resource by lead agencies when considering policy options and not as a guidance document. Specifically, the white paper discusses three possible approaches to evaluating the significance of GHG emissions and possible mitigation measures; however, CAPCOA does not endorse any particular approach. The three alternative significance approaches are: (1) not establishing a significance threshold for GHG emissions; (2) setting the GHG emission threshold at zero; and (3) setting the GHG emission threshold at some non-zero level. The white paper evaluates potential considerations and pitfalls associated with the three approaches. At the end of the white paper, CAPCOA provides a list of potential mitigation measures and discusses each in terms of emissions reduction effectiveness, cost effectiveness, and technical and logistical feasibility. While programs are still being developed by CARB, the white paper provides public agencies with information to ensure that GHG emissions are, according to CAPCOA, “appropriately considered and addressed under CEQA.”

## **CARB Proposal for Significance Thresholds for GHGs under CEQA**

On October 24, 2008, CARB staff released a draft and preliminary proposal for determining whether the emissions related to proposed new projects are significant impacts under CEQA. While the proposal is focused on helping lead agencies determine under which conditions a project may be found exempt from the preparation of an EIR, the proposal also provides a guide for establishing significance thresholds for projects for which EIRs would be prepared regardless of the project’s climate change impact. According to this proposal, the threshold for determining whether a project's emissions are significant is not zero emissions, but must be a stringent performance-based threshold to meet the requirements of AB 32. If the project meets certain specific yet to be developed performance standards for several categories of emissions, including construction emissions, building energy use, water use, solid waste, and transportation, and the project emits no more than a certain to be determined amount of metric tons of carbon equivalents per year, the project's impact would not be significant. According to CARB, California Energy Commission Tier II building energy use standards are proposed to be used, which generally require a reduction in energy usage of 30 percent beyond Title 24 building code requirements.

## **ENVIRONMENTAL IMPACTS**

### **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 *State*

*CEQA Guidelines.* The *State CEQA Guidelines* 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?

### ***Construction Emission Thresholds***

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 proposed project.

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

- 550 pounds per day of CO
- 75 pounds per day of VOC
- 100 pounds per day of NO<sub>x</sub>
- 150 pounds per day of SO<sub>x</sub>
- 150 pounds per day of PM<sub>10</sub>
- 55 pounds per day of PM<sub>2.5</sub>

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 site 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<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, and CO.<sup>55</sup> The significance threshold for PM<sub>10</sub> represents compliance with Rule 403 (Fugitive Dust), while the thresholds for NO<sub>2</sub> 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<sub>2.5</sub> is intended to constrain emissions so as to aid in progress toward attainment of the ambient air quality standards.<sup>56</sup>

For project sites of 5 acres or less, the SCAQMD Localized Significance Threshold Methodology (LST document) includes screening 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 the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals).

The project site is approximately 2.18 acres. The nearest sensitive receptor is the Glendale Memorial Hospital, approximately 30 meters (approximately 100 feet) to the east of the project site across Central Avenue.<sup>57</sup> Residential land uses are located approximately 170 meters (558 feet) to the south. Therefore, the distance used to determine the mass-rate emissions from the screening tables is 30 meters (100 feet), as specified in the LST document. The allowable mass-rate emissions were linearly interpolated for a 2.18-acre site using the specified thresholds for 2- and 5-acre sites. The applicable thresholds are shown in **Table 4.2-8, Localized Significance Thresholds for a 2.18-Acre Site located in SRA 7 (East San Gabriel Valley)**.

### *Operational Emission Thresholds*

The SCAQMD has recommended two sets of air pollution thresholds to assist lead agencies in determining whether or not the operational phase of a project's development would be significant. These are identified in the following discussion under Primary Thresholds and Secondary Thresholds. The SCAQMD recommends that a project's impacts be considered significant if thresholds are exceeded for either primary or secondary effects.

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<sup>55</sup> South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, (2008).

<sup>56</sup> Ibid.

<sup>57</sup> Distance between property lines of project site and the hospital was used.

**Table 4.2-8**  
**Localized Significance Thresholds for a 2.18-Acre Site**  
**located in SRA 7 (East San Gabriel Valley)<sup>1</sup>**

Pollutant	Distance to Receptor	Threshold (pounds/day)
Respirable Particulate Matter (PM <sub>10</sub> )	30 meters	10.4
Fine Particulate Matter (PM <sub>2.5</sub> )	30 meters	4.6
Oxides of Nitrogen (NO <sub>x</sub> ) <sup>2</sup>	30 meters	134.1
Carbon Monoxide (CO)	30 meters	883

*Source: South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008), Appendix C.*

<sup>1</sup> LST thresholds are interpolated from the values in these documents, based on the project size and the distance to the nearest sensitive receptor.

<sup>2</sup> The NO<sub>x</sub> LST thresholds contained in the SCAQMD lookup tables are based on emissions of NO<sub>x</sub> from construction of the project and assume gradual conversion to NO<sub>2</sub> based on the distance from the project site boundary.

### Primary Thresholds

**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:

- 550 pounds per day of CO
- 55 pounds per day of VOC
- 55 pounds per day of NO<sub>x</sub>
- 150 pounds per day of SO<sub>x</sub>
- 150 pounds per day of PM<sub>10</sub>
- 55 pounds per day of PM<sub>2.5</sub>

The SCAQMD has established these thresholds, in part, based on Section 182(e) of the federal CAA that identifies 10 tons per year of VOCs and NO<sub>x</sub> as the significance level for stationary sources of emissions in extreme nonattainment areas for O<sub>3</sub>. As discussed earlier, VOC and NO<sub>x</sub> undergo photochemical reactions in sunlight to form O<sub>3</sub>, and, at the time these thresholds were established, the basin was the only extreme nonattainment area for O<sub>3</sub> in the United States. This emission threshold has been converted to a pound per day threshold for the operational phase of a project. Thresholds for other emissions have been identified based on regulatory limits in SCAQMD. Because they are converted from a CAA threshold, the

SCAQMD has determined that these thresholds are based on scientific and factual data.<sup>58</sup> Therefore, the District recommends that the following thresholds be used by lead agencies in making a determination of operation-related project significance:

### **Secondary Thresholds**

Project impacts would be considered significant if operation of the project meets any of the SCAQMD secondary thresholds listed below:

- The project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation;
- The project could result in population increases within an area, which would be in excess of that projected by SCAG in the AQMP, or increase the population in an area where SCAG has not projected that growth for the project's buildout year;
- The project could generate vehicle trips that cause a CO hotspot or project could be occupied by sensitive receptors that are exposed to a CO hotspot;
- The project will have the potential to create, or be subjected to, an objectionable odor that could impact sensitive receptors;
- The project will have hazardous materials on site and could result in an accidental release of toxic air emissions or acutely hazardous materials posing a threat to public health and safety;
- The project could emit a toxic air contaminant regulated by SCAQMD rules or that is on a federal or state air toxic list;
- The project could be occupied by sensitive receptors and be located within 0.25 mile of an existing facility that emits air toxics identified in SCAQMD Rule 1401; or
- The project could emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of 10 in 1 million.

### ***Cumulative Thresholds***

#### **Regional Emission Threshold**

In large part, the SCAQMD 2007 AQMP was prepared to accommodate growth, to meet state and federal air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. According to the SCAQMD *CEQA Air Quality Handbook*, projects that are within the emission

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<sup>58</sup> South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) 6-1.

thresholds identified above, should be considered less than significant unless there is other pertinent information to the contrary.<sup>59</sup>

If a project is not within the emission thresholds above, the SCAQMD *CEQA Air Quality Handbook* identifies three possible methods to determine the cumulative significance of land use projects.<sup>60</sup> The SCAQMD's methods are based on performance standards and emission reduction targets necessary to attain the federal and state air quality standards identified in the 2003 AQMP. However, one method is no longer recommended and supported by the SCAQMD and another method is not applicable as the SCAQMD repealed the underlying regulation (Regulation XV) after the *CEQA Air Quality Handbook* was published. Therefore, the only viable SCAQMD method is based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

### **Greenhouse Gas Emission Threshold**

To date, no local or state air quality agency has adopted significance criteria for GHG emissions. While the Global Warming Solutions Act (AB 32) created a framework for the reduction of GHGs in California, the act did not address the role of CEQA in achieving the goals of the act. As noted earlier, in August 2007, the governor signed SB 97 (Dutton) into law, which requires OPR to prepare CEQA guidelines for the mitigation of GHG emissions or the effects of greenhouse gas emissions. Despite the foregoing, this DEIR provides a discussion of the impacts of the project with respect to global climate change in the absence of an established significance threshold. To assess the impact of the project with respect to global climate change, the project will be evaluated as to whether it would impede or conflict with the emissions reduction targets and strategies prescribed in or developed to implement AB 32 as well as the project's consistency with the overall goals and plans of SB 375.

### **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.

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<sup>59</sup> South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) 9–12.

<sup>60</sup> *Ibid.* Written communication with Steve Smith, South Coast Air Quality Management District, November 20, 2003.

**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 emissions within the 2007 AQMP (refer to the 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 2012 assumed a population in the City of Glendale of 208,797 persons. The 2008 State Department of Finance population estimate for Glendale is 207,157.<sup>61</sup> The project would add 771 persons, which when added to the existing population of the City of Glendale would result in a total of 207,928 persons. This total is within the 2004 RTP population estimates and below that estimated in the AQMP. Consequently, the project would be consistent with this component of the AQMP, since it would not result in 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 proposed project and its objectives are consistent with the goals of the AQMP for reducing the emissions associated with new development. The proposed project's location within an urban area with both commercial and residential uses would minimize the need for, or the distance of, some motor vehicle trips, thereby reducing motor vehicle emissions from such trips. The proposed project would include some commercial uses (including a possible restaurant) that would meet the daily needs of residents on the site, minimizing the need to leave during the day. This type of development is consistent with the goals of the AQMP for reducing motor

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<sup>61</sup> California State Department of Finance, E-5 City/County Population and Housing Estimates, January 1, 2007, May 2007.

vehicle emissions. In addition, the project site 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, vehicle miles traveled and resulting air pollutant emissions would be reduced. These measures are consistent with the goals of the AQMP for reducing the impacts 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:** 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 three phases and last approximately 30 months. Phase I (Demolition) would involve the demolition and removal of the existing on-site structures. Approximately 1,640 cubic yards of demolition material would be generated. Demolition and removal on a worst-case day would involve the use standard construction equipment including a backhoe, dozer, loaders, industrial saw, and haul trucks. This phase is anticipated to take one week to complete.

Phase II (Site Grading) would involve the grading, excavation, and export of existing fill materials and replacement with properly compacted fill materials. Grading would require excavation up to 123,000 cubic yards of earth material. Activities on a worst-case day would involve the use of a grader, dozer, loader, one water truck, and haul trucks. Daily haul truck round trips would be up to approximately 95 truck/trailer combos per day for export of soil. This phase is anticipated to take three months to complete.

Phase III (Sub- and Above-Grade Construction) would consist of sub-grade construction and above-grade building construction. Building activities during these phases on a worst-case day would involve the use of standard construction equipment, including one crane, loader, and two forklifts. In addition, building construction would involve vendor truck trips for concrete and building material delivery. This phase is anticipated to take approximately 27 months to complete. In addition, architectural coating would take place during the last three months of building construction and asphalt paving would take place during the last 1.5 months of building construction. Asphalt paving would include additional equipment such as cement and mortar mixers, pavers, and rollers.

Construction emissions were calculated according to the SCAQMD's *CEQA Air Quality Handbook*, and construction emission factors contained in the URBEMIS2007 Air Quality Impact Model.<sup>62</sup> URBEMIS2007 is a land use and transportation based computer model designed to estimate regional air emissions from new development projects. The model accounts for certain meteorological conditions that characterize specific air basins in California. Fugitive dust emissions of PM<sub>10</sub> and PM<sub>2.5</sub> were adjusted to account for compliance with SCAQMD Rule 403 (Fugitive Dust). During demolition, a 36 percent control efficiency was applied outside of the URBEMIS2007 program as it does not contain a mechanism for the application of water during this phase. The control efficiency is based on the SCAQMD's CEQA fugitive dust mitigation measure tables.<sup>63</sup> During site grading, watering on exposed surfaces and unpaved roads and soil stabilization measures during equipment loading and unloading were applied using the control efficiencies specified in the URBEMIS2007 program.

The estimated maximum daily emissions during each phase of project construction are listed in **Table 4.2-9, Estimated Unmitigated Construction Emissions**. These estimates are based on the expected location, size, and development of the project. The analysis assumes that all of the construction equipment and activities would occur continuously over the day and that activities would overlap. In reality, this would not occur, as most equipment would operate only a fraction of each workday and many of the activities would not overlap on a daily basis. Therefore, **Table 4.2-9** 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), and included as part of the project's mitigation measures.

As shown in **Table 4.2-9**, project-related construction emissions of all the pollutants would not exceed any of the thresholds of significance recommended by the SCAQMD during project construction. Therefore, the impacts resulting from construction of the proposed project are considered less than significant.

As indicated in the discussion of the threshold of significance, the SCAQMD recommends that the potential impacts be evaluated on the ambient air concentrations due to construction emissions of NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. The SCAQMD *Localized Significance Threshold Methodology* (LST document) includes screening tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., not exceed the applicable concentration limits). The allowable emission rates depend on (a) the Source Receptor Area (SRA) in which the project is located, (b) the size

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<sup>62</sup> Rimpo and Associates Inc., URBEMIS2007, (2008).

<sup>63</sup> South Coast Air Quality Management District, "Fugitive Dust," [http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM\\_fugitive.html](http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html). 2007.

of the project site, and (c) the distance between the project 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 4.2-10, Localized Significance Thresholds Analysis during Construction**, and are compared with the maximum daily on-site construction emissions. The construction site is 2.18 acres. The LST construction emission thresholds shown below were interpolated for a 2.18-acre site from the LST screening tables for 2- and 5-acre project sites. The nearest sensitive receptor is the Glendale Memorial Hospital, which is located approximately 30 meters (98 feet) east of the construction site boundary.

As shown in **Table 4.2-10**, project-related construction emissions would not exceed the localized significance thresholds for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and CO during project construction. Therefore, the impacts resulting from construction of the proposed project are considered to have a less than significant localized impact.

*Level of Significance Before Mitigation:* Less than Significant.

*Mitigation Measures:* None are required.

*Level of Significance After Mitigation:* Less than Significant.

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

*Impact Analysis:* Operational emissions would be generated by both stationary and mobile sources as a result of normal day-to-day activity on the project site after occupancy. Stationary emissions would be generated by the consumption of natural gas for space and water heating devices. Mobile emissions would be generated by the motor vehicles traveling to and from the project site. The project site has existing land uses that, prior to implementation of the proposed project, would also generate air emissions. Therefore, the existing site emissions were estimated and subtracted from the proposed project emissions to calculate the net emissions, which are compared to the SCAQMD thresholds of significance.

**Table 4.2-9  
Estimated Unmitigated Construction Emissions**

Construction Phase	Maximum Emissions in Pounds per Day					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Demolition, 2010</b>						
Fugitive Dust	—	—	—	—	9.54 <sup>1</sup>	1.98 <sup>1</sup>
Off-Road Diesel	1.14	7.68	4.68	0.00	0.59	0.54
On-Road Diesel	1.18	15.36	5.90	0.02	0.70	0.60
Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00
<b>Maximum pounds per day:</b>	2.35	23.10	11.63	0.02	10.84	3.13
<b>SCAQMD Threshold:</b>	75	100	550	150	150	55
<b>Exceeds Threshold?</b>	NO	NO	NO	NO	NO	NO
<b>Grading and Excavation, 2010</b>						
Fugitive Dust	—	—	—	—	8.69 <sup>1</sup>	1.82 <sup>1</sup>
Off-Road Diesel	3.00	24.99	12.46	0.00	1.25	1.15
On-Road Diesel	4.52	58.94	22.63	0.08	2.68	2.31
Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00
<b>Maximum pounds per day:</b>	7.56	83.99	36.14	0.08	12.63	5.28
<b>SCAQMD Threshold:</b>	75	100	550	150	150	55
<b>Exceeds Threshold?</b>	NO	NO	NO	NO	NO	NO
<b>Building Construction, 2012</b>						
Bldg. Const. Off-Road Diesel	1.03	7.87	4.56	0.00	0.49	0.45
Bldg. Const. Vendor Trips	0.45	4.93	4.08	0.01	0.24	0.20
Bldg. Const. Worker Trips	0.52	0.99	17.38	0.02	0.18	0.10
Asphalt Off-Gas	0.04	—	—	—	—	—
Asphalt Off-Road Diesel	1.30	7.92	4.88	0.00	0.67	0.62
Asphalt On-Road Diesel	0.01	0.14	0.05	0.00	0.01	0.01
Asphalt Worker Trips	0.04	0.08	1.36	0.00	0.01	0.01
Arch. Coatings Off-Gas	35.97	—	—	—	—	—
Arch. Coatings Worker Trips	0.03	0.06	0.99	0.00	0.01	0.01
<b>Maximum pounds per day:</b>	39.40	21.99	33.30	0.04	1.61	1.38
<b>SCAQMD Thresholds:</b>	75	100	550	150	150	55
<b>Exceeds Thresholds?</b>	NO	NO	NO	NO	NO	NO

Source: Impact Sciences, Inc., (2008). Emissions calculations are provided in **Appendix 4.2**.

Totals in table may not appear to add exactly due to rounding in the computer model calculations.

<sup>1</sup> PM<sub>10</sub> and PM<sub>2.5</sub> fugitive dust emissions reflect SCAQMD Rule 403 compliance.

**Table 4.2-10  
Localized Significance Thresholds Analysis during Construction**

<b>Pollutant</b>	<b>On-Site Emissions (pounds/day)</b>	<b>LST Criteria<sup>1</sup> (pounds/day)</b>	<b>Exceeds LST?</b>
Respirable Particulate Matter (PM <sub>10</sub> )	10.1	10.4	NO
Fine Particulate Matter (PM <sub>2.5</sub> )	3.0	4.6	NO
Nitrogen Dioxide (NO <sub>2</sub> )	25.0	134.1	NO
Carbon Monoxide (CO)	12.5	883	NO

Source: Impact Sciences, Inc., (2008). Emissions calculations are provided in **Appendix 4.2**.

<sup>1</sup> South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008), Appendix C.

The analysis of daily operational emissions has been prepared using the data and methodologies identified in the SCAQMD's *CEQA Air Quality Handbook* and current motor vehicle emission factors in the URBEMIS2007 Air Quality Impact Model. Land uses entered into the URBEMIS2007 model include 218 dwelling units of mid-rise apartments and 54,000 square feet of strip mall. Trip rates for these land uses were obtained from the traffic report for the project (refer to **Section 4.11, Traffic, Circulation, and Parking**). For the existing site emissions, land uses entered into the URBEMIS2007 model include 5,140 square feet of fast-food restaurant with drive through, 8,667 square feet of car wash, and 4,406 square feet of automobile care center. URBEMIS2007 does not specifically include car wash and automobile care center land uses; therefore, the custom fields were used with the primary, diverted, and pass by trip percentages applied from the convenience market with gas pumps land use. Trip rates for these land uses were obtained from the traffic report for the project.

The estimated emissions are based upon development of all the proposed land uses on the project site, and are presented in **Table 4.2-11, Estimated Unmitigated Operational Emissions**. The net emissions, which account for emissions generated from the existing land uses, are compared to the SCAQMD established significance thresholds.

The net emission increase associated with the proposed project would not exceed the SCAQMD's recommended operational emission thresholds. As a result, the operational impacts associated with the proposed project are considered less than significant.

**Table 4.2-11  
Estimated Unmitigated Operational Emissions**

Emissions Source	Emissions in Pounds per Day					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Project Summertime Emissions<sup>1</sup></b>						
Operational (Mobile) Sources	19.40	23.07	210.77	0.24	39.24	7.65
Area/Stationary Sources	12.32	2.70	4.44	0.00	0.02	0.01
Summertime Emissions Total	31.72	25.77	215.21	0.24	39.26	7.66
Existing Summertime Emissions	22.93	25.44	231.94	0.18	29.16	5.73
Net Summertime Emissions	8.79	0.33	( 16.73)	0.06	10.10	1.93
<b>SCAQMD Threshold</b>	55	55	550	150	150	55
<b>Exceeds Threshold?</b>	NO	NO	NO	NO	NO	NO
<b>Project Wintertime Emissions<sup>2</sup></b>						
Operational (Mobile) Sources	21.46	27.72	205.52	0.20	39.24	7.65
Area/Stationary Sources	12.14	3.87	1.86	0.01	0.11	0.10
Wintertime Emissions Total	33.6	31.59	207.38	0.21	39.35	7.75
Existing Wintertime Emissions	26.73	30.50	228.70	0.14	29.15	5.72
Net Wintertime Emissions	17.60	1.09	( 21.32)	0.07	10.20	2.03
<b>SCAQMD Threshold</b>	55	55	550	150	150	55
<b>Exceeds Threshold?</b>	NO	NO	NO	NO	NO	NO

Source: Impact Sciences, Inc., (2008). Emissions calculations are provided in **Appendix 4.2**.

( ) = indicates negative value

Totals in table may not appear to add exactly due to rounding in the computer model calculations.

<sup>1</sup> Summertime Emissions" are representative of the conditions that may occur during the ozone season (May 1 to October 31).

<sup>2</sup> Wintertime Emissions" are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

**Level of Significance Before Mitigation:** Less than Significant.

**Mitigation Measures:** None are required.

**Level of Significance After Mitigation:** Less than Significant.

**Threshold:** 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 1 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. The simplified approach is acceptable to the SCAQMD as long as it is used consistently with the BAAQMD Guidelines. This model is utilized 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 4.2-12, Future Cumulative Carbon Monoxide Concentrations – With Project**, for representative receptors located 0 and 25 feet from the intersection.

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 or without the development of the proposed 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.

As shown in **Table 4.2-10**, project-related construction emissions would not exceed the localized significance thresholds for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and CO during project construction. Therefore, the impacts resulting from construction of the proposed project are considered to have a less than significant localized impact. Based on the above, the project would not expose sensitive receptors to substantial pollutant concentrations.

**Table 4.2-12  
Future Cumulative Carbon Monoxide Concentrations – With Project**

Intersection	0 Feet		25 Feet	
	1-Hour <sup>1</sup>	8-Hour <sup>2</sup>	1-Hour <sup>1</sup>	8-Hour <sup>2</sup>
San Fernando Road at Chevy Chase Drive	7.0	5.1	6.2	4.6
Central Avenue at Chevy Chase Drive	6.8	5.0	6.1	4.5
Seneca Avenue at Los Feliz Boulevard	7.2	5.2	6.4	4.6
San Fernando Road at Los Feliz Boulevard	7.7	5.6	6.7	4.9
Central Avenue at Los Feliz Boulevard	6.9	5.1	6.2	4.5
Brand Boulevard at Los Feliz Boulevard	7.0	5.1	6.2	4.6
San Fernando Road at Central Avenue	6.8	5.0	6.1	4.5
San Fernando Road at Brand Boulevard	7.3	5.3	6.6	4.8
<b>Exceeds state 1-hour standard of 20 ppm?</b>	NO	-	NO	-
<b>Exceeds federal 1-hour standard of 35 ppm?</b>	NO	-	NO	-
<b>Exceeds state 8-hour standard of 9.0 ppm?</b>	-	NO	-	NO
<b>Exceeds federal 8-hour standard of 9 ppm?</b>	-	NO	-	NO

Source: Impact Sciences, Inc., (2008). Emissions calculations are provided in **Appendix 4.2**.

<sup>1</sup> State standard is 20 parts per million. Federal standard is 35 parts per million.

<sup>2</sup> State standard is 9.0 parts per million. Federal standard is 9 parts per million.

**Level of Significance Before Mitigation:** Less than Significant.

**Mitigation Measures:** None are required.

**Level of Significance After Mitigation:** Less than Significant.

**Threshold:** Create objectionable odors affecting a substantial number of people.

**Impact Analysis:** During project construction, certain pieces of construction equipment could emit odors associated with exhaust. However, odors emitted from certain pieces of construction equipment would dissipate quickly and be short term in duration. Odors resulting from spray coating applications of paint and related materials during construction would be regulated by SCAQMD Rule 481. This rule imposes equipment and operational restrictions during construction for all spray painting and spray coating operations. Compliance with SCAQMD rules and permit requirements would ensure that no objectionable odors are created during construction. Therefore, impacts from odors during construction would be less than significant.

The proposed project would develop additional urban uses on the project site, similar to uses already existing on and around the project site, and it does not include uses that would generate significant objectionable odors, although if a restaurant land use is included in the commercial portion of the project it is possible that odors from restaurant operations may be occasionally perceptible. Operation of the proposed project would involve the disposal of refuse, including domestic and food service refuse from residential 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 of Glendale. Trash receptacles within the project area would be required to have lids that enable convenient collection and loading and would be emptied on a regular basis, in compliance with City of Glendale regulations for the collection of solid waste. 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.

### ***Secondary Thresholds***

Project impacts would be considered significant if operation of the project meets or exceeds any of the SCAQMD secondary thresholds listed below:

**Threshold:**                    **Result in an accidental release of toxic air emissions or acutely hazardous materials posing a threat to public health and safety.**

*Impact Analysis:* Project construction would involve the demolition and removal of several existing structures located on the project site. Because some of these structures were constructed during a period when asbestos-containing building materials were not regulated, these structures have the potential to contain building materials containing such hazardous materials. All structures must be stabilized and demolished in accordance with applicable regulations including SCAQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities. This rule is intended to limit asbestos emissions from demolition or renovation of structures and the associated disturbance of asbestos-containing waste material generated or handled during these activities. The rule addresses the EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) and provides additional requirements to cover non-NESHAP areas. The rule requires that the SCAQMD be notified before any demolition or renovation

activity occurs. This notification includes a description of the structures and methods utilized to determine the presence or absence of asbestos. All asbestos-containing material found on the site must be removed prior to demolition or renovation activity. As part of project implementation, the project applicant must comply with the requirements of SCAQMD Rule 1403. Project compliance with Rule 1403 would ensure that asbestos-containing materials would be removed and disposed of appropriately. With adherence to this applicable regulation, the potential for significant adverse health impacts would be reduced to less than significant.

Project operation would not result in hazardous materials on site in any appreciable quantity. Development and operation of the project would not result in an accidental release of toxic air emissions or acutely hazardous materials that pose a threat to public health and safety. As a result, impacts from this 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.

**Threshold:** Emit a toxic air contaminant regulated by SCAQMD rules or that is on a federal or state air toxic list.

*Impact Analysis:* The proposed project would not have hazardous materials on site in any appreciable quantity. Development and operation of the project would not result in emissions of TACs regulated by SCAQMD rules or TACs on federal or state air toxics lists. As a result, impacts from this 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.

**Threshold:** Locate sensitive receptors within 0.25 mile of an existing facility that emits air toxics identified in SCAQMD Rule 1401.

*Impact Analysis:* Based on a search of permit records maintained by the SCAQMD's Facility Information Detail (FIND) system, the proposed project would be located within a 0.25 mile of a facility that has reported emissions of TACs. These records indicate that the Glendale Memorial Hospital has reported

emissions of approximately 231 pounds of trichlorofluoromethane in 2001 and approximately 4.8 pounds formaldehyde in 2001 and less than one pound of formaldehyde in 2002. Permitted facilities that do not emit TACs during a particular year are not required to submit an annual report to the SCAQMD. Because emissions of TACs have not been reported by facilities located within 0.25 mile of the project site since 2002, according to the SCAQMD's FIND system, impacts associated with this facility 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:**                    **Emit carcinogenic or toxic air contaminants that individually or cumulatively exceed the maximum individual cancer risk of 10 in one million.**

*Impact Analysis:* The proposed project would not have hazardous materials on site in any appreciable quantity. Development and operation of the project would not result in emissions of TACs in sufficient quantities that would individually or cumulatively exceed the maximum individual cancer risk of 10 in 1 million. As a result, project impacts 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 Impact Analysis**

The geographic context for air quality impacts is SRA 7 of the basin. This area covers the east San Fernando Valley. The determination of significance of air quality impacts is typically according to the project methodology employed by the SCAQMD, as the regional body with authority in this area, and which has taken into consideration growth envisioned by related projects.

**Threshold:** 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 *CEQA Air Quality Handbook* identifies possible methods to determine the cumulative significance of land use projects.<sup>64</sup> All of the SCAQMD's methods are based on performance standards and emission reduction targets necessary to attain the federal and state air quality standards identified in the AQMP. The *CEQA Air Quality Handbook* identifies possible methods to determine the cumulative significance of land use projects.<sup>65</sup> However, one method is no longer recommended or supported by the SCAQMD, and another method is not applicable as the SCAQMD repealed the underlying regulation after the *CEQA Air Quality Handbook* was published. This draft EIR evaluates the following methods: (1) the SCAQMD method of whether the rate of growth in average daily trips exceeds the rate of growth in population and/or employment and (2) whether or not the project is consistent with the AQMP and, thus, would not jeopardize attainment of state and federal ambient air quality standards in the basin.

The first SCAQMD approach is to assess whether the rate of growth in average daily trips (ADT) is held to the rate of population growth. As specified in the *CEQA Air Quality Handbook*, the ratio of project ADT to anticipated ADT in the city or county is compared to the ratio of the project population to the anticipated population in the city or county.<sup>66</sup> If the growth of ADT is less than the population growth, then the project is not considered to have a significant cumulative air quality impact. The relevant values are shown in **Table 4.2-13, Comparison of Growth of ADT to Employment Growth**.

The residential and net employment populations for the project were based on data contained in **Section 4.8, Population and Housing**, of this Draft EIR. The net employment population was determined by assuming three employees per 1,000 square feet of existing commercial space, as was assumed for the proposed project in **Section 4.8**. Employment population data for Los Angeles County were based on SCAG projections.<sup>67</sup> ADT data were based on URBEMIS2007 and EMFAC2007 factors as well as the traffic report<sup>68</sup> for the project. As shown in **Table 4.2-13**, the ratio of project-to-County ADT is less than the population ratio. Additionally, the proposed project would generate far fewer non-residential trips

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<sup>64</sup> South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) 9-12; Written communication with Steve Smith, Program Supervisor, South Coast Air Quality Management District, November 20, 2003.

<sup>65</sup> Ibid.

<sup>66</sup> South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) A9-126.

<sup>67</sup> Southern California Association of Governments, "City Projections," <http://scag.ca.gov/forecast/index.htm>. 2007.

<sup>68</sup> Crane & Associates, Inc., *Traffic Analysis*, (2007).

compared to the existing land uses. Therefore, the project would have a less than significant cumulative impact with respect to this criterion.

**Table 4.2-13**  
**Comparison of Growth of ADT to Population and Net Employment Growth**

	Average Daily Trips	Population/Net Employment
Project Population <sup>1, 2</sup>	1,464	654
Los Angeles County <sup>3, 4</sup>	41,946,600	10,876,313
Ratio of Project to Los Angeles County	0.000035	0.000060
Project Employment <sup>2, 5</sup>	(1,452)	117
Los Angeles County <sup>3, 4</sup>	41,946,600	5,092,825
Ratio of Project to Los Angeles County	NA	0.000023

Source: Impact Sciences, Inc., (2008).

( ) = indicates negative value

NA = not applicable

<sup>1</sup> Estimated ADT is based on URBEMIS2007 and the traffic report for the project.

<sup>2</sup> Section 4.8, Population and Housing.

<sup>3</sup> Estimated ADT in Los Angeles County in 2012 (project occupancy year) as determined by EMFAC2007.

<sup>4</sup> Southern California Association of Governments, "City Projections," <http://www.scag.ca.gov/forecast/downloads/2004GF.xls>. 2008. Employment population was interpolated for 2012.

<sup>5</sup> While URBEMIS2007 assumes that 2 percent of all trips associated with the strip mall land use are worker commute trips, this results in 42 trips per day, which is less than the typical 2 employee trips per day used by other air quality management districts (e.g., Sacramento Metropolitan Air Quality Management District). Therefore, the daily trips for project employment were assumed to be 2 trips per day.

In addition to the cumulative significance methodologies contained in *CEQA Air Quality Handbook*, 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.<sup>69</sup> 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 presented previously in **Table 4.2-9**, construction of the project would result in daily construction emissions that do not exceed the thresholds of significance recommended by the SCAQMD. Project-related construction emissions would not exceed the localized significance thresholds for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, and CO during project construction. As presented previously in **Table 4.2-11**, operation of the project would result in daily construction emissions that do not exceed the thresholds of significance recommended by the SCAQMD. Therefore, the project would not generate a cumulatively considerable contribution to air pollutant emissions during project construction and operation. Therefore, the project would have a less than significant cumulative impact with respect to this criterion.

<sup>69</sup> Communication with Steve Smith, Program Supervisor, South Coast Air Quality Management District, April 19, 2006.

*Level of Significance Before Mitigation:* Less than significant.

*Mitigation Measures:* None are required.

*Level of Significance after Mitigation:* Less than significant.

**Threshold:** **Impede or conflict with the greenhouse gas emissions reduction targets and strategies prescribed in or developed to implement AB 32 as well as the overall goals and plans of SB 375.**

*Impact Analysis:* The project would result in direct emissions of GHGs due to fuel combustion from construction equipment, motor vehicles, and building heating systems associated with the project and would contribute to the global GHG inventory. Building and motor vehicle air conditioning systems may use HFCs (and HCFCs and CFCs to the extent that they have not been completely phased out at later dates), which may result in emissions through leaks. The other primary GHGs (perfluorocarbons and sulfur hexafluoride) are associated with specific industrial sources and are not expected to be associated with the proposed project.

The emissions of CO<sub>2</sub>, the primary greenhouse gas associated with construction and operation of the project were estimated using URBEMIS2007 with the following adjustments to convert CO<sub>2</sub> emissions to GHG emissions on a carbon dioxide equivalent (CO<sub>2</sub>E) basis:

- Construction diesel trucks and equipment: No adjustment was made to the CO<sub>2</sub> emissions because the GHGs in the exhaust from diesel engines are almost entirely CO<sub>2</sub> (less than 1 percent CH<sub>4</sub> and N<sub>2</sub>O on a CO<sub>2</sub> equivalent basis).
- Motor vehicles: The CO<sub>2</sub> emissions associated with project-generated trips were multiplied by a factor based on the assumption that CO<sub>2</sub> represents 95 percent of the CO<sub>2</sub>E emissions associated with passenger vehicles, which account for most of the project-related trips, and by 365 operational days per year.<sup>70</sup>
- Area sources (natural gas combustion): The CO<sub>2</sub> emissions from natural gas consumption for the project were adjusted based on emission factors for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O for natural gas combustion from the US EPA's *Compilation of Air Pollutant Emission Factors*;<sup>71</sup> the global warming potential for each GHG; and 365 days per year.

The project would also result in indirect GHG emissions due to the electricity demands of the project. Emission factors for GHGs due to electrical demand from the project's land uses were obtained from

<sup>70</sup> US Environmental Protection Agency, Office of Transportation and Air Quality, *Greenhouse Gas Emissions from a Typical Passenger Vehicle (EPA420-F-05-004)*, (2005) 4.

<sup>71</sup> US Environmental Protection Agency, *Compilation of Air Pollutant Factors, Fifth Edition, Volume I: Chapter 1.4 Natural Gas Combustion*, (1998).

CCAR's *General Reporting Protocol*.<sup>72</sup> The CCAR is a private non-profit organization formed by the State of California and serves as a voluntary GHG registry to protect and promote early actions to reduce GHG emissions by organizations. CCAR members voluntarily measure, verify, and publicly report their GHG emissions. The CCAR GHG emission factor due to electrical generation takes into account the current mix of energy sources used to generate electricity for California and the relative carbon intensities of these sources, and includes natural gas, coal, nuclear, large hydroelectric, and other renewable sources of energy. The estimated annual electrical demand for the project was obtained from factors in *CEQA Air Quality Handbook*.<sup>73</sup>

In addition to electrical demand, the project would also result in indirect GHG emissions due to water demand, wastewater treatment, and solid waste generation. GHG emissions from water demand are due to the electricity needed to convey, treat, and distribute potable water. GHG emissions from wastewater are due to the electricity needed to treat wastewater and the treatment process itself, which releases CH<sub>4</sub> and N<sub>2</sub>O into the atmosphere. GHG emissions from solid waste generation are due to the decomposition of organic material, which releases CH<sub>4</sub> into the atmosphere. The annual electrical demand factor for water demand<sup>74</sup> was obtained from the California Energy Commission. GHG emission factors for wastewater treatment<sup>75</sup> and solid waste generation<sup>76</sup> were obtained from the US EPA.

The project's direct and indirect GHG emissions are presented in **Table 4.2-14, Estimated Construction Greenhouse Gas Emissions**, and **Table 4.2-15, Estimated Operational Greenhouse Gas Emissions**.

**Table 4.2-14**  
**Estimated Construction Greenhouse Gas Emissions**

Construction Year	Emissions in Metric Tons CO <sub>2</sub> E Per Year
2010	622
2011	535
2012	389
<b>Total Construction</b>	<b>1,546</b>

*Source: Impact Sciences, Inc., (2008). Emissions calculations are provided in Appendix 4.2.*

<sup>72</sup> California Climate Action Registry, *General Reporting Protocol: Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.0*, (2008) 91-93.

<sup>73</sup> South Coast Air Quality Management District, *CEQA Air Quality Handbook*, (1993) A9-114.

<sup>74</sup> California Energy Commission, *Refining Estimates of Water-Related Energy Use in California, PIER Final Project Report (CEC-500-2006-118)*, (2006) 22. Prepared by Navigant Consulting, Inc.

<sup>75</sup> US Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006 (EPA 430-R-08-005)*, (2008) 8-15.

<sup>76</sup> US Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Greenhouse Gas Emission Factors for Management of Selected Materials in Municipal Solid Waste (EPA-530-R-98-013)*, (1998).

**Table 4.2-15**  
**Estimated Operational Greenhouse Gas Emissions**

Emissions Source	Emissions in Metric Tons CO <sub>2</sub> E Per Year
Direct GHG Emissions	
Operational (Mobile) Sources	3,984
Area Sources	559
Less Existing GHG Emissions	(2,999)
<b>Total Net Proposed Project (Direct)</b>	<b>1,544</b>
Indirect GHG Emissions	
Electricity Generation	781
Water Demand	65
Wastewater Treatment	69
Solid Waste Generation	10
<b>Total Proposed Project (Indirect)</b>	<b>925</b>

Source: Impact Sciences, Inc., (2008). Emissions calculations are provided in **Appendix 4.2**.

While the proposed project would result in emissions of GHGs, no adopted guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally the case that an individual project of this size is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory.<sup>77</sup> GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective.<sup>78</sup> Accordingly, the project's contribution to state, national, and global GHG emission inventories and the resultant effect on global climate should be evaluated on a cumulative basis.

Under Section 15064(h)(1) of the *State CEQA Guidelines*, a project must be assessed to determine if it would have a cumulatively considerable effect on a resource, where cumulatively considerable is defined as "...the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."<sup>79</sup> Section 15064(h)(4) further states, "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are

<sup>77</sup> California Air Pollution Control Officers Association, *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, (2008) 35.

<sup>78</sup> Ibid.

<sup>79</sup> *California Environmental Quality Act (CEQA) Guidelines*, California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, Section 15064.

cumulatively considerable.”<sup>80</sup> Therefore, the fact that the proposed project would result in emissions of GHGs (chiefly carbon dioxide), and that global GHGs emissions contribute to the greenhouse effect and the resultant impacts on global climate, does not mean that the project would have a cumulatively considerable impact on global climate. In the absence of adopted significance thresholds, the potential contribution of the project to this cumulative impact is evaluated under the following criterion:

- *Would the project impede or conflict with the emissions reduction targets and strategies prescribed in or developed to implement AB 32, and would the project be consistent with the overall goals and plans of SB 375?*

A project’s consistency with the implementing programs and regulations to achieve the statewide GHG emission reduction goals established under AB 32 cannot be evaluated in detail because the implementing programs and regulations are still under development. Similarly, while SB 375 has been signed into law as an implementing program for AB 32, CARB is not expected to develop regional GHG emission thresholds for California’s 18 MPOs until 2010, after which time the regional transportation plans and sustainable communities strategies would be developed by the MPOs. Nonetheless, the Climate Action Team, established by Executive Order S-3-05, has recommended strategies for implementation at the statewide level to meet the goals of the Executive Order. In the absence of an adopted plan or program, the Climate Action Team’s strategies serve as current statewide approaches to reducing the state’s GHG emissions and to comply with the on going legislative efforts of AB 32 and SB 375. As no other plan or program for GHG emissions that would apply to the project has been adopted, consistency with these strategies is assessed to determine if the project’s contribution to cumulative GHG emissions is considerable.

In its report to the governor and the legislature, the Climate Action Team recommended strategies that could be implemented by various state boards, departments, commissions, and other agencies to reduce GHG emissions.<sup>81</sup> In addition, CARB has approved a list of early action measures that can be implemented by January 1, 2010. The Climate Action Team strategies and early action measures that are relevant to the proposed project’s design features and mitigation measures that would be consistent with these strategies and measures are listed in **Table 4.2-16, Project Features and Mitigation Measures Consistent with Climate Action Team Strategies** and **Table 4.2-17, Project Features and Mitigation Measures Consistent with Early Action Measures**. Based on the analysis in **Table 4.2-16** and **Table 4.2-17**, the proposed project would reduce its contribution to GHG emissions and global climate due to its consistency with these strategies and measures.

In addition, the proposed project includes project objectives that would result in decreased GHG emissions. These project objectives are to (1) provide housing opportunities, pursuant to the Glendale

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<sup>80</sup> Ibid.

<sup>81</sup> California Environmental Protection Agency, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, (2006).

Redevelopment Agency's policy, in an urban setting in close proximity to employment opportunities, public transportation, public facilities, and goods and services and (2) develop a transit-oriented development, thereby reducing the number of vehicles, creating localized employment, gentrifying the local neighborhood, and providing a dynamic living environment. These project objectives are in support of the overall goals of SB 375. SB 375 is the nation's first law to reduce emissions of GHG by curbing urban sprawl. According to the Office of the Governor, passenger vehicles are the largest single source of GHGs accounting for 30 percent of the state's total.<sup>82</sup> While the sustainable communities strategies are yet to be developed by the MPOs, SB 375 creates incentives for higher density residential developments located in close proximity to public transportation, which would result in less vehicles miles traveled and less GHG emissions. As the project is a multi-family, mixed-use development close to existing public transportation, it is likely to be consistent with the strategies that are expected to be developed for SB 375. Specifically, SB 375 allows for CEQA streamlining of projects that area consistent with SB 375 goals. For example, residential projects that are consistent with an adopted Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS) will not be required to discuss growth inducing impacts or project specific or cumulative impacts from cars and light duty trucks on global warming or on regional transportation. Further, if the project complies with the SCS or APS and fits the definition of a "Transit Priority Project," such project could qualify for an exemption from CEQA. Until such time as SCSs and APSs are developed and adopted, it will not be possible to determine with any certainty whether the proposed project would comply with such strategies. However, because this is a mixed-use, in-fill project located closed to major transit corridors there is a greater likelihood than not that this project would ultimately qualify for some form of SB 375 CEQA streamlining.

Although no numerical thresholds have been adopted to evaluate the significance of a project's GHG emissions, it is helpful to compare the project's inventory with that of the state's GHG inventory for perspective. The project would result in direct net GHG emissions of approximately 1,544 metric tons per year (0.0015 million metric tons). Based on these calculations, the project would add less than 0.0004 percent to the State of California GHG emissions inventory. Compared to the estimated GHG for all sources in California (423 million metric tons, excluding out-of-state electrical generation), the project's contribution to global climate would be negligible. As stated above, no quantitative emission thresholds or similar criteria have been established to evaluate the cumulative impact of a single project on global climate. It is unlikely that a project generating this level of GHG emissions would potentially interfere with the state's programs to meet the goals of AB 32 and the strategies that are expected to be developed under SB 375. Therefore, based on this reason, and because the project would comply with the GHG reduction measures in **Table 4.2-16** and **Table 4.2-17**, the project is considered to have less than significant cumulative impacts with respect to this threshold.

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<sup>82</sup> Office of the Governor, "Senate Bill 375: Redesigning Communities to Reduce Greenhouse Gases," <http://gov.ca.gov/fact-sheet/10707/>. 2008.

*Level of Significance Before Mitigation:* Less than significant.

*Mitigation Measures:* None are required beyond those discussed in **Table 4.2-16** and **Table 4.2-17**.

*Level of Significance after Mitigation:* Less than significant.

**Table 4.2-16**  
**Project Features and Mitigation Measures to Achieve Climate Action Team Strategies**

CAT Strategy	Implementing Agency	Project Feature/Mitigation
Vehicle Climate Change Standards	Air Resources Board	The project would be consistent with this strategy to the extent that new passenger vehicle and light trucks are purchased by the project's users starting in the 2009 model year. <sup>1</sup>
HFC Reduction Strategies	Air Resources Board	Project air conditioning systems would comply with the latest standards for new systems. Use of consumer products using HFCs would comply with CARB regulations, when adopted.
Building Energy Efficiency Standards and Appliance Energy Efficiency Standards in Place	Energy Commission	The project will meet or exceed California energy standards and energy efficient lighting requirements.
Water Use Efficiency	Department of Water Resources	The project will meet or exceed California water use and conservation standards.

Source: California Climate Action Team, Final 2006 Climate Action Team Report to the Governor and Legislature, (2006).

<sup>1</sup> The US EPA has denied the waiver that would allow these standards to be implemented; however, the state has filed a lawsuit to overturn this decision and Senate Bill 2555 that would essentially bypass the US EPA's decision and grant California the waiver is progressing through the United States Congress. The implementation of these standards and the time schedule for the introduction of compliance passenger vehicles and light trucks are in question at this time.

**Table 4.2-17**  
**Project Features and Mitigation Measures Consistent with Early Action Measures**

Early Action Measure	Project Feature/Mitigation
Low-Carbon Fuel Standard	The project would be consistent with this measure because motor vehicles driven by project staff and residents would use compliance fuels in the future.
"Do-it-yourself" Automotive Refrigerants	The project would be consistent with this measure because the project's vehicles would be serviced by repair shops that capture and recycle automotive refrigerants, as required by law.
Consumer Product Propellants	The project would be consistent with this measure because the project staff and residents would purchase or use consumer products that comply with applicable state and local regulations.

Source: California Environmental Protection Agency, Air Resources Board, Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration, (2007).