3.2 AIR QUALITY AND GREENHOUSE GAS

This section provides an overview of existing air quality conditions and evaluates the construction and operational impacts associated with the Proposed Project. Supporting data and calculations are included in Appendix C. Both short-term construction emissions occurring from activities, such as site grading and haul truck trips, and long-term effects related to the ongoing operation of the Proposed Project are discussed in this section. This analysis focuses on air pollution from two perspectives: daily emissions and pollutant concentrations. "Emissions" refer to the quantity of pollutants released into the air, measured in pounds per day (ppd). "Concentrations" refer to the amount of pollutant material per volumetric unit of air, measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). This section was prepared by Terry A. Hayes Associates Inc. Data used in the air quality modeling and the modeling results are included in Appendix C Air Quality.

EXISTING CONDITIONS

Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and State governments have established ambient air quality standards for outdoor concentrations to protect public health. The federal and State standards have been set at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter 2.5 microns or less in diameter ($PM_{2.5}$), particulate matter ten microns or less in diameter (PM_{10}), and lead (Pb).

Greenhouse gases (GHG) are also pollutants of concern based on scientific and political concern with global climate change. GHGs are discussed below in addition to the criteria pollutants.

Carbon Monoxide. CO is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas such as the Project Site, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February.[1] The highest levels of CO typically occur during the colder months of the year when inversion conditions are more frequent. In terms of health, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can be dizziness, fatigue, and impairment of central nervous system functions.

Ozone. O_3 is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG), which includes volatile organic compounds (VOC), and nitrogen oxides (NO_X) react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The

[1] Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air.

primary sources of ROG and NO_X, the components of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. The greatest source of smog-producing gases is the automobile. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Nitrogen Dioxide. NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_X and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10}. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase of bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 ppm.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO_2 are coal and oil used in power plants and industries. Generally, the highest levels of SO_2 are found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 can also yellow plant leaves and erode iron and steel. Sulfur oxide (SO_X) refers to any of several compounds of sulfur and oxygen, the most important of which is SO_2.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Fine particulate matter, or $PM_{2.5}$, is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g. motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_2, NO_X, and VOC. Inhalable particulate matter, or PM_{10}, is approximately1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. These substances can transport absorbed gases, such as chlorides or ammonium, into the lungs and cause injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

Lead.Pb in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturers of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities have become lead-emission sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth.

Visibility Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

Sulfates. Sulfates are the fully oxidized ionic form of sulfur that occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. Effects of sulfate exposure at high levels include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide. Hydrogen sulfide is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing hydrogen sulfide at levels above the standard will result in exposure to a very disagreeable odor.

Vinyl Chloride. Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes in liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans.

Toxic Air Contaminants. Toxic air contaminants (TACs) are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors, such as the amount of the chemical; its toxicity, and how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as PM_{10} and $PM_{2.5}$ or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.

Diesel Particulate Matter. According to the 2006 California Almanac of Emissions and Air Quality, the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from the exhaust of diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances.

Diesel exhaust is composed of two phases, gas and particle, and both phases contribute to the health risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine and ultra fine diesel particulates are of the greatest health concern, and may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals and other trace elements.

Diesel exhaust is emitted from a broad range of diesel engines; the on road diesel engines of trucks, buses and cars and the off road diesel engines that include locomotives, marine vessels and heavy duty equipment. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

The most common exposure to diesel PM is breathing the air that contains diesel PM. The fine and ultra-fine particles are respirable (similar to $PM_{2.5}$), which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. Exposure to diesel PM comes from both on-road and off-road engine exhaust that is either directly emitted from the engines or lingering in the atmosphere.

Diesel exhaust causes health effects from both short-term or acute exposures, and long-term chronic exposures. The type and severity of health effects depends upon several factors including the amount of chemical exposure and the duration of exposure. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel PM but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects.Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat and lungs, some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic exposure to diesel PM in experimental animal inhalation studies have shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings.

Greenhouse Gases. Greenhouse gas (GHG) emissions refer to a group of emissions that are generally believed to affect global climate conditions. Simply put, the greenhouse effect compares the Earth and the atmosphere surrounding it to a greenhouse with glass panes. The glass panes in a greenhouse let heat from sunlight in and reduce the amount of heat that escapes. GHGs, such as carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) keep the average surface temperature of the Earth close to 60 degrees Fahrenheit (°F). Without the GHG effect, the Earth would be a frozen globe with an average surface temperature of approximately5°F.

In addition to CO_2, CH_4, and N_2O, GHGs include hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and water vapor. Of all the GHGs, CO_2 is the most abundant pollutant that contributes to climate change through fossil fuel combustion. CO_2 comprised 81 percent of the total GHG emissions in California in 2002 and non-fossil fuel CO_2 comprised 2.3 percent. The other GHGs are less abundant but have higher global warming potential than CO_2. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. The CO_2e of CH_4 and N_2O represented 6.4 and 6.8 percent, respectively, of the 2002 California GHG emissions. Other high global warming potential gases represented 3.5 percent of these emissions. In addition, there are a number of man-made pollutants, such as CO, NO_X, non-methane VOC, and SO_2, that have indirect effects on terrestrial or solar radiation absorption by influencing the formation or destruction of other climate change emissions.

Air Pollution Climatology

The Project Site is located within the Los Angeles County portion of the South Coast Air Basin (Basin). Ambient pollution concentrations recorded in Los Angeles County are among the highest in the four counties comprising the Basin. The Basin is in an area of high air pollution potential due to its climate and topography. The general region lies in the semi-permanent high pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The Basin experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of its perimeter. The mountains and hills within the area contribute to the variation of rainfall, temperature, and winds throughout the region.

The Basin experiences frequent temperature inversions. Temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere. This interaction creates a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and NO_2 react under strong sunlight, creating smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to CO and NO_2 emissions. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO emissions are produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. NO_2 concentrations are also generally higher during fall and winter days.

Local Climate

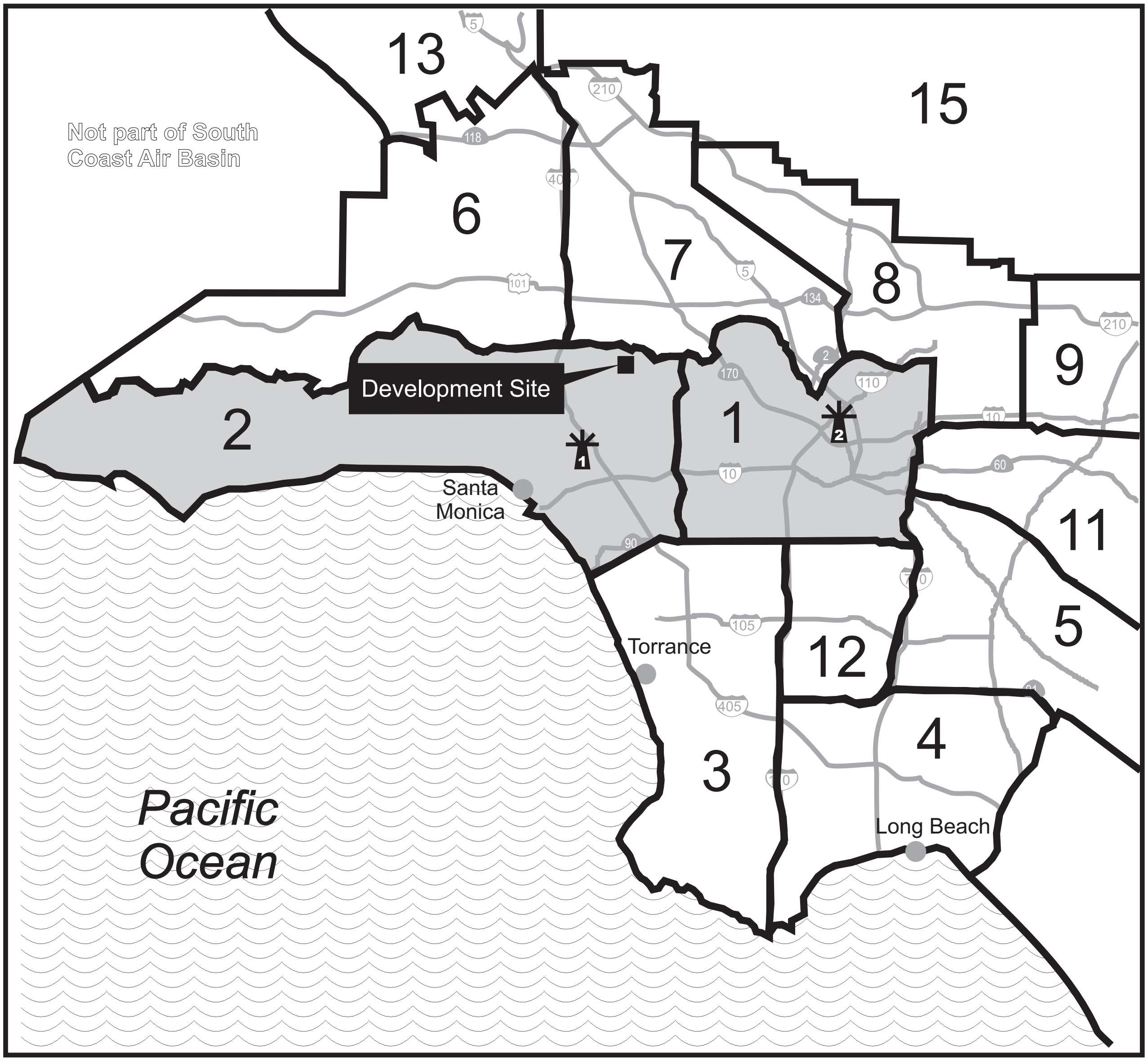
The mountains and hills within the Basin contribute to the variation of rainfall, temperature, and winds throughout the region. Within the Project Site and its vicinity, the average wind speed, as recorded at the Burbank Wind Monitoring Station, is approximately 3.8 miles per hour, with calm winds occurring approximately 10 percent of the time. Wind in the vicinity of the Project Site predominately blows from the southeast. The annual average temperature in the vicinity is 64°F with an average winter temperature of approximately 55°F and an average summer temperature of approximately73°F.[2] Total precipitation in the Project area averages approximately 17 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages approximately ten inches during the winter, approximately four inches during the spring, approximately two inches during the fall, and less than one inch during the summer.[3]

Air Monitoring Data

The South Coast Air Quality Management District (SCAQMD) monitors air quality conditions at 37 locations throughout the Basin. The Project Site is located in SCAQMD's Coastal Air Monitoring Subregion, which is served by the West Los Angeles – VA Hospital Monitoring Station, and located approximately 12 miles southwest of the Project Site in the City of Los Angeles (**Figure 3.2-1**). Historical data from the Los Angeles VA Hospital Monitoring Station was used to characterize existing conditions in the vicinity of the Project. Criteria pollutants monitored at the Los Angeles VA Hospital Monitoring Station include O_3, CO, and NO_2. However, the Los Angeles VA Hospital Monitoring Station does not monitor SO_2, $PM_{2.5}$ and PM_{10}.

The next most representative monitoring station located in the Project vicinity, that measures the remaining criteria pollutants, is the Los Angeles – North Main Street Monitoring Station. Historical data from these stations was used to characterize existing SO_2, $PM_{2.5}$ and PM_{10} levels.

[2]Western Regional Climate Center, Historical Climate Information website, *http://www.wrcc.dri.edu*, accessed October 22, 2012.
[3]*Ibid*.



LEGEND:

West Los Angeles - VA Hospital Monitoring Station

Los Angeles - North Main Street Monitoring Station

Air Monitoring Areas in Los Angeles County:

1. Central Los Angeles
2. Northwest Coastal
3. Southwest Coastal
4. South Coastal
5. Southeast Los Angeles County
6. West San Fernando Valley
7. East San Fernando Valley
8. West San Gabriel Valley
9. East San Gabriel Valley
10. Pomona/Walnut Valley (not shown)
11. South San Gabriel Valley
12. South Central Los Angeles
13. Santa Clarita Valley
15. San Gabriel Mountains

SOURCE: South Coast Air Quality Management District Air Monitoring Areas Map, 1999

Figure 3.2-1

Air Monitoring Areas

Table 3.2-1 shows pollutant levels, the State and federal standards, and the number of exceedances recorded at the West Los Angeles – VA Hospital and Los Angeles – North Main Street Monitoring Stations. As **Table 3.2-2** indicates, criteria pollutants CO, NO_2, and SO_2 did not exceed the State and federal standards from 2009 to 2011. However, the one-hour State standard for O_3 was exceeded two to six times during this period. The eight-hour State standard for O_3 was exceeded zero to five times while the eight-hour federal standard for O_3 was exceeded zero to three times. The 24-hour State standard for PM_{10} was exceeded zero to four times during this period and the annual State standard for $PM_{2.5}$ was also exceeded each year from 2009 to 2011. The 24-hour federal standard for PM_{10} was not exceeded while the annual federal $PM_{2.5}$ was exceeded five to eighttimes between the years 2009 to 2011.

TABLE 3.2-1: 2009-2011 AMBIENT AIR QUALITY DATA

Pollutant	Pollutant Concentration & Standards	2009	2010	2011
Ozone (O_3)	Maximum 1-hr Concentration (ppm)	0.12	0.10	0.10
	Days > 0.09 ppm (State 1-hr standard)	6	2	2
	Maximum 8-hr Concentration (ppm)	0.10	0.08	0.07
	Days > 0.07 ppm (State 8-hr standard)	5	3	0
	Days > 0.075 ppm (National 8-hr standard)	3	1	0
Carbon Monoxide (CO)	Maximum 1-hr concentration (ppm)	2	2	n/a
	Days > 20 ppm (State1-hr standard)	0	0	n/a
	Days > 35 ppm (National 1-hr standard)	0	0	n/a
	Maximum 8-hr concentration (ppm)	1.5	1.4	1.7
	Days > 9.0 ppm (State 8-hr standard)	0	0	0
	Days > 9 ppm (National 8-hr standard)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-hr Concentration (ppm)	0.08	0.07	0.08
	Days > 0.18 ppm (State 1-hr standard)	0	0	0
	Days > 0.100 ppm (National 1-hr standard)	n/a	n/a	n/a
Respirable Particulate Matter (PM_{10})	Maximum 24-hr concentration (μg/m^3)	70	41	53
	Days > 50 μg/m^3 (State 24-hr standard)	4	0	1
	Days > 150 μg/m^3 (National 24-hr standard)	0	0	0
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-hr concentration (μg/m^3)	64	39	49
	Exceed State Standard (12 μg/m^3)	Yes	Yes	Yes
	Days > 35 μg/m^3 (National 24-hr standard)	7	5	8
Sulfur Dioxide (SO_2)	Maximum 24-hr Concentration (ppm)	0.002	0.002	0.002
	Days > 0.04 ppm (State 24-hr standard)	0	0	0
	Days > 0.14 ppm (National 24-hr standard)	0	0	0

'n/a' = not available
SOURCE: CARB, Air Quality Data Statistics, *Top 4 Summary*, http://www.arb.ca.gov/adam/topfour/topfour1.php, accessed October 22, 2012.
CO pollutant concentration was obtained from SCAQMD, Historical Data by Year, available at http://www.aqmd.gov/smog/historicaldata.htm, accessed October 22, 2012.

Greenhouse Gas Emissions

The primary effect of rising global concentrations of atmospheric GHG levels is a rise in the average global temperature of approximately 0.2 degrees Celsius per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming is likely to occur given the expected rise in global atmospheric GHG concentrations from innumerable sources of GHG emissions worldwide, which would induce further changes in the global climate system during the current century.[4] Adverse impacts from global climate change worldwide and in California include:

- Declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in atmospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;[5]
- Rising average global sea levels primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets;[6]
- Changing weather patterns, including changes to 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;[7]
- Declining Sierra Mountains snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;[8]
- Increasing the number of days conducive to ozone formation (e.g., clear days with intense sun light) by 25 to 85 percent (depending on the future temperature scenario) in high O_3 areas located in the Southern California area and the San Joaquin Valley by the end of the 21st Century;[9] and
- Increasing the potential for erosion of California's coastlines and seawater intrusion into the Sacramento Delta and associated levee systems due to the rise in sea level.[10]

Scientific understanding of the fundamental processes responsible for global climate change has improved over the past decade. However, there remain significant scientific uncertainties, for example, in predictions of local effects of climate change, occurrence of extreme weather events, and effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the climate system, the uncertainty surrounding the implications of climate change may never be completely eliminated. Because of these uncertainties, there continues to be significant debate as to the extent to which increased concentrations of GHGs have caused or will cause climate change, and with respect to the appropriate actions to limit and/or respond to climate change. In addition, it may not be possible to link specific development projects to future specific climate change impacts, though estimating project-specific impacts is possible.

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[4] USEPA, Draft Endangerment Finding, 74 Fed. Reg. 18886, 18904, April 24, 2009.
[5] *Ibid*.
[6] Intergovernmental Panel on Climate Change, *Climate Change 2007*.
[7] *Ibid*.
[8] Cal/EPA, Climate Action Team, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, 2006.
[9] *Ibid*.
[10] *Ibid*.

California is the fifteenth largest emitter of GHG on the planet, representing approximatelytwo percent of the worldwide emissions.[11]**Table 3.2-2** shows the California GHG emissions inventory for years 2000 to 2009. Statewide GHG emissions slightly decreased in 2009 due to a noticeable drop in on-road transportation, electricity generation, and industrial emissions.

The transportation sector – largely the cars and trucks that move people and goods – is the largest contributor with 38 percent of the State's total GHG emissions in 2009. On-road emissions (from passenger vehicles and heavy duty trucks) constitute 93 percent of the transportation sector total emissions. Of the on-road vehicles, light duty passenger vehicles accounted for approximately 74 percent of the total sector emissions in 2009 GHG emissions. Transportation emissions showed a decline from 187 million metric tons of CO_2e in 2007 to 173 million metric tons of CO_2e in 2009.

TABLE 3.2-2: CALIFORNIA GREENHOUSE GAS EMISSIONS INVENTORY

	CO_2e Emissions (Million Metric Tons)									
Sector	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Transportation	172	175	181	179	183	186	187	187	178	173
Electric Power (In-State)	60	64	51	49	50	46	51	55	55	56
Electric Power (Imports)	46	59	59	65	66	63	55	60	66	48
Commercial and Residential	43	41	43	41	43	41	42	42	42	43
Industrial	97	93	94	92	94	93	92	90	87	81
Recycling and Waste	7	7	7	7	7	7	7	7	7	7
Agriculture	29	29	32	31	32	33	34	33	33	32
Forest Net Emissions	(4.5)	(4.3)	(4.2)	(4.2)	(4.2)	(4.0)	(3.9)	(3.9)	(3.8)	(3.8)
Emissions Total	**459**	**475**	**475**	**472**	**484**	**479**	**478**	**485**	**481**	**453**

SOURCE: CARB, *California Greenhouse Gas Inventory 2000-2009*, December 2011.

The electricity sector is the next largest contributor at approximately 23 percent of the Statewide GHG emissions. This sector includes power plants and cogeneration facilities that generate electricity for on-site use and for sale to the power grid. In 2009, this sector emitted approximately 105 million metric ton of CO_2e. Emissions from imported electricity generation from specified imports, unspecified imports, and transmission and distribution accounts for 68, 31, and less than 1 percent, respectively. In-State electricity generation includes CHP commercial, CHP industrial, merchant owned, transmission and distribution, and utility owned. The percent contributions from CHP commercial is approximately 2, CHP industrial is approximately 30, merchant owned is approximately 57, transmission and distribution is approximately 1, and utility owned is approximately 18. Emissions from natural gas accounts for 87 percent of in-State GHG emissions associated with electricity generation.

The industrial sector is the third largest contributor to the Statewide GHG emissions. California's industrial sector includes industrial CHP useful heat, landfills, manufacturing, mining, oil and gas extraction, petroleum refining, petroleum marketing, pipelines, wastewater treatment, and other large industrial sources. Of these emitters, petroleum refining, manufacturing accounts for 32, oil extraction accounts for 25, gas extraction accounts for 15, CHP accounts for 12, and landfills accounts for 8 percent.

[11]CARB, Climate Change Scoping Plan, December 2008.

The sector termed recycling and waste management is a unique system, encompassing not just emissions from waste facilities but also the emissions associated with the production, distribution and disposal of products throughout the economy.

Although high global warming potential gases (e.g., PFCs, HFCs, and SF6) are a small contributor to historic GHG emissions, levels of these gases are projected to increase sharply over the next several decades making them a significant source by 2020. These gases are used in growing industries such as semiconductor manufacturing.

The forest sector GHG inventory includes CO_2 uptake and GHG emissions from wild and prescribed fires, the decomposition and combustion of residues from harvest and conversion/development, and wood products decomposition. The forest sector is unique in that forests both emit GHGs and absorb CO_2 through carbon sequestration. While the current inventory shows forests absorb 3.8 million metric tons of CO_2e, carbon sequestration has declined since 2000 due to losses of forest area and emission increases from decomposing wood products consumed in the State. For this reason, the 2020 projection assumes no net emissions from forests.

The agricultural GHG emissions shown are largely methane emissions from livestock, both from the animals and their waste. Emissions of GHG from fertilizer application are also important contributors from the agricultural sector. Opportunities to sequester CO_2 in the agricultural sector may also exist; however, additional research is needed to identify and quantify potential sequestration benefits.

Sensitive Receptors

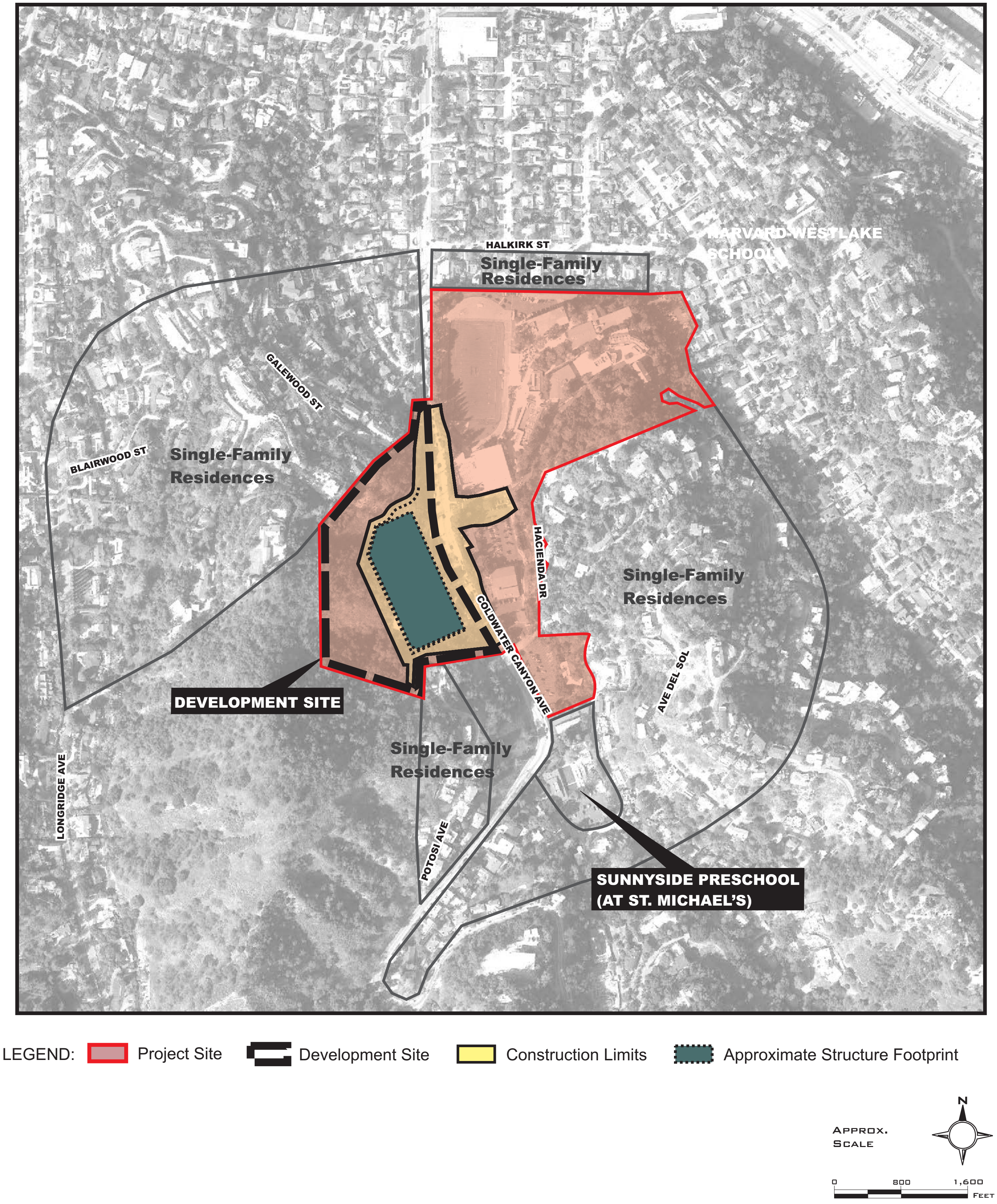
Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. CARB has identified the following typical groups who are most likely to be affected by air pollution: children under 14, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases.

According to the SCAQMD, sensitive receptors include residences, schools, parks, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, hospitals, convalescent centers, and retirement homes. As shown in **Figure 3.2-2**, sensitive receptors near the Project Site include single-family residences, Harvard-Westlake School, and Sunnyside Preschool. These sensitive receptors represent the nearest sensitive receptors with the potential to be impacted by air emissions. Additional sensitive receptors are located in the surrounding community and may be impacted by air emissions.

REGULATORY FRAMEWORK

Federal

The Federal Clean Air Act (CAA) governs air quality in the United States. The United States Environmental Protection Agency (USEPA) is responsible for enforcing the CAA. USEPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). NAAQS are required under the 1977 CAA and subsequent amendments. USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. USEPA has jurisdiction over emission sources outside State waters (e.g., beyond the outer continental shelf) and establishes various emission



SOURCE: TAHA and Google Earth, 2012.

Harvard-Westlake School Parking Structure

Figure 3.2-2

Air Quality Sensitive Receptor Locations standards, including those for vehicles sold in States other than California. Automobiles sold in California must meet stricter emission standards established by CARB.

As required by the CAA, NAAQS have been established for seven major air pollutants: CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_2, and Pb. The CAA requires USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The federal standards are summarized in **Table 3.2-3**. The USEPA has classified the South Coast Air Basin as maintenance for CO and nonattainment for O_3, $PM_{2.5}$, PM_{10}, and Pb.

State

In addition to being subject to the requirements of CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). In California, the CCAA is administered by the California Air Resources Board (CARB) at the State level and by the air quality management districts and air pollution control districts at the regional and local levels. The CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for meeting the State requirements of the CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the CAAQS.

CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective in March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which, in turn, administer air quality activities at the regional and county levels. The State standards are summarized in **Table 3.2-3**.

The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the Los Angeles County portion of the Basin is designated as a nonattainment area for O_3, $PM_{2.5}$, PM_{10}, and Pb.[12]

[12]CARB, Area Designation Maps website, *http://www.arb.ca.gov/desig/adm/adm.htm*, October 15, 2012.

TABLE 3.2-3: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS ANDATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN

Pollutant	Averaging Period	California Standards	California Attainment Status	Federal Standards	Federal Attainment Status
Ozone (O_3)	1-hour	0.09 ppm (180 μg/m^3)	Nonattainment	--	--
	8-hour	0.070 ppm (137 μg/m^3)	n/a	0.075 ppm (147 μg/m^3)	Nonattainment
Respirable Particulate Matter (PM_{10})	24-hour	50 μg/m^3	Nonattainment	150 μg/m^3	Nonattainment
	Annual Arithmetic Mean	20 μg/m^3	Nonattainment	--	--
Fine Particulate Matter ($PM_{2.5}$)	24-hour	--	--	35 μg/m^3	Nonattainment
	Annual Arithmetic Mean	12 μg/m^3	Nonattainment	15.0 μg/m^3	Nonattainment
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Unclassified
	1-hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Unclassified
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 μg/m^3)	Attainment	53 ppb (100 μg/m^3)	Unclassified
	1-hour	0.18 ppm (338 μg/m^3)	Attainment	100 ppb (190 μg/m^3)	n/a
Sulfur Dioxide (SO_2)	24-hour	0.04 ppm (105 μg/m^3)	Attainment	--	--
	3-hour	--	--	--	--
	1-hour	0.25 ppm(655 μg/m^3)	Attainment	75 ppb (196 μg/m^3)	Attainment
Lead (Pb)	30-day average	1.5 μg/m^3	Nonattainment	--	--
	Calendar Quarter	--	--	0.15 μg/m^3	Nonattainment
Visibility Reducing Particles	8-hour	10 miles	Unclassified	No National Standards	
Sulfates	24-hour	25	Attainment		
Hydrogen Sulfide	1-hour	0.03 ppm (42 μg/m^3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (26 μg/m^3)	Unclassified		

n/a = not available

SOURCE: CARB, *Ambient Air Quality Standards*, and *Attainment Status*, June 7, 2012.

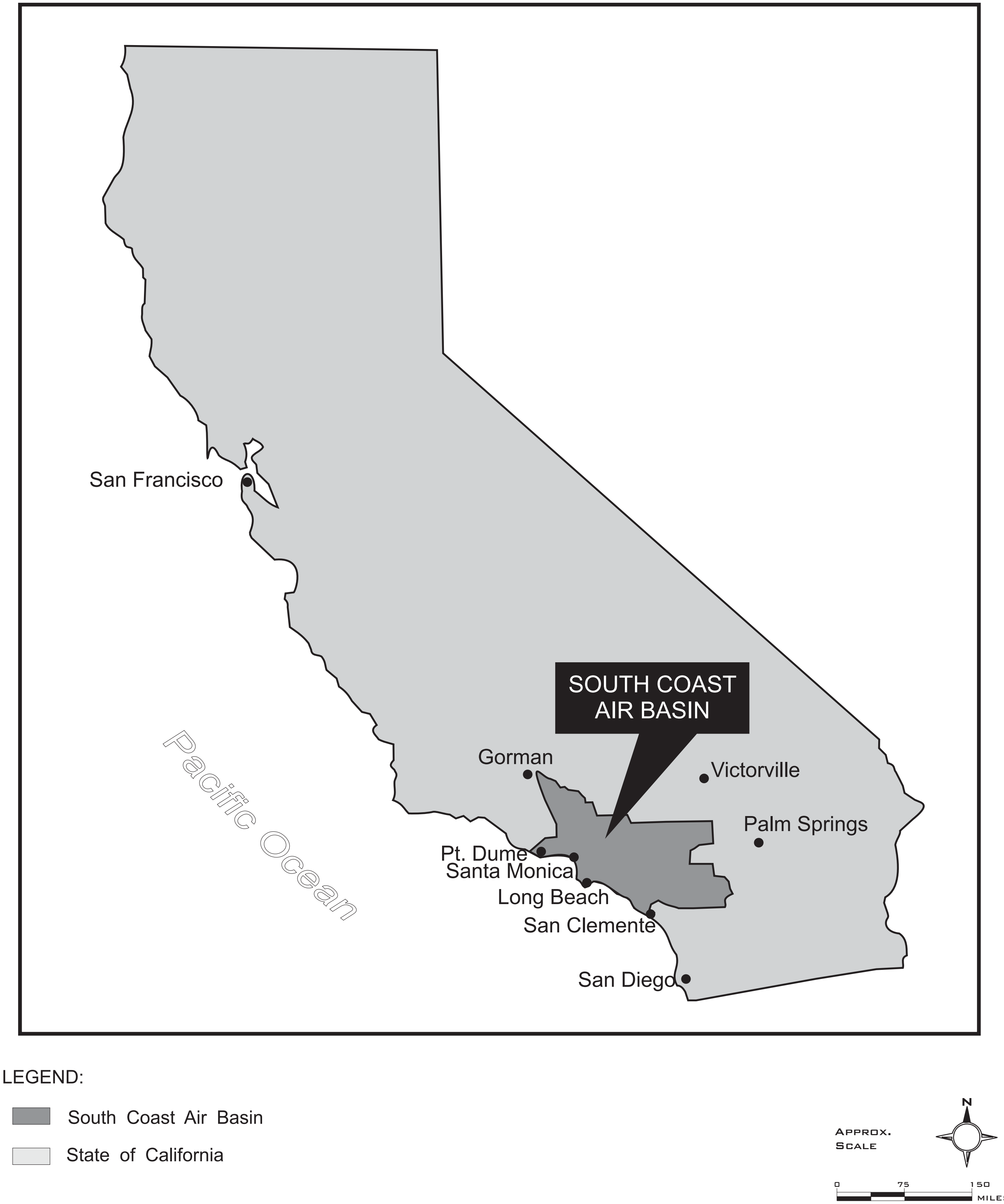
Local

South Coast Air Quality Management District. The 1977 Lewis Air Quality Management Act created the SCAQMD to coordinate air quality planning efforts throughout Southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in Southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, the SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, the SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

The SCAQMD has jurisdiction over an area of 10,743 square miles, consisting of Orange County; the non-desert portions of Los Angeles, Riverside, and San Bernardino counties; and the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a subregion of the SCAQMD and covers an area of 6,745 square miles. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east; and the San Diego County line to the south (**Figure 3.2-3**).

Air Quality Management Plan. All areas designated as nonattainment under the CCAA are required to prepare plans showing how the area would meet the State air quality standards by its attainment dates. The Air Quality Management Plan (AQMP) is the SCAQMD plan for improving regional air quality. It addresses CAA and CCAA requirements and demonstrates attainment with State and federal ambient air quality standards. The AQMP is prepared by SCAQMD and the Southern California Association of Governments (SCAG). The AQMP provides policies and control measures that reduce emissions to attain both State and federal ambient air quality standards by their applicable deadlines. Environmental review of individual projects within the Basin must demonstrate that daily construction and operational emissions thresholds, as established by the SCAQMD, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.

The Governing Board ofthe SCAQMD adopted the most recent AQMP on June 1, 2007. The SCAQMD is currently developing the 2012 AQMP to continue the progression toward clean air and compliance with State and federal requirements. It includes a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on- and off-road mobile sources and area sources. The Draft 2012 AQMP proposes attainment demonstration of the federal 24-hour $PM_{2.5}$ standard by 2014 in the Basin through adoption of all feasible measures while incorporating current scientific information and meteorological air quality models. It also updates the USEPA approved 8-hour O_3 control plan with new commitments for short-term NO_X and VOC reductions.



SOURCE: California Air Resources Board, State and Local Air Monitoring Network Plan, October 1998

Harvard-Westlake School Parking Structure

Figure 3.2-3

South Coast Air Basin

The Draft 2012 AQMP also addresses several State and federal planning requirements. This Draft 2012 AQMP builds upon the approach taken in the 2007 AQMP for the attainment of federal PM and O_3 standards, and highlights the significant amount of reductions needed and the urgent need to engage in interagency coordinated planning to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the CAA.

Toxic Air Contaminants. The SCAQMD has a long and successful history of reducing air toxics and criteria emissions in the South Coast Air Basin (Basin). SCAQMD has an extensive control program, including traditional and innovative rules and policies. These policies can be viewed in the SCAQMD's *Air Toxics Control Plan for the Next Ten Years* (March 2000). To date, the most comprehensive study on air toxics in the Basin is the Multiple Air Toxics Exposure Study (MATES-III), conducted by the SCAQMD. The monitoring program measured more than 30 air pollutants, including both gases and particulates. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region based on emissions and weather data. MATES-III found that the cancer risk in the region from carcinogenic air pollutants ranges from approximately870 in a million to 1,400 in a million, with an average regional risk of approximately1,200 in a million.

Global Climate Change

In response to growing scientific and political concern with global climate change, California adopted a series of laws to reduce emissions of GHGs into the atmosphere. Applicable regulations are provided below.

Executive Order S-3-05. On June 1, 2005, Executive Order (E.O.) S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. The Executive Order establishes State GHG emission targets of 1990 levels by 2020 (the same as AB 32) and 80 percent below 1990 levels by 2050. It calls for the Secretary of California Environmental Protection Agency (Cal/EPA) to be responsible for coordination of State agencies and progress reporting. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major "decarbonization" of electricity supplies and fuels, and major improvements in energy efficiency.

In response to the E.O., the Secretary of the Cal/EPA created the Climate Action Team (CAT). California's CAT originated as a coordinating council organized by the Secretary for Environmental Protection. It included the Secretaries of the Natural Resources Agency, and the Department of Food and Agriculture, and the Chairs of the Air Resources Board, Energy Commission, and Public Utilities Commission. The original council was an informal collaboration between the agencies to develop potential mechanisms for reductions in GHG emissions in the State. The council was given formal recognition in E.O. S-3-05 and became the CAT.

The original mandate for the CAT was to develop proposed measures to meet the emission reduction targets set forth in the executive order. The CAT has since expanded and currently has members from 18 State agencies and departments. The CAT also has ten working groups which coordinate policies among their members. The working groups and their major areas of focus are:

- Agriculture: Focusing on opportunities for agriculture to reduce GHG emissions through efficiency improvements and alternative energy projects, while adapting agricultural systems to climate change
- Biodiversity: Designing policies to protect species and natural habitats from the effects of climate change
- Energy: Reducing GHG emissions through extensive energy efficiency policies and renewable energy generation
- Forestry: Coupling GHG mitigation efforts with climate change adaptation related to forest preservation and resilience, waste to energy programs and forest offset protocols
- Land Use and Infrastructure: Linking land use and infrastructure planning to efforts to reduce GHG from vehicles and adaptation to changing climatic conditions
- Oceans and Coastal: Evaluating the effects sea level rise and changes in coastal storm patterns on human and natural systems in California
- Public Health: Evaluating the effects of GHG mitigation policies on public health and adapting public health systems to cope with changing climatic conditions
- Research: Coordinating research concerning impacts of and responses to climate change in California
- State Government: Evaluating and implementing strategies to reduce GHG emissions resulting from State government operations; an
- Water: Reducing GHG impacts associated with the State's water systems and exploring strategies to protect water distribution and flood protection infrastructure

The CAT is responsible for preparing reports that summarize the State's progress in reducing GHG emissions. The most recent CAT Report was published in December 2010. The CAT Report discusses mitigation and adaptation strategies, State research programs, policy development, and future efforts.

Assembly Bill 32. In September 2006, the State passed the California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32, into law. AB 32 focuses on reducing GHG emissions in California, and requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to Statewide levels in 1990 by 2020. To achieve this goal, AB 32 mandates that the CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce Statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. Because the intent of AB 32 is to limit 2020 emissions to the equivalent of 1990, it is expected that the regulations would affect many existing sources of GHG emissions and not just new general development projects. Senate Bill (SB) 1368, a companion bill to AB 32, requires the California Public Utilities Commission and the California Energy Commission to establish GHG emission performance standards for the generation of electricity. These standards will also apply to power that is generated outside of California and imported into the State.

AB 32 charges CARB with the responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. On June 1, 2007, CARB adopted three discrete early action measures to reduce GHG emissions. These measures involved complying with a low carbon fuel standard, reducing refrigerant loss from motor vehicle air conditioning maintenance, and increasing methane capture from landfills. On October 25, 2007, CARB tripled the set of previously approved early action measures. The approved measures include improving truck efficiency (i.e., reducing aerodynamic drag), electrifying port equipment, reducing perfluorocarbons from the semiconductor industry, reducing propellants in consumer products, promoting proper tire inflation in vehicles, and reducing sulfur hexaflouride emission from the non-electricity sector. The CARB has determined that the total Statewide aggregated GHG 1990 emissions level and 2020 emissions limit is 427 million metric tons of CO_2e. The 2020 target reductions are currently estimated to be 174 million metric tons of CO_2e.

The CARB AB 32 Scoping Plan contains the main strategies to achieve the 2020 emissions cap. The Scoping Plan was developed by the CARB with input from the CAT and proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve the environment, reduce oil dependency, diversify energy sources, and enhance public health while creating new jobs and improving the State economy. The GHG reduction strategies contained in the Scoping Plan include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. Key approaches for reducing greenhouse gas emissions to 1990 levels by 2020 include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a Statewide renewable electricity standard 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 GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets; and
- Adopting and implementing measures to reduce transportation sector emissions, including California's.

CARB has also developed the GHG mandatory reporting regulation, which required reporting beginning on January 1, 2008 pursuant to requirements of AB 32. The regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. The regulation language identifies major facilities as those that generate more than 25,000 metric tons of CO_2 per year. Cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, and hydrogen plants and other stationary combustion sources that emit more than 25,000 metric tons of CO_2 per year, make up 94 percent of the point source CO_2 emissions in California.

CEQA Guidelines Amendments. California Senate Bill (SB) 97 required the Governor's Office of Planning and Research (OPR) to develop CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." The CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. Noteworthy revisions to the CEQA Guidelines include:

- Lead agencies should quantify all relevant GHG emissions and consider the full range of project features that may increase or decrease GHG emissions as compared to the existing setting;
- Consistency with the CARB Scoping Plan is not a sufficient basis to determine that a project's GHG emissions would not be cumulatively considerable;
- A lead agency may appropriately look to thresholds developed by other public agencies, including the CARB's recommended CEQA thresholds;
- To qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project. General compliance with a plan, by itself, is not mitigation;
- The effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis; and

- Given that impacts resulting from GHG emissions are cumulative, significant advantages may result from analyzing such impacts on a programmatic level. If analyzed properly, later projects may tier, incorporate by reference, or otherwise rely on the programmatic analysis.

CARB Guidance. The CARB has published draft guidance for setting interim GHG significance thresholds (October 24, 2008). The guidance is the first step toward developing the recommended Statewide interim thresholds of significance for GHG emissions that may be adopted by local agencies for their own use. The guidance does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that are responsible for substantial GHG emissions (i.e., industrial, residential, and commercial projects). The CARB believes that thresholds in these important sectors will advance climate objectives, streamline project review, and encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

SCAQMD Guidance. The SCAQMD has convened a GHG CEQA Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that will provide input to the SCAQMD staff on developing GHG CEQA significance thresholds. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is the lead agency. The SCAQMD has not adopted guidance for CEQA projects under other lead agencies.

Green LA Action Plan. The City of Los Angeles has issued guidance promoting green building to reduce GHG emissions. The goal of the Green LA Action Plan (Plan) is to reduce greenhouse gas emissions 35 percent below 1990 levels by 2030.[13] The Plan identifies objectives and actions designed to make the City a leader in confronting global climate change. The measures would reduce emissions directly from municipal facilities and operations, and create a framework to address GHG emissions. The Plan lists various focus areas in which to implement GHG reduction strategies. Focus areas listed in the Plan include energy, water, transportation, land use, waste, port, airport, and ensuring that changes to the local climate are incorporated into planning and building decisions. The Plan discusses City goals for each focus area, as follows:

Energy

- Increase the generation of renewable energy;
- Encourage the use of mass transit;
- Develop sustainable construction guidelines;
- Increase energy efficiency; and
- Promote energy conservation.

Water

- Decrease per capita water use to reduce electricity demand associated with water pumping and treatment.

[13]City of Los Angeles, Green LA: An Action Plan to Lead the Nation in Fighting Global Warming, May 2007.

Transportation

- Power the City vehicle fleet with alternative fuels; and
- Promote alternative transportation (e.g., mass transit and rideshare).

Other Goals

- Create a more livable City through land use regulations;
- Increase recycling, reducing emissions generated by activity associated with the Port of Los Angeles and regional airports;
- Create more City parks, promoting the environmental economic sector; and
- Adapt planning and building policies to incorporate climate change policy.

The City adopted an ordinance to establish a green building program in April 2008. The ordinance establishes green building requirements for projects involving 50 or more dwelling units. The Green Building Program was established to reduce the use of natural resources, create healthier living environments and minimize the negative impacts of development on local, regional, and global ecosystems. The program addresses the following five areas:

- Site: location, site planning, landscaping, storm water management, construction and demolition recycling
- Water Efficiency: efficient fixtures, wastewater reuse, and efficient irrigation
- Energy and Atmosphere: energy efficiency, and clean/renewable energy
- Materials and Resources: materials reuse, efficient building systems, and use of recycled and rapidly renewable materials
- Indoor Environmental Quality: improved indoor air quality, increased natural lighting, and thermal comfort/control

THRESHOLDS OF SIGNIFICANCE

Criteria Pollutants

In accordance with Appendix G of the State CEQA Guidelines, the Proposed Project would have a significant impact related to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

The SCAQMD has developed specific CEQA significance thresholds to assess construction and operational air quality impacts from criteria pollutants.

Construction. A significant impact related to construction activity would occur if:

- A project would generate regional emissions that exceed the levels presented in **Table 3.2-4**;
- A project would generate localized daily *emissions* that exceed the Localized Emissions Screening Significance Thresholds presented in **Table 3.2-4**. If these daily *emissions* screening thresholds are exceeded, an impact would result if localized daily *concentrations* exceed:
  - 10.4 $\mu g/m^3$ per day of PM_{10} or $PM_{2.5}$;
  - 0.18 ppm per hour of NO_2;
  - 20 ppm per hour of CO; and/or
  - 9.0 ppm per eight hours of CO
- A project would generate TAC emissions that exceed a health risk of ten persons in one million;
- A project would create an odor nuisance; and/or
- A project would not be consistent with the short-term goals of the AQMP.

TABLE 3.2-4: SCAQMD DAILY CONSTRUCTION EMISSIONS THRESHOLDS

Criteria Pollutant	Regional Emissions (Pounds Per Day)	Localized Emissions Screening Thresholds (Pounds per Day)
Volatile Organic Compounds (VOC)	75	--
Nitrogen Oxides (NO_X)	100	103
Carbon Monoxide (CO)	550	562
Sulfur Oxides (SO_X)	150	--
Fine Particulates ($PM_{2.5}$)	55	3
Particulates (PM_{10})	150	4

/a/ Assumed a 1.0-acre active Project Site and a 25-meter (82-foot) receptor distance.
SOURCE: SCAQMD, 2012.

Operations. A significant impact related to operational activity would occur if:

- A project would generate regional emissions that exceed the levels presented in **Table 3.2-5**;
- A project would cause CO concentrations at study intersections to violate the CAAQS for either the one- or eight-hour period. The CAAQS for the one- and eight-hour periods are 20 and 9.0 ppm, respectively;
- A project would generate significant emissions of TACs;
- A project would create an odor nuisance; and/or
- A project would not be consistent with the long-term goals of the AQMP.

TABLE 3.2-5: SCAQMD DAILY OPERATIONAL EMISSIONS THRESHOLDS	
Criteria Pollutant	**Pounds Per Day**
Volatile Organic Compounds (VOC)	55
Nitrogen Oxides (NO_X)	55
Carbon Monoxide (CO)	550
Sulfur Oxides (SO_X)	150
Fine Particulates ($PM_{2.5}$)	55
Particulates (PM_{10})	150
SOURCE: SCAQMD, 2012.	

Global Climate Change

In accordance with Appendix G of the State CEQA Guidelines, the Proposed Project would have a significant impact related to air quality if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The SCAQMD has not approved a GHG significance threshold for the development of non-SCAQMD and non-industrial projects. The significance threshold is based on the methodologies recommended by the California Air Pollution Control Officers Association (CAPCOA) *CEQA and Climate Change White Paper* (January 2008). CAPCOA conducted an analysis of various approaches and significance thresholds, ranging from a zero threshold (all projects are cumulatively considerable) to a high of 40,000 to 50,000 metric tons of CO_2e per year. For example, an approach assuming a zero threshold and compliance with AB 32 2020 targets would require all discretionary projects to achieve a 33 percent reduction from projected "business-as-usual" emissions to be considered less than significant. A zero threshold approach could be considered on the basis that climate change is a global phenomenon, and not controlling small source emissions would potentially neglect a major portion of the GHG inventory. However, the CEQA Guidelines also recognize that there may be a point where a project's contribution, although above zero, would not be a considerable contribution to the cumulative impact (CEQA Guidelines, Section 15130 [a]). Therefore, a threshold of greater than zero is considered more appropriate for the analysis of GHG emissions under CEQA.

Another method would use a quantitative threshold of greater than 900 metric tons CO_2e per year based on a market capture approach that requires mitigation for greater than 90 percent of likely future discretionary development. Another potential threshold would be the 10,000 metric tons standard used by the Market Advisory Committee for inclusion in a GHG Cap and Trade System in California. The basic concepts for the various approaches suggested by CAPCOA are used herein to determine whether or not the Proposed Project's GHG emissions are "cumulatively considerable."

The most conservative (i.e., lowest) thresholds, suggested by CAPCOA, would not be appropriate for the Proposed Project given that it is located in a community that is highly urbanized. Similarly, the 900-ton threshold was also determined to be too conservative for general development in the South Coast Air Basin. Consequently, the threshold of 10,000 metric tons CO_2e is used as a quantitative benchmark for significance.

IMPACTS

Construction

Regional

Construction of the Proposed Project has the potential to create air quality impacts through the use of heavy-duty construction equipment and through vehicle trips generated by construction workers traveling to and from the Project Site. Fugitive dust emissions would primarily result from site preparation (e.g., excavation) activities. NO_X emissions would primarily result from the use of construction equipment and haul trucks. The assessment of construction air quality impacts considers each of these potential sources. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for Fugitive Dust. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce $PM_{2.5}$ and PM_{10} emissions associated with construction activities by approximately 61 percent.

It is anticipated that construction activity would begin in June 2014 and occur over 25 months. In broad terms defined for this air quality analysis, the facility would be built in three general phases. Demolition activity would occur for one month, site preparation (excavation and grading) activity would occur for six months, and construction activity would occur over 18 months. These construction phases would occur sequentially and would not overlap. Key assumptions used in the air quality analysis include:

- 200 cubic yards of demolition debris
- 135,000 cubic yards of excavated material
- 100 haul truck trips per day (i.e., 50 inbound trips and 50 outbound trips)
- One acre of land excavated or graded per day (out of 3.3 acres total) based on two graders
- 22 concrete truck trips per day (i.e., 11 inbound trips and 11 outbound trips)
- 10,869 square feet of land to be paved

There are multiple methodologies for estimating construction emissions. The California Emissions Estimator Model (CalEEMod) is a Statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model was developed in collaboration with the air districts of California. However, CalEEMOD does not accurately assess fugitive dust emissions associated with excavation activity. In order to accurately characterize emissions associated with the Proposed Project, CalEEMOD was used in conjunction with emission formulas provided by USEPA in the AP-42 Compilation of Air Pollutant Emission Factors handbook.

Table 3.2-6 shows the maximum daily emissions associated with construction activities. Construction-related daily maximum regional construction emissions would not exceed the

SCAQMD regional significance thresholds. Therefore, the Proposed Project would result in a less-than-significant impact related to regional construction emissions.

TABLE 3.2-6: REGIONAL CONSTRUCTION EMISSIONS						
	Pounds Per Day					
Activity	**VOC**	**NO_X**	**CO**	**SO_X**	**$PM_{2.5}$ /a/**	**PM_{10} /a/**
Demolition	6	47	26	<1	2	3
Excavation	7	49	29	<1	4	8
Grading	5	38	27	<1	5	9
Construction/Concrete Work	3	19	15	<1	1	2
Paving	2	14	11	<1	1	1
Maximum Regional Total	7	49	29	<1	5	9
REGIONAL SIGNIFICANCE THRESHOLD	**75**	**100**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No

/a/ Fugitive dust emissions were characterized using CalEEMod and USEPA's AP-42.
SOURCE: TAHA, Appendix C, Sub-Appendix C, 2012.

Localized

Construction activity would generate pollutant emissions associated with equipment exhaust and fugitive dust in the vicinity of the Project. Localized impacts from daily emissions associated with construction were evaluated for sensitive receptor locations potentially impacted by the Proposed Project construction activities. Emissions for localized construction air quality analysis for NO_2, CO, $PM_{2.5}$, and PM_{10} were compiled using the Localized Significance Threshold (LST) methodology promulgated by the SCAQMD in *Sample Construction Scenarios for Projects Less than Five Acres in Size*. Localized emissions were calculated using similar methodology to the regional emission calculations. LSTs were developed based upon the size or total area of the emission source, the ambient air quality in each source receptor area, and the distance to the sensitive receptor. The Proposed Project would utilize up to two graders simultaneously which would result in a disturbed area of one acre per day.[14]

Table 3.2-7 shows the calculated construction emissions data and threshold values for each pollutant based on the SCAQMD LSTs. Particulate matter concentrations would exceed the SCAQMD LSTs thresholds during grading activity. LSTs are screening thresholds that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standards.

According to the SCAQMD, the lead agency may estimate the concentrations at sensitive receptors using the USEPA's preferred regulatory air dispersion model (i.e., AERMOD) where localized construction emissions exceed the screening-level look-up table values.

[14]One grader covers 0.5 acres per day according to the CalEEMod Users Guide.

TABLE 3.2-7: LOCALIZED CONSTRUCTION EMISSIONS				
	Pounds Per Day			
Activity	**NO_X**	**CO**	**$PM_{2.5}$ /a/**	**PM_{10} /a/**
Demolition	46	25	2	2
Excavation	24	14	4	7
Grading	38	24	5	9
Construction/Concrete Work	16	10	1	1
Paving	14	10	1	1
Maximum Localized Total	46	25	5	9
LOCALIZED SIGNIFICANCE (SCREENING) THRESHOLD /b/	**103**	**562**	**3**	**4**
Exceed Threshold?	No	No	**Yes**	**Yes**
/a/ Fugitive dust emissions were characterized using CalEEMod and USEPA's AP-42. /b/ Assumed a 1.0-acre active Project Site and a 25-meter (82-foot) receptor distance. **SOURCE**: TAHA, Appendix C, Sub-Appendix D, 2012.				

Since the screening analysis shown in **Table 3.2-7** shows the potential for daily PM_{10} and $PM_{2.5}$ *emissions* to exceed the screening thresholds, detailed air quality modeling was undertaken to identify whether localized *concentrations* at nearby sensitive receptors would exceed the *concentration* thresholds. The detailed analysis of concentrations (that result from construction emissions) at sensitive receptor locations were conducted using AERMOD. The model results indicate that maximum PM_{10} concentrations would be 17.2 $\mu g/m^3$ at the single-family residence (owned by Harvard-Westlake) located directly to the south and 14.4 $\mu g/m^3$ at the single-family residence located directly to the northwest. Overall, approximately six residences could be exposed to PM_{10} concentrations that exceed the PM_{10} significance threshold of 10.4 $\mu g/m^3$ during the excavation and grading phase of construction activity. Therefore, without mitigation, the Proposed Project would result in a short-term significant impact related to localized fugitive dust construction emissions at approximately six nearby residences.

The model results indicate that maximum $PM_{2.5}$ concentrations would be 8.6 $\mu g/m^3$ at the single-family residence (owned by Harvard-Westlake) located directly to the south and 7.3 $\mu g/m^3$ at the single-family residence located directly to the northwest. Maximum daily $PM_{2.5}$ concentrations would not exceed the $PM_{2.5}$ significance threshold of 10.4 $\mu g/m^3$.

An analysis was completed to assess particulate matter concentrations at outdoor areas of the Harvard-Westlake Campus and the Sunnyside Preschool. The maximum PM_{10} concentration would be 6.2$\mu g/m^3$ at the Harvard-Westlake Campus and 1.8 $\mu g/m^3$ at Sunnyside Preschool. The maximum $PM_{2.5}$ concentration would be 3.1$\mu g/m^3$ at the Harvard-Westlake Campus and 0.86 $\mu g/m^3$ at Sunnyside Preschool. Based on the pollutant concentration model that incorporates meteorological conditions and topography, particulate matter concentrations would not exceed the significance threshold of 10.4 $\mu g/m^3$ at either the Harvard-Westlake School or the Sunnyside Preschool.

Toxic Air Contaminants and Community Health

The greatest potential for TAC emissions during construction would be diesel particulate emissions associated with heavy equipment operations. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the Project. Thus, because the use of diesel engine construction equipment on site would be limited to 25 months, exposure would occur approximately three percent of the 70-year exposure period. Therefore, the Proposed Project would result in less-than-significant impacts related to construction TACs.

As previously discussed, the Proposed Project would result in a significant localized particulate matter (PM_{10}) impact at the approximately six adjacent residences. The majority of localized impacts related to PM_{10} emissions during excavation and grading activity would be related to fugitive dust emissions (up to 80 percent). Fugitive dust is not toxic but high concentrations can irritate the eyes, noise, and throat and lead to respiratory distress.

<u>Odors</u>

Potential sources that may emit odors during construction activities include equipment exhaust and asphalt paving. Odors from this source would be localized and generally confined to the immediate area surrounding the Project Site. The Proposed Project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Therefore, the Proposed Project would result in less-than-significant impacts related to odors.

<u>Consistency with the Air Quality Management Plan</u>

The AQMP focuses on long-term sources of emissions. The only control strategy for construction activity related to modernizing the regional equipment fleet to reduce exhaust emissions. The AQMP states that equipment exhaust reduction will occur through compliance with USEPA exhaust standards and CARB emission reduction strategies. The Proposed Project would not interfere with implementation of these standards and strategies. Therefore, the Proposed Project would result in less-than-significant impacts related to consistency with the AQMP.

Operations

<u>Regional</u>

The Proposed Project consists of the construction of a Parking Structure with an auxiliary athleticfield and a pedestrian bridge connecting the new Parking Structure to the main campus. No increase in student enrollment or faculty is proposed as part of the Project. The Proposed Project would not generate new vehicle trips to the study area and there would not be an associated increase in regional emissions. Therefore, the Proposed Project would result in a less-than-significant impact related to regional operational emissions.

Localized

Parking Structure Pollutant Concentrations. An analysis was completed to determine if passenger vehicle emissions in the Parking Structurewould expose sensitive receptors to increased levels of pollution. Although unlikely to occur, a worst-case analysis was completed as if the Parking Structure would be fully occupied with 750 passenger vehicles during the AM Peak Hour. Three different emission rates were used to correspond to each parking levels of the three-story Parking Structure. The emission rates for each level were determined based on the number of parking spaces provided and the distance and time required to travel from the Parking Structure entrance to the farthest parking space. The mobile source release height for each parking level was also incorporated in the analysis. Air quality sensitive receptors were located based on the distance from the Parking Structure to the sensitive receptors. **Table 3.2-8** show the maximum concentrations in the Project area according to the AERMOD dispersion analysis for sensitive receptors located within approximately 130 and 240 feet to the south and northwest of parking activities, respectively. The CAAQS would not be exceeded for mobile sources at the proposed Parking Structure. Therefore, the Proposed Project would result in less-than-significant impacts related to Parking Structure pollutant concentrations.

Bus Pollutant Concentrations.After Project implementation, the Lower St. Michael's Lot would be utilized for school bus drop-off/pick-up and school bus turnaround. An analysis was completed to determine if on-road school bus and idling emissions at the Lower St. Michael's Lot would expose sensitive receptors to increased levels of pollution. Bus pollutant concentrations were determined based on the assumption that two buses would arrive at the Lower St. Michael's Lot from the north (i.e., traveling southbound on Coldwater Canyon Avenue from the U.S. 101 Freeway) and six school buses would arrive at the Lower St. Michael's Lot from the south (i.e., traveling northbound on Coldwater Canyon Avenue). In addition, it was assumed that eight school buses would idlefor approximately 15 minutesat the Lower St. Michael's Lot during drop-off/pick activities (as a conservative estimate since school bus drivers are required to turn off engines upon arrival and not to turn on until 30 seconds prior to departure). These assumptions would result in a worst-case analysis. **Table 3.2-9**shows the maximum concentrations in the Project area according to the AERMOD dispersion analysis. The CAAQS would not be exceeded for mobile sources at the Lower St. Michael's Lot. Therefore, the Proposed Project would result in less-than-significant impacts related to bus pollutant concentrations.

Intersection CO Concentrations. The State one- and eight-hour CO standards may potentially be exceeded at congested intersections with high traffic volumes. An exceedance of the State CO standards at an intersection is referred to as a CO hotspot. The SCAQMD recommends a CO hotspot evaluation of potential localized CO impacts when volume-to-capacity ratios are increased by two percent at intersections with a level of service (LOS) of D or worse. SCAQMD also recommends a CO hotspot evaluation when an intersection decreases in LOS by one level beginning when LOS changes from C to D. According to the traffic analysis prepared for the Proposed Project, none of the studied intersections would exceed the SCAQMD screening guidance. Therefore, the Proposed Project would result in less-than-significant impacts related to intersection CO concentrations.

TABLE 3.2-8: 2016 LOCALIZED OPERATIONAL EMISSIONS – PARKING STRUCTURE POLLUTANT CONCENTRATIONS

Pollutant	Concentration at Nearest Sensitive Receptor				State Standard	Significant Impact?
	Athletic Field	Harvard Westlake Upper School Facility	Single-Family Residences Located to the South	Single-Family Residences Located to the Northwest		
$PM_{2.5}$ (Annual)	0.0 μg/m³	0.02 μg/m³	0.03 μg/m³	0.02 μg/m³	12 μg/m³	No
PM_{10} (24-Hour)	0.0 μg/m³	0.09 μg/m³	0.19 μg/m³	0.17 μg/m³	50 μg/m³	No
PM_{10} (Annual)	0.0μg/m³	0.02 μg/m³	0.04 μg/m³	0.03 μg/m³	20 μg/m³	No
NO_2 (1-Hour)	0.0 ppm	0.001 ppm	0.003 ppm	0.002 ppm	0.18 ppm	No
CO (1-Hour)	0.0 ppm	0.29 ppm	0.58 ppm	0.61 ppm	20 ppm	No
CO (8-Hour)	0.0 ppm	0.04 ppm	0.07 ppm	0.07 ppm	9.0 ppm	No

SOURCE: TAHA, Appendix C, Sub-Appendix E, 2012.

TABLE 3.2-9: 2016 LOCALIZED OPERATIONAL EMISSIONS – SCHOOL BUS POLLUTANT CONCENTRATIONS

Pollutant	Concentration at Nearest Sensitive Receptor				State Standard	Significant Impact?
	Athletic Field	Harvard Westlake Upper School Facility	Single-Family Residences Located to the West	Single-Family Residences Located to the East		
$PM_{2.5}$ (Annual)	0.001 μg/m³	0.002 μg/m³	0.003 μg/m³	0.003 μg/m³	12 μg/m³	No
PM_{10} (24-Hour)	0.003 μg/m³	0.005 μg/m³	0.012 μg/m³	0.010 μg/m³	50 μg/m³	No
PM_{10} (Annual)	0.001 μg/m³	0.002 μg/m³	0.003 μg/m³	0.003 μg/m³	20 μg/m³	No
NO_2 (1-Hour)	0.0003 ppm	0.0004 ppm	0.0011 ppm	0.0011 ppm	0.18 ppm	No
CO (1-Hour)	0.0007 ppm	0.0005 ppm	0.0023 ppm	0.0024 ppm	20 ppm	No
CO (8-Hour)	0.0001 ppm	0.0001 ppm	0.0003 ppm	0.0028 ppm	9.0 ppm	No

SOURCE: TAHA Appendix C, Sub-Appendix E, 2012.

Toxic Air Contaminants

The SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulate emissions (e.g., truck stops) and has provided guidance for analyzing mobile source diesel emissions. SCAQMD does not typically require that health risks be assessed for construction activities because of the relatively brief periods of exposure. Operational activity would not generate truck trips or include any source of diesel emissions. Occasional use of a generator on-site may be necessary for emergency use, but emissions are anticipated to be periodic and less than significant. Therefore, the Proposed Project would result in less-than significant impacts related to toxic air contaminants.

Odors

According to the SCAQMD *CEQA Air Quality Handbook*, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies and fiberglass molding. The Proposed Project would not include any land use or activity that typically generates adverse odors. Therefore, the Proposed Project would result in less-than significant impacts related to odors.

Consistency with the Air Quality Management Plan

The 2007 AQMP was prepared to accommodate growth, reduce the high levels of pollutants within areas under the jurisdiction of SCAQMD, return clean air to the region, and minimize the impact on the economy. The AQMP includes short-term control measures related to facility modernization, energy efficiency, good management practices, market incentives, and emissions growth management. The Proposed Project would not generate new vehicle trips to the study area and there would not be an associated increase in regional emissions. Operations of the Parking Structure and athletic field would not interfere with implementation of AQMP control measures. Therefore, the Proposed Project would result in less-than significant impacts related to consistency with the AQMP.

CUMULATIVE IMPACTS

Criteria Pollutants

A significant impact would occur if the Proposed Project resulted in a cumulative net increase in any criteria pollutant above threshold standards. The SCAQMD's approach for assessing cumulative air quality impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. The SCQAMD has set forth significance thresholds designed to assistant in the attainment of ambient air quality standards. The Proposed Project would not result in a regional construction impact or any operational impacts. The Proposed Project would result in significant localized impact related to construction dust. However, localized emissions are only cumulative with related projects located within 500 meters of the Project Site.[15] The DWP water main work along Coldwater Canyon Avenue, which is the only related project within 500 meters of the Project Site, is anticipated to be complete adjacent to the site before the start of construction. Therefore, no related projects are anticipated within this distance. Therefore, the Proposed Project would not contribute to cumulative localized construction emissions.

Global Climate Change

The Proposed Project consists of the construction of a Parking Structure with an auxiliary athleticfield and a pedestrian bridge connecting the new Parking Structure to the Harvard-

15 The SCAQMD LST guidance only extends to 500 meters.

Westlake School. No increase in student enrollment or faculty is proposed as part of the Project. The Proposed Project would not generate new vehicle trips to the study area and therefore would not be an associated increase in GHG emissions.

GHG emissions would be generated during construction activity and were estimated for equipment exhaust, truck trips, and worker commute trips using the same methodology as previously described for the regional emissions analysis. Based on SCAQMD guidance, construction emissions were amortized over a 30-year span. As shown in **Table 3.2-10**, estimated GHG emission would be 36metric tons per year. Estimated GHG emissions would be less than the 10,000 metric tons of CO_2e per year quantitative significance threshold. In addition, construction of the proposed Parking Structure would not interfere with any State or local GHG reduction plan.

TABLE 3.2-10: ANNUAL GREENHOUSE GAS EMISSIONS

Source	**Carbon Dioxide Equivalent (Metric Tons per Year)**
Construction Emissions Amortized	36
SIGNIFICANCE THRESHOLD	**10,000**
Exceed Threshold?	No

SOURCE:TAHA, Appendix C, Sub-Appendix F, 2012.

PROJECT DESIGN FEATURE

The following Project Design Feature would help address the significant PM_{10} impact on approximately six adjacent residential yards. Daytime use of adjacent outdoor school areas would occur, but modeled concentrations of PM_{10} would not exceed the thresholds at the Harvard-Westlake School or the Sunnyside Preschool.

PDF-AQ-1: The majority of excavation and grading activity would occur during weekday daytime hours when most people are away from their home and not heavily utilizing residential yards.

REGULATORY COMPLIANCE MEASURE

RC-AQ-1: Project Construction shall comply with SCAQMD Rule 403 that requires the following:

- Water or a stabilizing agent shall be applied to exposed surfaces at least three times per day to prevent generation of dust plumes.
- Construction contractor shall utilize at least one or more of the following measures at each vehicle egress from the Project Site to a paved public road in order to effectively reduce the migration of dust and dirt offsite:
  - Install a pad consisting of washed gravel maintained in clean condition to a depth of at least six inches and extending at least 30 feet wide and at least 50 feet long;
  - Pave the surface extending at least 100 feet and at least 20 feet wide;
  - Utilize a wheel shaker/wheel spreading device consisting of raised dividers at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages; or

- Install a wheel washing system to remove bulk material from tires and vehicle undercarriages.

– All haul trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).

– Construction activity on unpaved surfaces shall be suspended when wind speed exceed 25 miles per hour (such as instantaneous gusts).

– Ground cover in disturbed areas shall be replaced as quickly as possible.

MITIGATION MEASURES

The following mitigation measures would reduce construction-related localized air quality emissions:

MM-AQ-1: The construction contractor shall use electricity from power poles rather than temporary diesel or gasoline generators.

MM-AQ-2: When reinforcing the hillside through soil nailing, the construction contractor shall minimize dust to the greatest extent feasible using available techniques including, but not limited to, the application of water to remove cuttings.

MM-AQ-3: The construction contractor shall maintain equipment and vehicle engines in good condition and in proper tune per manufacturers' specifications.

MM-AQ-4: The construction contractor shall use alternative-fueled off-road equipment where possible.

MM-AQ-5: The construction contractor shall configure construction parking to eliminate interference with traffic operations on Coldwater Canyon Avenue.

MM-AQ-6: The construction contractor shall provide temporary traffic controls, such as a flag person, during all phases of construct to maintain smooth traffic flows.

MM-AQ-7: The construction contractor shall schedule construction activities that effect traffic flow on arterial system to off-peak hours.

MM-AQ-8: All construction equipment and delivery vehicles shall be turned off when not in use or prohibit idling in excess of five minutes. Haul trucks in particular that stage waiting to be called to remove dirt from the site shall not be allowed to idle while queuing.

MM-AQ-9: The site administrator for Harvard-Westlake School shall coordinate with the construction contractor to schedule construction activity that utilizes heavy equipment and generates fugitive dust to when student exposure would be minimized.

Impacts related to regional emissions, localized operational emissions, toxic air contaminant emissions, odors and consistency with the AQMP would be less than significant. No mitigation measures are required.

SIGNIFICANCE AFTER MITIGATION

Impacts related to regional emissions, localized operational emissions, toxic air contaminant emissions, odors and consistency with the AQMP would be less than significant.

Impacts related to localized construction emissions (PM_{10}) would be significant for sensitive receptors (six homes on the west side of Coldwater Canyon Avenue, adjacent to the site; one of which is owned by Harvard-Westlake). The majority of localized impacts related to PM_{10} emissions during grading and excavation activity would be related to fugitive dust emissions (up to 80 percent). The Proposed Project would be required to implement SCAQMD Rule 403 (**RC-MM-AQ-1** above) to control fugitive dust emissions. Rule 403 requires intensive dust prevention control measures and represents the greatest degree that fugitive dust can be controlled at a construction site. Implementation of Rule 403 and Mitigation Measure **MM-AQ-2** would reduce fugitive dust emissions to the greatest extent feasible but would not reduce PM_{10} emissions to below the SCAQMD significance thresholds at the six homes adjacent to the Project Site. Therefore, the Proposed Project would result in a short-term significant and unavoidable impact related to localized PM_{10} construction emissions at six adjacent residences.

Although not identified as a significant impact, construction emissions could affect students utilizing recreational facilities at the school. Mitigation Measure **MM-AQ-9** would ensure that the school coordinates with the construction contractor to keep student exposure to construction pollutants at a minimum.