IV. ENVIRONMENTAL IMPACT ANALYSIS

B. AIR QUALITY

1. INTRODUCTION

The following analysis of air quality impacts is based primarily upon the *Weddington Golf and Senior Housing Project Air Quality and Noise Impact Report*, prepared by Terry A. Hayes Associates and dated June 27, 2013, and which is incorporated herein. The air quality report, including the applicable calculation sheets, are provided in *Appendix B: Air Quality and Noise Assessments* of this Draft EIR.

2. ENVIRONMENTAL CONDITIONS

a. Physical Setting

(1) Air Quality Terms and Characteristics

This section examines the degree to which the proposed Project may result in significant adverse changes to air quality. Both short-term construction emissions occurring from activities on the Development Site (area of physical disturbance within the Project Site), such as site grading and haul truck trips, and long-term effects related to the ongoing operation of the 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 pollutant 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 ($\mu g/m^3$).

Criteria air pollutants are defined as pollutants for which the federal and State governments have established ambient air quality standards, or criteria, 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). These pollutants are discussed below.

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 location, 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 spacial 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 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 primary 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.

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 about 1/7 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,

[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.

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, 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.

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.

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act (AB 2588, 1987) is a State law requiring facilities to report emissions of TACs to air districts. The program is designated to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks.

The State Air Toxics Program (established through AB 2588) identified over 200 TACs, including the 188 TACs identified in the federal Clean Air Act. The United States Environmental Protection Agency (USEPA) has assessed this expansive list of toxics and identified 21 TACs as Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. USEPA also extracted a subset of these 21 MSAT compounds that it now labels as the six priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. While these six MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future rules.

To date, the most comprehensive study on air toxics in the South Coast Air Basin (Basin) is the Multiple Air Toxics Exposure Study (MATES-III), conducted by the South Coast Air Quality Management District (SCAQMD), a local agency created to coordinate air quality planning efforts throughout Southern California (the description of the agency to be elaborated upon later). 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 average cancer risk in the region from carcinogenic air pollutants ranges from about 870 in a million to 1,400 in a million, with an average regional risk of about 1,200 in a million.

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 lungs. 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 has 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.

Unlike other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, California Air Resources Board (CARB) has made preliminary concentration estimates based on a PM exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM.

Diesel PM poses the greatest health risk among these ten TACs mentioned. Based on receptor modeling techniques, SCAQMD estimated that diesel PM accounts for 84 percent of the total risk in the South Coast Air Basin.

(2) Regional Air Quality and Climatology

The Project Site is located within the Los Angeles County portion of the South Coast Air Basin (Basin), which will be described later. 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. This 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 is produced almost entirely from automobiles, the highest CO concentrations in the Basin are associated with heavy traffic. NO_2 levels are also generally higher during fall and winter days.

(3) 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 four miles per hour, with calm winds occurring approximately ten percent of the time. Wind in the vicinity of the Project Site predominately blows from the southwest.[2]

The annual average temperature in the Project area is 64.1 degrees Fahrenheit (°F). The Project area experiences an average winter temperature of approximately 55.2°F and an average summer temperature of approximately 73.1°F. Total precipitation in the Project area averages approximately 16.5 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer. Precipitation averages approximately ten inches during the

[2] SCAQMD, Meteorological Data, available at http://www.aqmd.gov/smog/metdata/MeteorologicalData.html, accessed November 30, 2011.

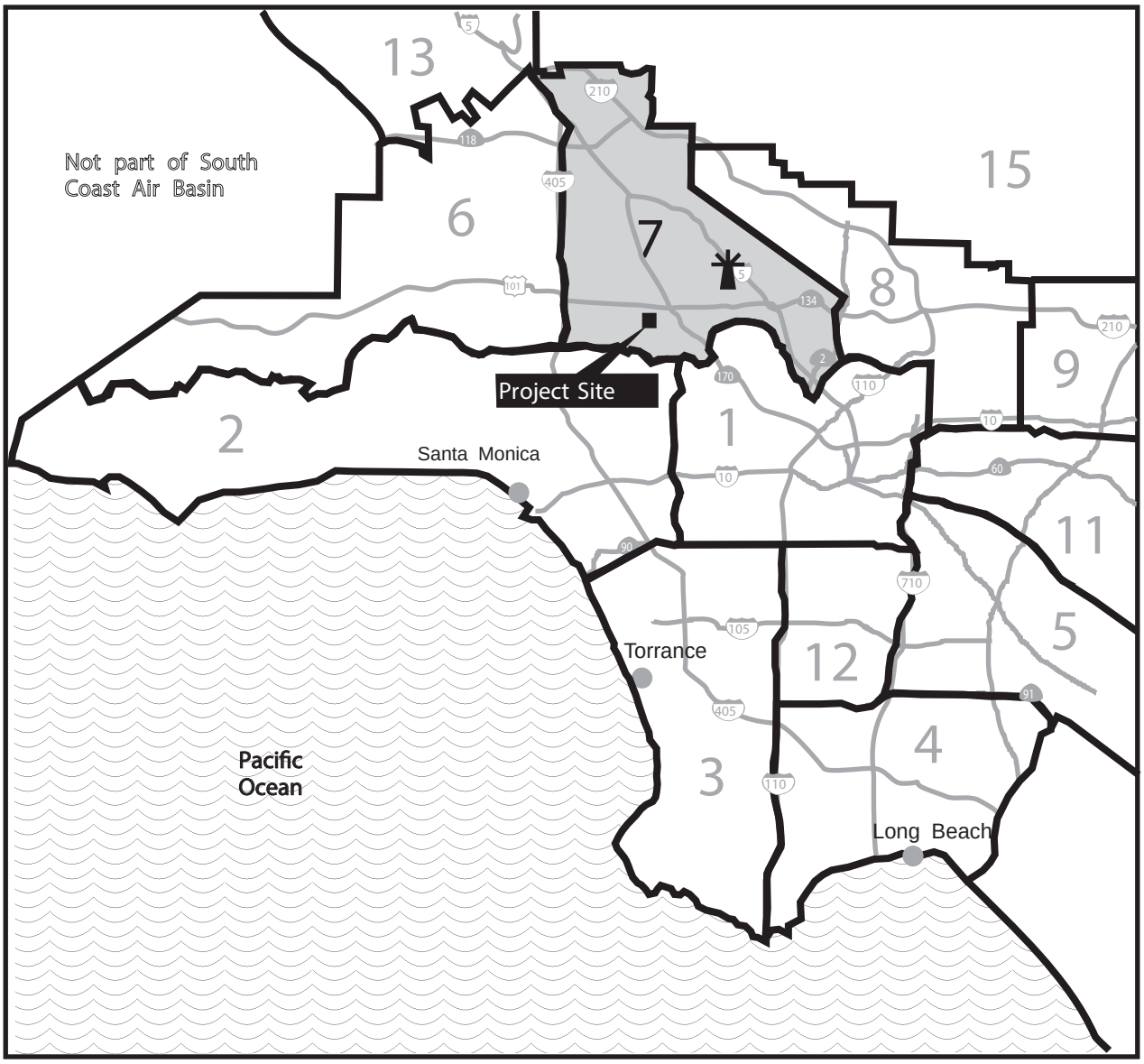
winter, approximately four inches during the spring, approximately two inches during the fall, and less than one inch during the summer.[3]

(4) Air Monitoring Data

The SCAQMD monitors air quality conditions at 38 locations throughout the Basin. The Project Site is located in SCAQMD's East San Fernando Valley Air Monitoring Subregion, which is served by the Burbank – West Palm Avenue Monitoring Station. The Burbank – West Palm Avenue Monitoring Station is located approximately 5.5 miles northeast of the Project Site near the intersection of Victory Boulevard and Olive Avenue. Historical data from the Burbank Monitoring Station were used to characterize existing conditions in the vicinity of the Project area. Criteria pollutants monitored at the Burbank Monitoring Station include O_3, CO, NO_2, PM_{10}, $PM_{2.5}$, and SO_2. The locations of the relevant air monitoring stations, including the Burbank Monitoring Station, in relation to the Project Site, are shown in *Figure IV.B-1: Air Monitoring Areas*.

Table IV.B-1: 2008-2010 Ambient Air Quality Data shows pollutant levels, the State standards, and the number of exceedances recorded at the Burbank Monitoring Station from 2008 to 2010.[4] As *Table IV.B-1* indicates, criteria pollutants CO, NO_2, and SO_2 did not exceed the State standards from 2008 to 2010. However, the one-hour State standard for O_3 was exceeded 3 to 20 times during this period while the one-hour federal standard for O3 was exceeded zero to one time during this period. The eight-hour State standard for O_3 was exceeded 9 to 34 times while the federal standard for O_3 was exceeded four to 17 times during this period. The 24-hour State standard for PM_{10} was exceeded 5 to 10 times during this period and the annual State standard for $PM_{2.5}$ was also exceeded each year from 2008 to 2010.

[3] Western Regional Climate Center, Historical Climate Information, available at http:// www.wrrc.dri.edu, accessed November 30, 2011.
[4] Monitored data for 2011 was not available when this analysis was completed.



LEGEND: Burbank 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

APPROX. SCALE

0 4.5 9 MILES

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

FIGURE IV.B-1
AIR MONITORING AREAS

NORTH

SOURCE: TERRYA.HAYES ASSOCIATES INC.

TABLE IV.B-1
2008-2010 AMBIENT AIR QUALITY DATA [1]

POLLUTANT	POLLUTANT CONCENTRATION AND STANDARDS	BURBANK-WEST PALM AVE MONITORING STATION		
		NUMBER OF DAYS ABOVE STATE STANDARD		
		2008	2009	2010
Ozone (O_3)	Maximum 1-hr Concentration (ppm)	0.133	0.145	0.111
	Days > 0.09 ppm (State 1-hr standard)	20	16	3
	Maximum 8-hr Concentration (ppm)	0.110	0.097	0.084
	Days > 0.07 ppm (State 8-hr standard)	34	28	9
Carbon Monoxide (CO)	Maximum 1-hr concentration (ppm)	3	3	---
	Days > 20 ppm (State 1-hr standard)	0	0	---
	Maximum 8-hr concentration (ppm)	2.48	2.89	2.35
	Days > 9.0 ppm (State 8-hr standard)	0	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-hr Concentration (ppm)	0.105	0.088	0.082
	Days > 0.18 ppm (State 1-hr standard)	0	0	0
Respirable Particulate Matter (PM_{10})	Maximum 24-hr concentration ($\mu g/m^3$)	61.0	76.0	---
	Estimated Days > 50 $\mu g/m^3$ (State 24-hr standard)	5	10	---
Fine Particulate Matter ($PM_{2.5}$)	Maximum 24-hr concentration ($\mu g/m^3$)	68.9	67.5	43.7
	Exceed State Standard (12 $\mu g/m^3$)	Yes	Yes	Yes
Sulfur Dioxide (SO_2)	Maximum 24-hr Concentration (ppm)	0.003	0.003	0.004
	Days > 0.04 ppm (State 24-hr standard)	0	0	0

' --- ' = There was insufficient (or no) data available to determine the value.
[1] Source : CARB, Air Quality Data Statistics, *Top 4 Summary*, http://www.arb.ca.gov/adam/topfour/topfour1.php, accessed November 30, 2011. CO pollutant concentration was obtained from SCAQMD, Historical Data by Year, available at http://www.aqmd.gov/smog/historicaldata.htm, accessed November 30, 2011.

(5) 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 groups who are most likely to be affected by air pollution: children less than 14 years of age, 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, playgrounds, child-care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

As shown in *Figure IV.B-2: Sensitive Receptor Locations*, sensitive receptors were determined within one-quarter mile (1,320 feet) of the Development Site because this is the only area of the Project Site that will be physically disturbed and may potentially have impacts on surrounding sensitive receptors. The remainder of the Project Site (the north and west portions) will remain intact and will not have impacts on sensitive receptors. The sensitive receptors include the following:

LEGEND:

Project Site | Development Site | # Sensitive Receptors

1. Single- and Multi-Family Residences
2. Christian Science Church
3. Single- and Multi-Family Residences
4. Single-Family Residences
5. Single-Family Residences

SOURCE: ESRI and TAHA, 2012

APPROX. SCALE

0 250 500 FEET

FIGURE IV.B-2
SENSITIVE RECEPTOR LOCATIONS

SOURCE: TERRYA.HAYES ASSOCIATES INC.

NORTH

- Single- and multi-family residences located 120 feet to the east
- Christian Science Church located 180 feet to the southeast
- Single- and multi- family residences located 415 feet to the north
- Single-family residences located 595 feet to the south
- Single-family residences located 995 feet to the northwest

The above sensitive receptors represent the nearest residential land uses with the potential to be impacted by the proposed Project. Additional sensitive receptors are located further from the Development Site in the surrounding community and would be less impacted by air emissions than the above sensitive receptors.

b. Regulatory and Policy Setting

(1) Federal

United States Environmental Protection Agency (USEPA). The Federal Clean Air Act (CAA) governs air quality in the United States. The 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 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 IV.B-2: State and National Ambient Air Quality Standards and Attainment Status for the South Coast Air Basin*. The USEPA has classified the Basin as attainment for SO_2, maintenance for CO and nonattainment for O_3, $PM_{2.5}$, PM_{10}, and Pb.

(2) State

California Air Resources Board. 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 IV.B-2: State and National Ambient Air Quality Standards and Attainment Status for the South Coast Air Basin*.

TABLE IV.B-2
STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN [1]

POLLUTANT	AVERAGING PERIOD	CALIFORNIA		FEDERAL	
		STANDARDS	ATTAINMENT STATUS	STANDARDS	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 μg/m^3	Nonattainment
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 μg/m^3)	Maintenance	9 ppm (10 mg/m^3)	Maintenance
	1-hour	20 ppm (23 μg /m^3)	Maintenance	35 ppm (40 mg/m^3)	Maintenance
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 μg /m^3)	Nonattainment	0.053 ppm (100 μg/m^3)	Attainment
	1-hour	0.18 ppm (338 μg /m^3)	Nonattainment	100 ppb (188 μg/m^3)	N/A
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	--	0.030 ppm (80 μg/m^3)	Attainment
	24-hour	0.04 ppm (105 μg/m^3)	Attainment	0.14 ppm (365 μg/m^3)	Attainment
	3-hour	--	--	--	--
	1-hour	0.25 ppm (655 μg/m^3)	Attainment	--	--
Lead (Pb)	30-day average	1.5 μg/m^3	Nonttainment	--	--
	Calendar Quarter	--	--	1.5 μg/m^3	Nonattainment

N/A = Not available
[1] Source: CARB, *Ambient Air Quality Standards*, June 7, 2012; CARB State Standard Area Designations, http://www.arb.ca.gov/desig/statedesig.htm; USEPA, The Green Book Nonattainment Areas for Criteria Pollutants, http://ww.epa.gov/air/oaqps/greenbk/index.html

The CCAA requires CARB to designate areas within California as either attainment or non-attainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as non-attainment 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}, NO_2, and Pb[5].

Toxic Air Contaminants (TACs). CARB's statewide comprehensive air toxics program was established in the early 1980s. The Toxic Air Contaminant Identification and Control Act created California's program to reduce exposure to air toxics. Under the Toxic Air Contaminant Identification and Control Act, CARB is required to use certain criteria in the prioritization for the identification and control of air toxics. In selecting substances for review, CARB must consider criteria relating to "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community" [Health and Safety Code Section 39666(f)]. The Toxic Air Contaminant Identification and Control Act also requires CARB to use available information gathered from the Air Toxics "Hot Spots" Information and Assessment Act program to include in the prioritization of compounds.

California has established a two-step process of risk identification and risk management to address the potential health effects from air toxic substances and protect the public health of Californians. During the first step (identification), CARB and the Office of Environmental Health Hazard Assessment (OEHHA) determine if a substance should be formally identified as a TAC in California. During this process, ACRB and the OEHHA staff draft a report that serves as the basis for this determination. CARB staff assesses the potential for human exposure to a substance and the OEHHA staff evaluates the health effects. After CARB and the OEHHA staff hold several comment periods and workshops, the report is then submitted to an independent, nine-member Scientific Review Panel (SRP), who reviews the report for its scientific accuracy. If the SRP approves the report, they develop specific scientific findings which are officially submitted to CARB. CARB staff then prepares a hearing notice and draft regulation to formally identify the substance as a TAC. Based on the input from the public and the information gathered from the report, the CARB Board decides whether to identify a substance as a TAC. In 1993, the California Legislature amended the Toxic Air Contaminant Identification and Control Act by requiring CARB to identify 189 federal hazardous air pollutants as State TACs.

In the second step (risk management), CARB reviews the emission sources of an identified TAC to determine if any regulatory action is necessary to reduce the risk. The analysis includes a review of controls already in place, the available technologies and associated costs for reducing emissions, and the associated risk.

The Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code Section 44360) supplements the Toxic Air Contaminant Identification and Control Act by requiring a

[5] CARB, Area Designation Maps, available at http://www.arb.ca.gov/desig/adm/adm.htm, accessed August 28, 2011.

statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. The "Hot Spots" Act also requires facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.
California's Diesel Risk Reduction Program. The CARB identified particulate emissions from diesel-fueled engines (diesel PM) TACs in August 1998. Following the identification process, the ARB was required by law to determine if there is a need for further control, which led to the risk management phase of the program.

For the risk management phase, CARB formed the Diesel Advisory Committee to assist in the development of a risk management guidance document and a risk reduction plan. With the assistance of the Advisory Committee and its subcommittees, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and the Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. The Board approved these documents on September 28, 2000, paving the way for the next step in the regulatory process: the control measure phase.

During the control measure phase, specific statewide regulations designed to further reduce diesel PM emissions from diesel-fueled engines and vehicles have and continue to be evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce diesel PM emissions.

(3) 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 monitors air quality within the Project area. 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 as shown on *Figure IV.B-3: South Coast Air Basin*.

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 2007 AQMP was adopted by the SCAQMD on June 1, 2007. The 2007 AQMP proposes attainment demonstration of the federal $PM_{2.5}$ standards through a more focused control of SO_X, directly-emitted $PM_{2.5}$, and NO_X supplemented with VOC by 2015. The eight-hour ozone control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional NO_X and VOC reductions to meet the standard by 2024. The 2007 AQMP also addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2007 AQMP is consistent with and builds upon the approaches taken in the 2003 AQMP. However, the 2007 AQMP highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the time frames 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 about 870 in a million to 1,400 in a million, with an average regional risk of about 1,200 in a million.

An addendum to the plan was completed in March 2004 that included a status update on the implementation of the various mobile and stationary source strategies. Revised projections were based on accomplishments thus far and a new inventory was included to reflect the updated 2003 Air Quality Management Plan.

FIGURE IV.B-3
SOUTH COAST AIR BASIN

SOURCE: TERRYA.HAYES ASSOCIATES INC.

3. ENVIRONMENTAL IMPACTS

a. Methodology

(1) Construction Phase Analysis

This air quality analysis is consistent with the methods described in the SCAQMD *CEQA Air Quality Handbook* (1993 edition), as well as the updates to the *CEQA Air Quality Handbook*, as provided on the SCAQMD website.

Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod). 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 operation from a variety of land use projects. The model quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Construction assumptions used in the CalEEMod analysis include:

Phase 1: Demolition
- Duration: 6 weeks
- Demolition Amount: 508 tons of debris
- Total Number of Truck Trips Haul: 32 haul trucks

Phase 2: Grading
- Duration: 25 weeks
- Full-time Operating Equipment: 5
- Total Number of Truck Trips Haul: 7,688 haul trucks
- Amount of Materials Exported: 82,000 cubic yards of earth
-

Phase 3: Construction
- Duration: 39 weeks
- Full-time Operating Equipment: 8
- Total Operating Equipment: 4

Phase 4: Architectural Coating
- Duration: 2 weeks
- Total Operating Equipment: 1

Phase 5: Asphalt Paving
- Duration: 1.5 weeks
- Full-time Operating Equipment: 1

Localized emissions, or onsite, emissions were also estimated using CalEEMod. Based on site specifics, the analysis utilized a 25-meter receptor distance and a five-acre Development Site. Emissions were compared to the SCAQMD Lookup Tables to assess the level of significance.

(2) Operations Analysis

CalEEMod was used to calculate operational mobile and area source emissions. CalEEMod uses EMFAC2007 emissions rates to calculate vehicle emissions. EMFAC2007 is the latest emission inventory model for motor vehicles operating on roads in California. This model reflects the CARB's current understanding of how vehicles travel and how much they pollute. The EMFAC2007 model can be used to show how California motor vehicle emissions have changed over time and are projected to change in the future.

Localized CO emissions were calculated utilizing the USEPA's CAL3QHC dispersion model and the CARB's EMFAC 2007 model. CAL3QHC is a model developed by the USEPA to predict CO and other pollutant concentrations from motor vehicle emissions at roadway intersections. The model uses a traffic algorithm for estimating vehicular queue lengths at signalized intersections.

b. Thresholds of Significance

The following are the significance criteria that SCAQMD has established to determine Project construction and operational impacts.

(1) Construction Phase Significance Criteria

The proposed Project would have a significant impact if:

- Daily localized or regional, construction emissions were to exceed SCAQMD thresholds for VOC, NO_X, CO, SO_X, $PM_{2.5}$ or PM_{10}, as presented in *Table IV.B-3: SCAQMD Daily Construction Emissions Thresholds*;

- The proposed Project would generate significant emissions of TACs; and/or

- The proposed Project would create an odor nuisance.

TABLE IV.B-3
SCAQMD DAILY CONSTRUCTION EMISSIONS THRESHOLDS [1]

CRITERIA POLLUTANT	REGIONAL EMISSIONS (POUNDS PER DAY)	LOCALIZED EMISSIONS (POUNDS PER DAY)[2]
Volatile Organic Compounds (VOC)	75	--
Nitrogen Oxides (NO_X)	100	221
Carbon Monoxide (CO)	550	1,158
Sulfur Oxides (SO_X)	150	--
Fine Particulates ($PM_{2.5}$)	55	6
Particulates (PM_{10})	150	11

[1] Source: SCAQMD, 2011.
[2] Localized thresholds based on 25-meter receptor distance and a five-acre Development Site.

(2) Operations Significance Criteria

The proposed Project would have a significant impact if:

- Daily operational emissions were to exceed SCAQMD operational emissions thresholds for VOC, NO_X, CO, SO_X, $PM_{2.5}$, or PM_{10}, as presented in *Table IV.B-4: SCAQMD Daily Operational Emissions Thresholds*;

- Project-related traffic causes 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 ppm and 9.0 ppm, respectively;

- The proposed Project would generate significant emissions of TACs;

- The proposed Project would create an odor nuisance; and/or

- The proposed Project would not be consistent with the AQMP.

TABLE IV.B-4
SCAQMD DAILY OPERATIONAL EMISSIONS THRESHOLDS[1]

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

[1] Source: SCAQMD, 2007

c. Project Impacts

(1) Construction Phase Activity (Short-Term)

(a) Regional Impacts

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 Development Site. Fugitive dust emissions would primarily result from demolition and site preparation (e.g., excavation) activities. NO_X emissions would primarily result from the use of construction equipment. During the finishing phase, paving operations and the application of architectural coatings (e.g., paints) and other building materials would release VOCs. 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, using a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the Development Site, and maintaining effective cover over exposed areas. Compliance with Rule 403 would reduce regional $PM_{2.5}$ and PM_{10} emissions associated with construction activities by approximately 61 percent.

CalEEMod was used to calculate the daily construction emissions. *Table IV.B-5: Estimated Daily Construction Emissions* shows the estimated daily emissions associated with each construction phase. Daily construction emissions for VOC, NO_X, CO, SO_X, $PM_{2.5}$ and PM_{10} would not exceed the SCAQMD regional thresholds. Therefore, the proposed Project would result in a less-than-significant impact related to regional construction emissions. It should be noted that although the Project will result in less-than-significant regional construction emission impacts, as a Project Design Feature incorporated as PDF AQ-3 herein, the Project will also use as many regional construction materials as possible to reduce any unforeseen environmental impacts associated with the transportation of construction materials.

(b) Localized Impacts

Emissions for the localized construction air quality analysis of $PM_{2.5}$, PM_{10}, CO, and NO_2 were compiled using LST methodology promulgated by the SCAQMD.[6] Localized on-site emissions were calculated using similar methodology to the regional emission calculations.

[6] The concentrations of SO_2 are not estimated because construction activities would generate a small amount of SO_X emissions. No State standard exists for VOC. As such, concentrations for VOC were not estimated.

TABLE IV.B-5
ESTIMATED DAILY CONSTRUCTION EMISSIONS[1]

CONSTRUCTION PHASE	POUNDS PER DAY					
	VOC	NO_X	CO	SO_X	$PM_{2.5}$ [2]	PM_{10} [2]
DEMOLITION						
On-Site Emissions	7	53	30	< 1	2	3
Off-Site Emissions	< 1	< 1	1	< 1	< 1	1
Total Emissions	*7*	*53*	*31*	*< 1*	*2*	*4*
SITE PREPARATION						
On-Site Emissions	8	61	37	< 1	10	15
Off-Site Emissions	2	23	14	< 1	1	1
Total Emissions	*10*	*84*	*51*	*< 1*	*11*	*16*
BUILDING						
On-Site Emissions	4	30	21	< 1	2	2
Off-Site Emissions	3	14	28	< 1	1	7
Total Emissions	*7*	*44*	*49*	*< 1*	*3*	*9*
ARCHITECTURAL COATING						
On-Site Emissions	37	3	2	0	< 1	<1
Off-Site Emissions	< 1	< 1	4	< 1	1	< 1
Total Emissions	*37*	*3*	*6*	*< 1*	*1*	*< 1*
PAVING						
On-Site Emissions	1	5	3	0	< 1	< 1
Off-Site Emissions	1	1	1	0	0	0
Total Emissions	*2*	*6*	*4*	*0*	*< 1*	*< 1*
Maximum Regional Total	37	84	51	< 1	11	16
REGIONAL SIG. THRESHOLD	**75**	**100**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No
Maximum On-Site Total	37	61	37	---	10	15
LOCALIZED SIG. THRESHOLD [3]	**---**	**221**	**1,158**	**---**	**6**	**11**
Exceed Threshold?	---	No	No	---	Yes	Yes

[1] Source: Terry A Hayes Associates, 2013.
[2] CalEEMod emissions for fugitive dust were adjusted to account for a 61 percent control efficiency associated with SCAQMD Rule 403.
[3] Assumed a 5-acre Development Site and a 25-meter (82-foot) receptor distance.

LSTs were developed based upon the size or total area of the emissions source, the ambient air quality in each source receptor area, and the distance to the sensitive receptor. As shown in *Table IV.B-5: Estimated Daily Construction Emissions*, estimated daily localized emissions associated with each construction phase. Daily construction emissions would not exceed the SCAQMD localized thresholds for NO_2, CO, and SOx (no State standards exist for VOC), and these localized construction emissions would result in a less-than-significant impact. Daily construction emissions of $PM_{2.5}$ and PM_{10} would exceed the SCAQMD localized thresholds. Therefore, without mitigation, the proposed Project would result in a significant impact related to localized construction emissions.

(c) Toxic Air Contaminant ("TAC") Impacts

The greatest potential for TAC emissions during construction would be diesel particulate emissions associated with heavy-duty equipment operations. According to SCAQMD methodology, health effects from carcinogenic air toxics are described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology. The majority of heavy-duty construction equipment activity would take place over a six-month period during demolition and site preparation activity. These short-term emissions would not substantially contribute to a significant construction health risk. No residual emissions and corresponding individual cancer risk are anticipated after construction. Therefore, the proposed Project would result in a less-than-significant impact related to construction TAC emissions.

(d) Odor Impacts

Potential sources that may emit odors during construction activities include equipment exhaust and architectural coatings. Odors from these sources would be localized and generally confined to the immediate area surrounding the Development Site. The proposed Project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. Therefore, the proposed Project would result in a less-than-significant impact related to construction odors.

(2) Operations Activity (Long-Term)

The Project will implement a variety of design and operational features, known as Project Design Features ("PDFs") to achieve energy efficiency, which in turn serve to directly and proactively reduce air pollutant emissions. Implementation of the "sustainable strategies" described in *Section II.F: Project Description – Project Characteristics* of this Draft EIR would directly reduce Project-related energy use and address indoor air quality conditions. For the air quality analysis, these PDFs are assumed to be incorporated into the Project and the effective reduction credit accounted for in the project-level impact assessment. The Applicant has incorporated the measures into the design of the Project to achieve enhanced energy efficiency (and thereby reduce air quality impacts) and further reduce any potentially unforeseen impacts from the Project. The measures include, but are not limited to, the following or their equivalent:

- Site location of the proposed senior housing adjacent to the existing golf course to allow use of the existing greenery as a heat absorption source, thus creating a steady micro-climate, helping to increase occupant comfort, and lower air-conditioning and energy usage.

- The landscaping for the SCSLC will use water efficient landscaping and native drought tolerant plants.

- The Project will contain easily accessible recycling areas dedicated to the collection and storage of non-hazardous materials for recycling.

- The Project will use natural light as the primary source of light in dwelling units. Lighting systems will be controllable to achieve a maximum efficiency.

- The Project will use exterior lighting that would minimize nighttime illumination.

- The SCSLC energy performance goal will be 20% more effective than required by California Title 24 Energy Design Standards, 2010 Edition, thereby reducing energy use, air pollutant emissions and greenhouse gas emissions.

- The SCSLC will be designed to provide separate HVAC units for each dwelling unit and for common areas, thus providing a high level of thermal comfort controllability and satisfaction.

- The Project design will incorporate roofing that serves to reduce unwanted heat absorption and minimize energy consumption.

- The Project intends to achieve at least the equivalent of LEED (Leadership in Energy and Environmental Design) Platinum, Gold, or Silver status.

(a) Regional Impacts

Motor vehicles that access the Project Site would be the predominate source of long-term Project emissions. Operational emissions are expected to be emitted primarily from vehicles accessing the Project Site for the on-site residences. Traffic impacts and analyses are described in detail in *Section IV.M: Environmental Impact Analysis – Transportation and Circulation*. The analysis of the Project traffic impacts indicate that the proposed Project would generate 624 net daily vehicle trips.[7] The data from the traffic analysis are used in *Table IV.B-6: Estimated Daily Operational Emissions*, which compares Project and cumulative emissions under Existing Conditions to Existing With Project Conditions and emissions under Future Cumulative Pre-Project Conditions to Future Cumulative With Project Conditions (see *Section IV.M: Environmental Impact Analysis –Transportation and Circulation* for descriptions of these terms). Regional operational emissions for both scenarios would not exceed SCAQMD significance thresholds. Therefore, the

[7] Linscott, Law & Greenspan, Engineers, Studio City Senior Living Center Project Traffic Impact Study, February 2, 2012.

proposed Project would result in a less-than-significant impact related to regional operational emissions.

(b) Localized Impacts

CO concentrations in the future are expected to be lower than existing conditions due to stringent State and federal mandates for lowering vehicle emissions. Although traffic volumes would be higher in the future both without and with the implementation of the proposed Project, CO emissions from mobile sources are expected to be much lower due to technological advances in vehicle emissions systems, as well as from normal turnover in the vehicle fleet. Accordingly, increases in traffic volumes are expected to be offset by increases in cleaner-running cars as a percentage of the entire vehicle fleet on the road.[8]

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 (V/C) ratios are increased by two percent at intersections with a 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.

Based on the traffic study, the only intersection that requires a localized CO analysis is Whitsett Avenue/Riverside Drive (AM Peak Hour) under Existing With Project Conditions. The USEPA CAL3QHC micro-scale dispersion model was used to calculate CO concentrations. One- and eight-hour CO concentrations would be approximately 3 and 2.4 ppm, respectively, at worst-case sidewalk receptors. The State one- and eight-hour standards of 20 and 9.0 ppm, respectively, would not be exceeded at the study intersection. Therefore, the proposed Project would result in a less-than-significant impact related to operational localized impacts.

TABLE IV.B-6
ESTIMATED DAILY OPERATIONAL EMISSIONS[1]

CONSTRUCTION PHASE	POUNDS PER DAY					
	VOC	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
EXISTING CONDITIONS						
Area Source	0	0	0	0	0	0
Mobile Source	7	16	62	< 1	1	10
Total	*7*	*16*	*62*	*< 1*	*1*	*10*

[8] Consistent with CARB's vehicle emissions inventory.

TABLE IV.B-6 (CONTINUED)
ESTIMATED DAILY OPERATIONAL EMISSIONS[1]

CONSTRUCTION PHASE	POUNDS PER DAY					
	VOC	NO_X	CO	SO_X	$PM_{2.5}$	PM_{10}
EXISTING WITH PROJECT CONDITIONS						
Area Source	17	< 1	17	0	< 1	< 1
Mobile Source	13	34	122	< 1	2	21
Total	*30*	*34*	*139*	*< 1*	*2*	*21*
Net Emissions	*23*	*18*	*77*	*< 1*	*1*	*11*
REGIONAL SIG. THRESHOLD	**55**	**55**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No
FUTURE CUMULATIVE PRE-PROJECT CONDITIONS (2016)						
Area Source	0	0	0	0	0	0
Mobile Source	5	12	46	< 1	1	10
Total	*6*	*2*	*17*	*< 1*	*1*	*4*
FUTURE CUMULATIVE WITH PROJECT CONDITIONS (2016)						
Area Source	17	< 1	17	0	< 1	< 1
Mobile Source	10	25	90	< 1	2	21
Total	*27*	*25*	*107*	*< 1*	*2*	*21*
Net Emissions	21	23	90	< 1	1	17
REGIONAL SIG. THRESHOLD	**55**	**55**	**550**	**150**	**55**	**150**
Exceed Threshold?	No	No	No	No	No	No

[1] Source: Terry A Hayes Associates, 2013.

(c) Toxic Air Contaminant ("TAC") Impacts

The SCAQMD recommends that health risk assessments be conducted for substantial sources of diesel particulate emissions (e.g., truck stops and warehouse distribution facilities) and has provided guidance for analyzing mobile source diesel emissions.[9] The proposed Project is not anticipated to generate a substantial number of daily truck trips. Based on the limited activity of TAC sources, the proposed Project would not warrant the need for a health risk assessment associated with onsite activities, and potential TAC impacts are expected to be less-than-significant.

Typical sources of acutely and chronically hazardous TACs include industrial manufacturing processes and automotive repair facilities. The proposed Project would not include any of these potential sources, although minimal emissions may result from the use of consumer products

[9] SCAQMD, Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions, December 2002.

(e.g., aerosol sprays). It was expected that the proposed Project would not release substantial amounts of TACs, and no significant impact on human health would occur.

The CARB has published guidance for locating new sensitive receptors (e.g., residences) out of harm's way with respect to nearby sources of air pollution.[10] Relevant recommendations include avoiding locating new sensitive land uses within 500 feet of a freeway (defined as an urban road with 100,000 vehicles per day) or 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). The Project Site is located approximately 4,000 feet from US-101 and approximately 755 feet from the nearest gas station (Arco at 12500 Ventura Boulevard). Additional guidelines in the handbook include avoiding locating new sensitive receptors near rail yards, ports, refineries, distribution centers, and dry cleaners. The proposed Project would not be located near these air polluting sources. The location of the proposed Project would be consistent with the CARB recommendations for locating new sensitive receptors. Therefore, the proposed Project would have a less-than-significant impact related to TACs.

(d) Odor Impacts

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 Development Site would be developed with residences and not land uses that are typically associated with odor complaints. Onsite trash receptacles would have the potential to create adverse odors. However, trash receptacles would be located and maintained in a manner that promotes odor control and no adverse odor impacts are anticipated from these types of land uses. Therefore, the proposed Project would result in a less-than-significant impact related to operational odors.

(e) Consistency with the Air Quality Management Plan (AQMP)

The 2007 AQMP was prepared to accommodate growth, to reduce the high levels of pollutants within areas under the jurisdiction of SCAQMD, to return clean air to the region, and to minimize the impact on the economy. The regional and localized emissions analysis demonstrated that the proposed Project would not generate significant emissions according to the SCAQMD. Therefore, the proposed Project would result in a less-than-significant impact related to the AQMP.

In addition, the AQMP includes short-term control measures for stationary and mobile sources developed by the SCAQMD. As shown in *Table IV.B-7: Project Consistency with the Air Quality Management Plan*, the proposed Project would not interfere with implementation of any of these control measures, thus resulting in a less-than-significant impact related to the AQMP.

As the Applicant is including certain Project Design Features proposed for the Project, *Table IV.B-7* also shows how several of these PDFs would be consistent with several of the control measures, thus further reducing the already less-than-significant impacts related to the AQMP.

[10] CARB, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005.

TABLE IV.B-7
PROJECT CONSISTENCY WITH THE AIR QUALITY MANAGEMENT PLAN [1]

CONTROL MEASURE	PROJECT CONSISTENCY
FACILITY MODERNIZATION	
Facility Modernization (NO_X, VOC, and $PM_{2.5}$)	**Not Applicable**: The proposed Project would be a new development and would not include modernization. In addition, all new stationary sources would comply with SCAQMD rules and regulations to control emissions.
ENERGY EFFICIENCY/CONSERVATION	
Urban Heat Island (All Pollutants)	**Consistent**: The proposed Project is adjacent to the existing golf course, which will allow utilization of the existing greenery as a heat absorption source. Therefore, the proposed Project will result in reduced air-conditioning and energy usage than if the Project were not located next to the existing golf course or other substantial greenery.
Energy Efficiency and Conservation (All Pollutants)	**Consistent**: The proposed Project has been designed to have an energy performance goal of 20 percent more effective than required by California Title 24 Energy Design Standards, 2010 Edition. The proposed lighting system will be controllable for maximum efficiency (e.g., installation of occupancy sensors that will shut-off unnecessary/unused lights).
GOOD MANAGEMENT PRACTICES	
Improved Leak Detection and Repair (VOC)	**Not Applicable**: The proposed Project would not include oil and gas production facilities, petroleum and chemical products processing, storage and transfer facilities, marine terminals, or other sources contributing to fugitive VOC emissions from piping components.
Emission Reductions from Gasoline Transfer and Dispensing Facilities (VOC)	**Not Applicable**: The proposed Project would not include gasoline transfer and dispensing facilities.
Further Emission Reductions from Pipeline and Storage Tank Degassing (VOC)	**Not Applicable**: The proposed Project would not include gasoline sources of pipeline and storage tank degassing.
PM Control Devices (Baghouses, Wet Scrubbers, Electrostatic Precipitators, and Other Devices) (PM)	**Consistent**: All stationary sources would comply with SCAQMD rules and regulations to control emissions.
Emissions Reductions from Green Waste Composting (VOC and PM)	**Consistent**: The proposed Project would include recycling areas dedicated to the collection and storage of non-hazardous materials for recycling, including paper, corrugated cardboard, glass, plastics, metals and landscaping debris.
Improved Start-Up, Shut-down & Turnaround Procedures (All Pollutants)	**Not Applicable**: The proposed Project would not include major stationary sources with start-up and shut-down procedures.
MARKET INCENTIVES/COMPLIANCE FLEXIBILITY	
Clean Coatings Certification Program (VOC)	**Not Applicable**: The proposed Project would not include stationary sources of VOC emissions.
Further SOx Reduction for RECLAIM (SOx)	**Not Applicable**: The proposed Project would not include stationary sources of SO_X emissions.
Clean Air Act Emission Fees for Major Stationary Sources (VOC and NOx)	**Not Applicable**: The proposed Project would not include major stationary sources (e.g., power plants).
Economic Incentive Programs (All Pollutants)	**Not Applicable**: The proposed Project would not include major sources of mobile (e.g., warehouse distribution facilities) or stationary emissions (e.g., power plants).
Petroleum Refinery Pilot Program (VOC and $PM_{2.5}$)	**Not Applicable**: The proposed Project would not include a petroleum refinery.

TABLE IV.B-7 (CONTINUED)
PROJECT CONSISTENCY WITH THE AIR QUALITY MANAGEMENT PLAN[1]

CONTROL MEASURE	PROJECT CONSISTENCY
EMISSION GROWTH MANAGEMENT	
Emission Reduction from New or Redevelopment Projects (NOx, VOC, and $PM_{2.5}$)	**Consistent**: All stationary sources would comply with SCAQMD rules and regulations to control emissions. The proposed Project has been designed to be 20 percent more effective than required by California Title 24 Energy Design Standards, 2010 Edition, thereby reducing air pollutant emissions and greenhouse gas emissions.
Electricity Consumption Emissions	**Not Applicable**: The proposed Project does not require a federal conformity analysis.
Electricity Consumption Emissions	**Not Applicable**: The proposed Project does not require federal permits.

[1] Source: Terry A. Hayes and Associates, 2013.

d. Cumulative Impacts

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 assist in the attainment of ambient air quality standards. The proposed Project would not result in a significant regional impact during construction or operation. However, the proposed Project would result in significant localized $PM_{2.5}$ and PM_{10} impacts during construction activities. As the proposed Project results in localized significant impacts during construction relative to particulate matter, it is anticipated that Related Project development would also result in significant localized impacts. While Mitigation Measures would reduce air quality impacts, cumulative construction emissions of $PM_{2.5}$ and PM_{10} would exceed SCAQMD localized significance thresholds. Therefore, the proposed Project would result in a cumulatively considerable impact related to construction air quality.

4. COMPLIANCE MEASURES, PDFS, AND MITIGATION PROGRAM

a. Compliance Measures

The following Compliance Measures are reasonably anticipated standard conditions that are based on local, State, and federal regulations or laws that serve to offset or prevent specific air quality impacts. These Compliance Measures are applicable to the proposed Project and shall be incorporated to ensure that the Project has minimal impacts to surrounding uses:

- The Project shall comply with applicable CARB regulations and standards. 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 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 Project shall comply with applicable SCAQMD regulations and standards. 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. 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.

- During construction and demolition activities, non-hazardous construction and demolition debris shall be recycled and/or salvaged per the City's Construction and Demolition (C&D) Waste Recycling Ordinance.

b. Project Design Features (PDFs)

The following PDFs are specific design and/or operational characteristics included to avoid or reduce potential air quality impacts.

PDF AQ-1: Project shall be located so that the proposed senior housing is adjacent to the existing golf course to allow use of the existing greenery as a heat absorption source, thus creating a steady micro-climate, helping to increase occupant comfort, and lower air-conditioning and energy usage.

PDF AQ-2: The landscaping for the SCSLC shall use water efficient landscaping and native drought tolerant plants.

PDF AQ-3: The Project shall attempt to use as many regional construction materials as possible to reduce environmental impacts associated with the transportation of materials.

PDF AQ-4: The Project shall contain easily accessible recycling areas dedicated to the collection and storage of non-hazardous materials for recycling.

PDF AQ-5: The Project shall use natural light as the primary source of light in dwelling units. Lighting systems will be controllable to achieve a maximum efficiency.

PDF AQ-6: The Project shall use exterior lighting that would minimize nighttime illumination.

PDF AQ-7: The SCSLC energy performance goal shall be 20% more effective than required by California Title 24 Energy Design Standards, 2010 Edition, thereby reducing energy use, air pollutant emissions and greenhouse gas emissions.

PDF AQ-8: The SCSLC shall be designed to provide separate HVAC units for each dwelling unit and for common areas, thus providing a high level of thermal comfort controllability and satisfaction.

PDF AQ-9: The Project design shall incorporate roofing that serves to reduce unwanted heat absorption and minimize energy consumption.

PDF AQ-10: The Project shall achieve LEED Platinum, Gold, or Silver status.

c. Mitigation Measures

The Project will result in less-than-significant operational air quality impacts and less-than-significant construction air quality impacts, except for localized impacts from $PM_{2.5}$ and PM_{10} emissions. The Project shall implement the following Mitigation Measures to reduce air quality impacts further and to the extent possible to ensure that impacts remain at less-than-significant levels:

(1) Construction Phase Activity (Short-Term)

MM AQ-1: Water or a stabilizing agent shall be applied to exposed surfaces at least two times per day to prevent generation of dust plumes.

MM AQ-2: The construction contractor shall use 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.

MM AQ-3: 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).

MM AQ-4: Construction activity on unpaved surfaces shall be suspended when wind speed exceed 25 miles per hour (such as instantaneous gusts).

MM AQ-5: Ground cover in disturbed areas shall be replaced as quickly as possible.

(2) Operations Activity (Long-Term)

MM AQ-6: The Project shall include heating, ventilation, and air conditioning (HVAC) systems equipped with air filtration media that provides a Minimum Efficiency Reporting Value (MERV) of 13. Filtration shall be applied to process both return and outside air that is to be delivered as supply air.

5. LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the Mitigation Measures would reduce all project air quality impacts, except for construction-phase localized impacts, to less-than-significant levels.

Implementation of the Mitigation Measures related to construction would ensure that fugitive dust emissions would be reduced by approximately 61 percent. However, $PM_{2.5}$ and PM_{10} emissions would continue to exceed the localized significance. Therefore, the Project would result in a significant and unavoidable impact related to localized construction emissions.

Implementation of the Mitigation Measure related to operation would ensure that interior air supply is filtered at an acceptable level and will ensure that the air quality impacts during the operational phase of the Project remain at less-than-significant levels.

Pursuant to CEQA Guidelines Sections 15092 and 15093, in the event that the Project is approved, the City of Los Angeles must adopt a Statement of Overriding Considerations acknowledging these outstanding significant adverse impacts and stating the reason(s) for accepting these impacts in light of the whole environmental record as weighed against any benefits of the Project.