4.1 AIR QUALITY

This section of the EIR evaluates the potential impacts on air quality resulting from implementation of the proposed 540 East Imperial Avenue Specific Plan Project (proposed project). This includes the potential for the proposed project to conflict with or obstruct implementation of the applicable air quality plan, to violate an air quality standard or contribute substantially to an existing or projected air quality violation, to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors that would affect a substantial number of people. Air quality modeling results used in this section are provided in Appendix B. Data used to prepare this section were taken from various sources, including the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook, the SCAQMD Air Quality Analysis Guidance Handbook, the 2007 Air Quality Management Plan (AQMP), as amended, and traffic data provided by Kimley-Horn and Associates, Inc.

All comments received in response to the Initial Study/Notice of Preparation (IS/NOP) circulated for the proposed project were taken into consideration during preparation of this EIR, and if relevant, have been addressed in this section or others within this document. SCAQMD submitted a comment letter in response to the IS/NOP and gave guidance on analyzing air quality impacts and mitigation measures. SCAQMD recommended the use of either URBEMIS or CalEEMod for estimating emissions and provided links to data sources and references for use in analyzing this proposed project's potential emissions.

4.1.1 Environmental Setting

Climate

The City of El Segundo is located within the South Coast Air Basin (Basin), which is surrounded by mountains trapping the air and its pollutants in the valleys or basins below. This area includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. Bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, the Basin is an area of high air pollution potential. The regional climate within the Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. Air quality within the Basin is influenced by a wide range of emissions sources—such as dense population centers, heavy vehicular traffic, and industry.

The annual average temperature varies throughout the Basin, ranging from the low to mid 60s to over 100 degrees during the summer, measured in Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The City of El Segundo is located in the western coastal portion of the Basin. The annual average temperature in the City ranges from 55 to 69°F, although temperatures can occasionally exceed 100°F. Typically the hottest and coldest months in the City are in September and January, respectively.[3]

[3] www.WeatherReports.com (accessed June 16, 2011).

The majority of annual rainfall in the Basin occurs between December and March. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions. The annual average total of rainfall in the City is 11.8 inches.[4]

The Basin experiences a persistent temperature inversion, which is characterized by increasing temperature with increasing altitude. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. Aside from a persistent temperature inversion, the vertical dispersion of air contaminants in the Basin is also affected by wind conditions. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. Conversely, on days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in the Basin are transported eastward, predominantly into Riverside and San Bernardino Counties. Santa Ana winds, which are strong and dry north or northeasterly winds that occur during the fall and winter months, disperse air contaminants differently through the Basin, generally resulting in worse air conditions in El Segundo. Santa Ana conditions tend to last for several days at a time.

Wind speeds in the City of El Segundo average about nine miles per hour (mph), with average wind speeds slightly higher in the summer than the winter season. According to wind data collected at the Los Angeles International Airport (LAX), wind speeds in the area rarely exceed 18 mph at any time. The City and its surrounding area also typically experience a daytime onshore sea breeze. While nighttime land breezes can also occur, wind in the Los Angeles area is almost exclusively from the west, with the exceptions of winter storms and the Santa Ana winds discussed above.

Air Pollutants

Air pollutant emissions within the basin are generated from stationary, mobile, and natural sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at an identified location and are usually associated with manufacturing and industry. Examples are boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and produce many small emissions. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products such as barbeque lighter fluid and hair spray. Construction activities that create fugitive dust such as excavation and grading also contribute to area source emissions. Mobile sources refer to emissions from on- and off-road motor vehicles, including tailpipe and evaporative emissions. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, trains, and construction equipment. Mobile sources account for the majority of the air pollutant emissions within the air basin. Air pollutants can also be generated by the natural environment such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

[4] www.WeatherReports.com (accessed June 16, 2011).

To protect the public health and welfare, the federal and state governments have identified five criteria air pollutants and a host of air toxics and established ambient air quality standards through the federal Clean Air Act (CAA) and the California CAA. The air pollutants for which federal and state standards have been promulgated and which are most relevant to air quality planning and regulation in the air basins include ozone, carbon monoxide, suspended particulate matter, sulfur dioxide, and lead. The federal and state air quality standards for these pollutants are shown in the left hand column of Table 4.1-1 (Ambient Air Quality Standards for Criteria Pollutants), below (Global Climate Change and the emission of greenhouse gases are addressed separately in this EIR in Section 4.2 [Greenhouse Gas Emissions].) Toxic air contaminants are subject to federal and state standards include:

- *Ozone*: a gas that is formed when volatile organic compounds (VOCs), which can also be referred to as reactive organic gases (ROG), and nitrogen oxides (NO_X), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Meteorological conditions that are needed to produce high concentrations of ozone are direct sunshine, early morning stagnation in source areas, high ground surface temperatures, strong and low morning inversions, greatly restricted vertical mixing during the day, and daytime subsidence that strengthens the inversion layer. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable.
- *Carbon Monoxide* (CO): a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, and motor vehicles operating at slow speeds are the primary source of CO in the Basin, the highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- *Respirable Particulate Matter* (PM_{10}) and *Fine Particulate Matter* ($PM_{2.5}$): extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- *Sulfur dioxide* (SO_2): a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. Although sulfur dioxide concentrations have been reduced to levels well below state and national standards, further reductions are desirable because SO_2 is a precursor to sulfates. Sulfates are a particulate formed through the photochemical oxidation of SO_2.
- *Lead*: occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Basin. The use of leaded gasoline is no longer permitted for on-road motor vehicles; therefore, most lead combustion emissions are associated with off-road vehicles such as racecars and some jet fuels. Other sources of lead occur in the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and secondary lead smelters.
- *Toxic Air Contaminants* (TACs): A diverse group of air pollutants that can affect human health, but have not had ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. California Air Resources Board (ARB) has designated nearly 200 compounds as TACs. Additionally, California ARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority

of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel-fueled engines.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be most susceptible to ozone effects. Short-term exposure (lasting for a few hours) to ozone 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. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities.

Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of worsening oxygen supply to the heart.

Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the U.S. and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air

pollution dominated by fine particles and increased mortality, reduction in life span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to airflow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of lead (Pb) exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous

system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures, and death, although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of ROGs that cause offensive odors poses a big challenge. Odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, the ROGs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

Air Quality

The entire Basin is designated as a national and state-level nonattainment area for ozone, $PM_{2.5}$, and PM_{10}. However, regional air quality throughout the basin has improved substantially over the 1980s, 1990s, and the early part of this decade, even as substantial growth has occurred.

Existing Regional Air Quality Emissions

Measurements of ambient concentrations of criteria pollutants are used by the U.S. Environmental Protection Agency (USEPA) and the California ARB to assess and classify the air quality of each air basin, county, or, in some cases, a specific developed area. The classification is determined by comparing monitoring data with national and California air quality standards (refer to Section 4.1.2 [Regulatory Setting]). If a pollutant concentration in an area is lower than the standard, the area is classified as being in "attainment." If the pollutant exceeds the standard, the area is in marginal, moderate, serious, severe, or extreme "nonattainment," depending on the magnitude of the air quality standard exceedance. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

At the federal level, the Basin is designated as an extreme nonattainment area for ozone, meaning that federal ambient air quality standards are not expected to be met for several years, and is also a federal-level nonattainment area for PM_{10} and $PM_{2.5}$. The Basin is in attainment for CO, NO_2, and SO_2.

The Basin is also a state-level nonattainment area for ozone, PM_{10}, $PM_{2.5}$, NO_X, and lead, and it is in attainment of the standards for SO_2, and CO.[5] In an effort to monitor the various concentrations of air pollutants throughout the basin, the SCAQMD has divided the region into thirty-eight source receptor

[5] California Air Resources Board, 2010 State and National Area Designations, http://www.arb.ca.gov/desig/adm/adm.htm (accessed: August 10, 2011).

areas (SRAs) in which thirty-two monitoring stations operate. The City of El Segundo is located within SRA 3, which covers the southwest coastal Los Angeles County area.

The SCAQMD monitoring station located nearest to El Segundo is the Southwest Coast LA County Station (SRA 3). Table 4.1-1 (Ambient Air Quality Standards for Criteria Pollutants) identifies the national and state ambient air quality standards for relevant air pollutants and provides a summary of ambient air quality measured within SRA 3 through the period of 2007 to 2009.

Table 4.1-1 Ambient Air Quality Standards for Criteria Pollutants

	Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations		
Pollutant/Standard	***2007***	***2008***	***2009***
Ozone			
State 1-Hour $\geq$ 0.09 ppm	0 days	0 days	0 days
State 8-Hour > 0.070 ppm	1 days	1 days	0 days
Federal 8-Hour > 0.084 ppm (pre-2008) Federal 8-Hour > 0.075 ppm (current)	0 days	0 days	0 Days
Max. 1-Hour Conc. (ppm)	0.087	0.086	0.077
Max. 8-Hour Conc. (ppm)	0.074	0.075	0.070
Carbon Monoxide			
Max 1-Hour Conc. (ppm)	3	4	2
Max. 8-Hour Conc. (ppm)	2.4	2.5	1.9
Nitrogen Dioxide			
Max. 1-Hour Conc. (ppm)	0.08	0.09	0.08
Max. Annual Conc. (ppm)	0.0140	0.0143	0.0159
Sulfur Dioxide			
Max. 1-hour Conc. (ppm)	0.02	0.02	0.02
Max. 24-hour Conc. (ppm)	0.009	0.005	0.006
Suspended Particulates (PM_{10})			
State 24-Hour > 50 $\mu g/m^3$	4%	0%	1.7%
Federal 24-Hour > 150 $\mu g/m^3$	0%	0%	0%
Max. 24-Hour Conc. ($\mu g/m^3$)	96	50	52
Max. Annual Conc. ($\mu g/m^3$)	27.7	25.6	25.4
Fine Particulates ($PM_{2.5}$)			
Federal 24-Hour > 35 $\mu g/m^3$	0.6%	3%	1.9%
Max. 24-Hour Conc. ($\mu g/m^3$)	64.2	78.3	61.7
Max. Annual Conc. ($\mu g/m^3$)	16.8	15.7	14.3

SOURCE: South Coast Air Quality Management District, Historical Data by Year (May 19, 2011), www.aqmd.gov/smog/historicaldata.htm (accessed August 10, 2011).

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter

Ambient concentrations of ozone, carbon monoxide, nitrogen dioxide, PM_{10}, and sulfur dioxide were measured at SRA 3. Ambient concentrations of $PM_{2.5}$ were measured at SRA 1.

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health. The national and state ambient air quality standards have been set at levels whose concentrations could be generally harmful to human health and welfare and to protect the most sensitive persons from illness or discomfort with a margin of safety.

Toxic air contaminants are airborne substances that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. Toxic air contaminants are different than the "criteria" pollutants previously discussed in that ambient air quality standards have not been established for them, largely because there are hundreds of air toxics and their effects on health tend to be local rather than regional.

Lifetime cancer risk is defined as the increased chance of contracting cancer over a 70-year period as a result of exposure to a toxic substance or substances. It is the product of the estimated daily exposure of each suspected carcinogen by its respective cancer unit risk. The end result represents a worst-case estimate of cancer risk. California ARB has produced a series of estimated inhalation cancer risk maps based on modeled levels of outdoor composite toxic pollutant levels (available at http://www.arb.ca.gov/ch/communities/hlthrisk/hlthrisk.htm). The 2010 estimated map indicates that urban areas such as the City of El Segundo are exposed to an estimated inhalation cancer risk of more than 250 persons per million. These risk maps depict inhalation cancer risk due to modeled outdoor toxic pollutant levels, and do not account for cancer risk due to other types of exposure. The largest contributors to inhalation cancer risk are diesel engines.

Local Air Quality

Localized Carbon Monoxide

Motor vehicles are the primary source of pollutants in the project site vicinity. Local emissions sources also include stationary activities, such as space and water heating, landscape maintenance from leaf blowers and lawn mowers, consumer products, and mobile sources. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed national and/or state standards for CO are termed "CO hotspots." Section 9.l4 of the SCAQMD's CEQA Air Quality Handbook identifies CO as a localized problem requiring additional analysis when a project is likely to subject sensitive receptors to CO hotspots. The SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive receptors near the proposed project would be the residences surrounding the project area.

The SCAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak hour turning volumes to ambient CO air concentrations. In general, the SCAQMD recommends the evaluation of CO concentrations at any intersections that would perform

at a level of service (LOS) D or worse. According to the Traffic Impact Analysis prepared for the proposed project, the intersection of Imperial Highway and Sepulveda Boulevard currently operates at LOS D during the PM peak hour based on the Highway Capacity Manual (HCM) methodology.[6] Consistent with this methodology, maximum existing CO concentrations were calculated for one study intersection in this EIR. The results of these calculations for the existing conditions are presented in Table 4.1-2 (Existing Localized Carbon Monoxide Concentrations). The national 1-hour standard is 35.0 parts per million (ppm), and the state 1-hour standard is 20.0 ppm. The 8-hour national and state standards are both 9.0 ppm.

Table 4.1-2 Existing Localized Carbon Monoxide Concentrations

Intersection	*AM/PM*	*LOS*	*Peak Hour Volume*	*1-Hour Concentration (ppm)*[a]	*8-Hour Concentration (ppm)*[b]
State Standards				20	9
Imperial Highway at Sepulveda Blvd	PM	D	7,733	7.0	2.1
Significant Impact?				No	No

SOURCES: Atkins (2011) (calculation sheets are provided in Appendix B); Kimley-Horn and Associates, Inc., *Traffic Impact Analysis for the Proposed 540 East Imperial Avenue Specific Plan Project in the City of El Segundo* (June 2011).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

As shown in Table 4.1-2, under worst-case conditions, existing CO concentrations in the project vicinity do not exceed national or state 1-hour and 8-hour ambient air quality standards. Therefore, CO hotspots do not currently exist near these intersections.

Existing Site Operational Emissions

In order to analyze the existing plus project emissions, the operational emissions for the existing uses on the proposed project site were estimated using CalEEMod. The site currently consists of eight unoccupied buildings and a baseball field that is used intermittently. Since the buildings are currently unoccupied, the emissions estimates are based on the estimated trip generation by the baseball field. Table 4.1-3 (Existing net Daily Operational Emissions), below summarizes the existing operational emissions.

Sensitive Receptors

Sensitive receptors are populations that are more susceptible to the effects of air pollution than are the population at large. While the ambient air quality standards are designed to protect public health and are generally regarded as conservative for healthy adults, there is greater concern to protect adults who are ill or have long-term respiratory problems, and young children whose lungs are not fully developed. According to California ARB, sensitive receptors include children less than 14 years of age, the elderly over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases.

[6] Kimley-Horn and Associates, Inc., *Traffic Impact Analysis for the Proposed 540 East Imperial Avenue Specific Plan Project in the City of El Segundo* (June 2011).

Table 4.1-3 Existing Net Daily Operational Emissions

Emissions Source	Emissions in Pounds per Day[a]					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Motor Vehicles	0.01	0.01	0.05	0.00	0.01	0.00
Maximum Daily Emissions	*0.01*	*0.01*	*0.05*	*0.00*	*0.01*	*0.00*
SCAQMD Thresholds (lb/day)	55.00	55.00	550.00	150.00	150.00	55.00
Significant Impact?	No	No	No	No	No	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

a. Assumes no natural gas fireplaces.

The SCAQMD identifies the following as locations that may contain a high concentration of sensitive receptors; long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. Residential uses in the vicinity of the proposed project are located to the south, east, and west. These residential uses would be considered sensitive receptors with respect to the proposed project.

4.1.2 Regulatory Framework

Air quality within the Basin is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the air basins are discussed below.

Federal

U.S. Environmental Protection Agency

The USEPA is responsible for setting and enforcing the National Ambient Air Quality Standards for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The USEPA also maintains jurisdiction over emissions sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

As part of its enforcement responsibilities, the USEPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

State

California Air Resources Board

As part of the California Environmental Protection Agency, California ARB is responsible for the coordination and administration of both federal and state air pollution control programs within

California. In this capacity, California ARB conducts research, sets California Ambient Air Quality Standards, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. California ARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Regional

South Coast Air Quality Management District

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin. To that end, the SCAQMD, a regional agency, works directly with SCAG, county transportation commissions, local governments, and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations, establishes permitting requirements, inspects emissions sources, and enforces such measures though educational programs or fines, when necessary.

SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and natural sources. It has responded to this requirement by preparing a series of AQMPs. The most recent of these was adopted by the Governing Board of SCAQMD on June 1, 2007. This AQMP, referred to as the 2007 AQMP, was prepared to comply with the federal and state CAAs and amendments, to accommodate growth, to reduce the high pollutant levels in the Basin, to meet federal and state ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. It identifies the control measures that will be implemented to reduce major sources of pollutants. These planning efforts have substantially decreased the population's exposure to unhealthful levels of pollutants, even while substantial population growth has occurred within the Basin. As discussed on page ES-3 of the 2007 AQMP, the total number of days on which the Basin exceeds the federal 8-hour standard has decreased dramatically over the last two decades from about 150 days to less than 90, while Basin station-days (number of days a station location exceeded the standards) decreased by approximately 80 percent.[7]

Southern California Association of Governments

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

Although SCAG is not an air quality management agency, it is responsible for developing transportation, land use, and energy conservation measures that affect air quality. SCAG's Regional Comprehensive Plan and Guide (RCPG) provide growth forecasts that are used in the development of air quality–related land use and transportation control strategies by the SCAQMD. The RCPG is a framework for decision-making for local governments, assisting them in meeting federal and state mandates for growth management, mobility, and environmental standards, while maintaining consistency with regional goals

[7] SCAQMD, *Final 2007 Air Quality Management Plan* (June 2007).

regarding growth and changes through the year 2015, and beyond. Policies within the RCPG include consideration of air quality, land use, transportation, and economic relationships by all levels of government. As the Metropolitan Planning Organization for the City of El Segundo, SCAG is in the process of implementing SB 375 with participation from El Segundo and other local cities. (Refer to Section 4.2.2 for a discussion of SB 375.)

Local

City of El Segundo General Plan

The Air Quality Element of the City of El Segundo General Plan addresses the problems of maximum air pollution levels; reducing the health and economic impacts of air pollution; complying with the requirements of the 1991 AQMP for the Basin; determining the best means of addressing the AQMP measures for local government, and increasing awareness of local community and governmental responsibility for air quality. The Air Quality Element policies and actions that are relevant to the proposed project are identified below.

Goal AQ4 Reduce Motorized Transportation

Objective AQ4-1 Promote non-motorized transportation.

Policy AQ4-1.1 It is the policy of the City of El Segundo that the City actively encourage the development and maintenance of a high quality network of pedestrian and bicycle routes, linked to key locations, in order to promote non-motorized transportation.

Goal AQ6 Reduction in Peak-period Truck Travel and Number and Severity of Truck-involved Accidents

Objective AQ6-1 Pass the necessary ordinances and memorandums of understanding to divert truck traffic during peak traffic periods.

Policy AQ6-1.1 It is the policy of the City of El Segundo that commercial truck emissions be reduced by restricting delivery schedules to off-peak traffic periods, and by creating alternate routes that would increase the efficiency of the City's roadway system.

Goal AQ7 Reduce Vehicle Emissions through Traffic Flow Improvements

Objective AQ7-1 Set annual objectives for the continued improvement of interconnected traffic signal control systems or appropriate non-interconnected synchronization methods on all streets where traffic volume and delay time is significant.

Policy AQ7-1.1 It is the policy of the City of El Segundo that a high priority be given to improve the flow of traffic through synchronization of

signalized intersections, as this is among the most cost-effective means of reducing congestion, conserving energy, and improving air quality.

Objective AQ7-2 Set annual objectives for improved channelization at high-volume intersections identified with assistance from Southern California Association of Governments (SCAG).

Policy AQ7-2.1 It is the policy of the City of El Segundo to improve channelization at high-volume intersections identified with assistance from SCAG.

Goal AQ9 Reduction in Length of Vehicle Trips

Objective AQ9-1 Improve the City's jobs/housing relationship to achieve a reduction in the average length of commute-trips by the year 2010, as designated by SCAG.

Policy AQ9-1.3 It is the policy of the City of El Segundo that the City actively encourage the establishment of a shuttle bus system to transport employees and El Segundo residents between the east and west sides of the City.

Goal AQ10 Reduction in Particulate Emissions from Paved and Unpaved Roads, Parking Lots, and Road and Building Construction

Objective AQ10-1 Control particulate emissions by paving roads and parking lots or by adopting alternative methods to control particulates.

Policy AQ10-1.2 It is the policy of the City of El Segundo to adopt incentives, regulations, and/or procedures to prohibit the use of building materials and methods which generate excessive pollutants.

Goal AQ12 Reduction in Residential, Commercial, and Industrial Energy Consumption

Objective AQ12-1 Enact the recommendations of the AQMP Energy Working Group for commercial and residential buildings and adopt ordinances to mitigate air quality impacts from water and pool heating systems.

Policy AQ12-1.2 It is the policy of the City of El Segundo that the City encourage the incorporation of energy conservation features in the design of new projects and the installation of conservation devices in existing developments.

Policy AQ12-1.3 It is the policy of the City of El Segundo to provide incentives and/or regulations to reduce emissions from residential and commercial water heating.

Policy AQ12-1.4 It is the policy of the City of El Segundo that new construction not preclude the use of solar energy systems by uses and buildings on adjacent properties and consider enactment of a comprehensive solar access ordinance.

Goal AQ14 Prevent Exposure of People, Animals, and Other Living Organisms to Toxic Air Pollutants

Objective AQ14-1 Restrict emissions of toxic air contaminants in and around the City and insure that sources which impact the City comply with all federal, state, regional, and local regulations.

Policy AQ14-1.1 It is the policy of the City of El Segundo to protect residents and others from exposure to toxic air pollutants by identifying major sources of toxic contaminants in and around the City and insuring that the sources comply with all federal, state, regional, and local regulations.

Goal AQ15 Prevent Exposure of People, Animals, and Other Living Organisms to Unhealthful Levels of Air Pollution

Objective AQ15-1 Reduce unsafe levels of air pollutants impacting the City.

Policy AQ15-1.1 It is the policy of the City of El Segundo to protect the residents of the City and others from exposure to unsafe levels of air pollution, including but not limited to, pollutants such as volatile organic compounds, particulates, oxides of nitrogen, oxides of sulphur, lead, ozone, and carbon monoxide, by taking all appropriate air pollution control measures to reduce unsafe levels of air pollutants impacting the City.

Policy AQ15-1.2 It is the policy of the City of El Segundo to coordinate with the SCAQMD to ensure that all elements of the AQMP regarding reduction of all air pollutant emissions are being met and are being enforced.

Consistency Analysis

The proposed project would be one of two options: either an assisted living/senior townhomes facility or a combination of single-family and multiple-family residential uses. Under both options, the buildings must meet all state regulations for building efficiency, including Title 24 and the recent CALGreen Building Code; these regulations help to reduce operational air quality impacts in buildings. Additionally, the proposed project site is near existing public transit services, as described in the traffic study provided by Kimley-Horn and Associates, Inc. (Appendix E), and residents would be encouraged to make use of the available services in order to reduce vehicle trips. Further, incorporation of the construction mitigation measures would assist in the reduction of non-vehicular emissions. As such, the proposed project would be considered consistent with the goals, objectives, and polices of the General Plan.

4.1.3 Impacts and Mitigation Measures

Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed project. Air pollutant emissions associated with the proposed project would result from construction activities, operation of uses allowed under the proposed project, and project-related traffic volumes. Air quality impacts are also estimated in relationship to the nearest sensitive uses. The health of people at these properties may be adversely impacted if air emissions exceed a level deemed significant by federal and state agencies. The net increase in project site emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to thresholds of significance established by the SCAQMD.

Construction Emissions

Construction emissions are calculated by estimating the types and number of pieces of equipment that would be used to grade, excavate, and surcharge the project site, and construct the uses proposed under the project. Construction emissions are analyzed according to the thresholds established by the SCAQMD. Construction activities associated with the proposed project would temporarily increase diesel emissions, and would generate particulate matter (dust). Construction equipment within the project site that would generate VOC and NO_X pollutants could include graders, dump trucks, and bulldozers. Some of this equipment would be used during grading activities as well as when the structures are developed on the project site. It is assumed that all construction equipment used would be diesel-powered.

Operational Emissions

Operational emissions associated with the proposed project are estimated using the California Emission Estimator Model (CalEEMod)[8] computer model developed for the SCAQMD. Operational emissions would be comprised of mobile source emissions and area source emissions. Mobile source emissions would be generated by any increase in motor vehicle trips to and from new uses within the proposed project area. Area source emissions would be generated by natural gas consumption for space and water

[8] CalEEMod is a model developed for SCAQMD.

heating, and landscape maintenance equipment. To determine if an air quality impact would occur, the increase in emissions was compared with the SCAQMD's thresholds.

Localized CO Concentrations for Operation

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model and traffic volumes provided by Kimley-Horn and Associates, Inc., which is included in its entirety as Appendix E of this EIR. CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments. In general, the SCAQMD recommends the evaluation of CO concentrations at any intersections that would perform at LOS D or worse. Consistent with this methodology, for this analysis, the intersection of Imperial Highway and Sepulveda Boulevard, the only study intersection determined to operate at LOS D or worse in 2030 was analyzed using a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and accepted by the SCAQMD. The simplified model is intended as a screening analysis, which identifies a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations. According to the SCAQMD recommended methodology, all roadway intersections that are expected to operate at LOS C or better are screened out of a localized CO analysis because they are not expected to generate CO concentrations above the state or federal ambient air quality standards.

Localized Significance Thresholds for Construction

In addition to the daily air emissions thresholds established by SCAQMD, potential localized impacts for certain criteria pollutants with regard to project-related emissions are calculated using a separate method. Localized Significance Thresholds (LSTs) are only applicable to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs 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 standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area, distance to the nearest sensitive receptor, and upon the size or total area of the emissions source. LSTs for NO_2 and CO are derived by adding the incremental emission impacts from the project activity to the peak background NO_2 and CO concentrations and comparing the total concentration to the most stringent ambient air quality standards. Background criteria pollutant concentrations are represented by the highest measured pollutant concentration in the last three years at the air quality monitoring station nearest to the proposed project site. Construction $PM_{2.5}$ and PM_{10} LSTs are developed using a dispersion model to back calculate the emissions necessary to exceed a concentration equivalent to 50 micrograms per cubic meter (mg/m^3) averaged over 5 hours, which is the control requirement in SCAQMD Rule 403. The equivalent concentration for developing $PM_{2.5}$ and PM_{10} LSTs is 10.4 mg/m^3, which is a 24-hour average. For project sites larger than 5 acres, the SCAQMD recommends that dispersion modeling be performed for CO, NO_X, PM_{10}, and $PM_{2.5}$. Currently, dispersion modeling is done on a voluntary basis to determine whether or not a project may generate significant adverse localized air quality impacts.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2011 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on air quality if it would do any of the following:

- 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
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

The SCAQMD is principally responsible for comprehensive air pollution control in the Basin and recommends that projects should be evaluated in terms of air pollution control thresholds established by the SCAQMD and published in the CEQA Air Quality Handbook. These thresholds were developed by the SCAQMD to provide quantifiable significance levels for comparison with projects. The City of El Segundo utilizes the SCAQMD's thresholds to evaluate proposed development projects and assess the significance of quantifiable impacts. The following quantifiable thresholds are currently recommended by the SCAQMD and have been used to determine the significance of air quality impacts associated with the proposed project.

Construction Emissions Thresholds

The SCAQMD currently recommends that projects with construction-related emissions that exceed any of the following emissions thresholds should be considered potentially significant.

- 550 pounds per day of carbon monoxide (CO)
- 75 pounds per day of reactive organic gases (VOC)
- 100 pounds per day of nitrogen oxides (NO_X)
- 150 pounds per day of sulfur oxides (SO_X)
- 150 pounds per day of Respirable Particulate Matter (PM_{10})
- 55 pounds per day of Fine Particulate Matter ($PM_{2.5}$)

Operational Emissions Thresholds

The SCAQMD currently recommends that projects with operational emissions that exceed any of the following emissions thresholds should be considered potentially significant.

- 550 pounds per day of CO
- 55 pounds per day of VOC
- 55 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}

- 55 pounds per day of $PM_{2.5}$

LSTs were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative (I-4). LSTs are only applicable for construction emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$. LSTs do not apply to emissions created during operation of the proposed project.

Effects Not Found to Be Significant

No effects have been identified with respect to air quality, other than the effects that are addressed in the following section. The effects addressed in the following section were found to be both less than significant with mitigation incorporated and significant and unavoidable, where indicated.

Project Impacts and Mitigation

Threshold	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact 4.1-1 **Implementation of Option 1 or Option 2 of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. This would be a *less-than-significant* impact.**

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

As identified in the Initial Study, implementation of Option 1 or Option 2 of the proposed project would not result in substantial population growth and would not exceed SCAG's population projected for the City of El Segundo in 2015. Projects that are consistent with the projections of population forecasts identified in the Growth Management chapter of SCAG's RCPG are considered consistent with the AQMP growth projections. This is because the Growth Management chapter of the RCPG forms the basis of the land use and transportation control portions of the 2007 AQMP. Therefore, as the AQMP is based on SCAG growth projections, the proposed project would be consistent with the 2007 AQMP population growth projections. This impact is considered ***less than significant***, and no mitigation is required.

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

Impact 4.1-2 **Construction of Option 1 or Option 2 of proposed project would violate air quality standards for VOCs. This is considered a potentially significant impact. Implementation of mitigation would reduce this impact, but not to a less-than-significant level. Therefore, this would be a *significant and unavoidable* impact.**

The project would result in the development of one of two conceptual project options. Specific Plan Site Plan Option 1 (Option 1) would include a maximum of 150 assisted/independent living units and 150 senior apartments/townhomes (for ages 55 and older) on a 5.32-acre portion of the site. Four (4) townhomes would be built on the remaining 0.33-acre parcel, located at the southern end of the project site. While the four townhomes are part of the 540 East Imperial Avenue Specific Plan development, they would be re-zoned and developed separately from the larger assisted/independent living complex and senior apartments/townhomes, pursuant to the Multi-Family (R-3) development standards.

Specific Plan Site Plan Option 2 (Option 2) would include a residential development with a mix of 24 single-family dwelling units and 34 multiple-family dwelling units. Implementation of either project Option would include demolition of the existing eight, single-story structures (totaling approximately 22,488 square feet), as well as removal of all parking areas, the baseball field, and on-site vegetation. Both Option 1 and Option 2 would provide an affordable housing component to accommodate housing needs in the City of El Segundo, as envisioned in the 2009 Housing Element.

For Option 1, the assisted/independent living facility and senior apartments/townhomes will be constructed over a period of 18 to 24 months. For Option 2, the multiple-family homes and single-family homes may be constructed concurrently or independently over a period of 18 to 24 months. Grading would occur over a period of 17 days for both Options. Approximately 1,900 tons of demolition materials would be hauled off the proposed project site. Because of the construction time frame, and the normal day-to-day variability in construction activities, and the on-site mobility of certain construction vehicles, it is difficult to precisely quantify the daily emissions associated with each phase of the proposed construction activities. Nevertheless, construction emissions associated with development of the proposed project are estimated using the CalEEMod 2011.1 emissions model. Table 4.1-4 (Estimated Daily Peak Construction Emissions in Pounds per Day, Option 1) identifies daily emissions that are estimated to occur on peak construction days for Option 1 of the proposed project. These calculations assume that mitigation measures MM4.1-1 through MM4.1-16 have been implemented to reduce construction-related emissions. Therefore, the daily emissions presented in Table 4.1-4 account for the maximum daily emissions of potential construction activities that would occur during any given construction stage for Option 1.

Table 4.1-4 Estimated Daily Peak Construction Emissions in Pounds per Day, Option 1

Emissions Source	Peak Day Emissions in Pounds per Day					
	VOC	NO_X	CO	SO_X	PM_{10}[a]	$PM_{2.5}$[a]
2012 (Demolition/Grading/Trenching)						
Maximum Daily Emissions	*6.21*	*46.82*	*26.25*	*0.05*	*6.13*	*2.68*
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No
2013 (Trenching/Building Construction/Architectural Coatings/Paving)						
Maximum Daily Emissions	*204.96*	*27.83*	*34.33*	*0.06*	*3.79*	*2.40*
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	Yes	No	No	No	No	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).
Assumes the implementation of all mitigation measures.

The following mitigation measures shall be implemented (and complied with prior to issuance of any grading permit) as part of the proposed project to improve air quality emissions generated by construction activities associated with the proposed project. Among other actions, implementation of mitigation measures can be undertaken by preparation of a construction management plan that incorporates all of the requirements below, including compliance with SCAQMD Rule 403, before the City issues a grading permit. As shown, construction-related daily emissions would exceed SCAQMD significance thresholds for VOCs during the project's construction with incorporation of the identified mitigation measures.

MM4.1-1 *The developer must require by contract specifications that all diesel-powered equipment used will be retrofitted with after-treatment products (e.g., engine catalysts and diesel particulate filters). The engine catalysts must achieve a minimum reduction of 15 percent for NO_X. The diesel particulate filters must meet USEPA Tier 3 standards. Contract specifications must be included in project construction documents, which must be reviewed by the City of El Segundo before grading permits are issued.*

MM4.1-2 *The developer must require by contract specifications that all heavy-duty diesel-powered equipment operating and refueling at the project site use low-NO_X diesel fuel to the extent that it is readily available and cost effective (up to 125 percent of the cost of California Air Resources Board diesel) in the South Coast Air Basin (this does not apply to diesel-powered trucks traveling to and from the project site). Contract specifications must be included in project construction documents, which must be reviewed by the City of El Segundo before grading permits are issued.*

MM4.1-3 *The developer must require by contract specification that all heavy-duty diesel-powered equipment operations at the project site utilize a phased-in emission control technology in advance of a regulatory requirement such that 30 percent of the fleet will meet USEPA Tier 4 engine standards for particulate matter control (or equivalent) starting in 2013 and for the duration of the project.*

MM4.1-4 *The developer must require by contract specifications that construction equipment engines be maintained in good condition and in proper tune per manufacturer's specification for the duration of*

construction. Contract specifications must be included in project construction documents, which must be reviewed by the City of El Segundo before grading permits are issued.

MM4.1-5 *The developer must require by contract specifications that construction operations rely on the electricity infrastructure surrounding the construction site rather than electrical generators powered by internal combustion engines. Contract specifications must be included in project construction documents, which must be reviewed by the City of El Segundo before grading permits are issued.*

MM4.1-6 *As required by South Coast Air Quality Management District Rule 403—Fugitive Dust, all construction activities that are capable of generating fugitive dust are required to implement dust control measures during each phase of project development to reduce the amount of particulate matter entrained in the ambient air. These measures include the following:*

- *Application of soil stabilizers to inactive construction areas*
- *Quick replacement of ground cover in disturbed areas*
- *Watering of exposed surfaces three times daily*
- *Watering of all unpaved haul roads three times daily*
- *Covering all stock piles with tarp*
- *Reduction of vehicle speed on unpaved roads*
- *Post signs on-site limiting traffic to 15 miles per hour or less*
- *Sweep streets adjacent to the project site at the end of the day if visible soil material is carried over to adjacent roads*
- *Cover or have water applied to the exposed surface of all trucks hauling dirt, sand, soil, or other loose materials before leaving the site to prevent dust from impacting the surrounding areas*
- *Install wheel washers where vehicles enter and exit unpaved roads onto paved roads to wash off trucks and any equipment leaving the site for each trip*

MM4.1-7 *The developer must require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, be turned off when not in use for more than 30 minutes. Diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds must be turned off when not in use for more than 5 minutes. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-8 *The developer must require by contract specifications that construction parking be configured to minimize traffic interference during the construction period and, therefore, reduce idling of traffic. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-9 *The developer must require by contract specifications that temporary traffic controls are provided, such as a flag person, during all phases of construction to facilitate smooth traffic flow. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-10 *The developer must require by contract specifications that construction activities that would affect traffic flow on the arterial system be scheduled to off-peak hours (9:00 AM to 4:00 PM). Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-11 *The developer must require by contract specifications that dedicated on-site and off-site left-turn lanes on truck hauling routes be utilized for movement of construction trucks and equipment on site and off site to the extent feasible during construction activities. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-12 *The developer must require by contract specifications that trackout roads will meet SCAQMD Table XI-C standards to achieve a 46% reduction in PM_{10}.The construction contractor must install gravel bed trackout apron (3 inches deep, 25 feet long, 12 feet wide per lane and edged by rock berm or row of stakes) to reduce mud/dirt trackout from unpaved truck exit routes. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-13 *When the City issues building or grading permits, whichever is issued earlier, the developer must notify, by mail, owners and occupants of all developed land uses within 1,000 feet of a project site within the Specific Plan providing a schedule for major construction activities that will occur through the duration of the construction period. In addition, the notification will include the identification and contact number for a community liaison and designated construction manager that would be available on site to monitor construction activities. The construction manager is responsible for complying with all project requirements related to PM_{10} generation. The construction manager will be located at the on-site construction office during construction hours for the duration of all construction activities. Contract information for the community liaison and construction manager will be located at the construction office, City Hall, the police department, and a sign on site.*

In order to reduce the VOC emissions levels associated with architectural coatings, the following mitigation measures would be implemented:

MM4.1-14 *The developer must require by contract specifications that the architectural coating (paint and primer) products used would have a VOC rating that reduces VOC content by 15 percent or more. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-15 *The developer must require by contract specifications that materials that do not require painting be used during construction to the extent feasible. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

MM4.1-16 *The developer must require by contract specifications that pre-painted construction materials be used to the extent feasible. Contract specifications must be included in the proposed project construction documents, which must be approved by the City of El Segundo before grading permits are issued.*

Construction activities under Option 2 would be similar to Option 1, including demolition, grading and excavation, building construction, paving, and architectural coating. Table 4.1-5 (Estimated Peak Daily Construction Emissions in Pounds per Day, Option 2) identifies daily emissions that are estimated to occur on peak construction days for each activity. As with Option 1, all dust control measures and mitigation are assumed in the calculations provided in Table 4.1-5 for Option 2.

Table 4.1-5 Estimated Daily Peak Construction Emissions in Pounds per Day, Option 2

Emissions Source	Peak Day Emissions in Pounds per Day					
	VOC	NO_X	CO	SO_X	PM_{10} [a]	$PM_{2.5}$ [a]
2012 (Demolition/Grading/Trenching)						
Maximum Daily Emissions	*6.22*	*46.97*	*26.25*	*0.05*	*6.13*	*2.69*
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	No	No	No	No	No	No
2013 (Trenching/Building Construction/Architectural Coatings/Paving)						
Maximum Daily Emissions	*124.33*	*27.83*	*19.85*	*0.03*	*2.52*	*2.40*
SCAQMD Thresholds	75.0	100.0	550.0	150.0	150.0	55.0
Significant Impact?	Yes	No	No	No	No	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).
Assumes the implementation of all mitigation measures

As shown in Table 4.1-5, the maximum daily emissions of VOCs during trenching/building construction/architectural coating/paving activities in 2013 would exceed the SCAQMD threshold, considered a significant impact. Implementation of mitigation measures MM4.1-1 to MM4.1-16 would reduce this impact, but not to a less-than-significant level. Therefore, this would be a ***significant and unavoidable*** impact.

Impact 4.1-3 **Operation of Option 1 or Option 2 of the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. This is considered a *less-than-significant* impact.**

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities in the proposed project area after build-out of either project option. Stationary area source emissions would be generated by space and water heating devices, and the operation of landscape maintenance equipment. Mobile emissions would be generated by the motor vehicles traveling to and from the project site.

The analysis of daily operational emissions from the proposed project was prepared utilizing the CalEEMod computer model recommended by the SCAQMD. The results of the CalEEMod calculations for the daily operational emissions of the proposed project are presented in Table 4.1-6 (Proposed Project Net Daily Operational Emissions, Option 1) and Table 4.1-7 (Proposed Project Net Daily Operational Emissions, Option 2) (refer to Appendix B for CalEEMod outputs). The emissions shown below in Table 4.1-6 and Table 4.1-7 reflect the net increase in emissions anticipated from implementation of Option 1 and Option 2 of the proposed project, respectively.

Table 4.1-6 Proposed Project Net Daily Operational Emissions, Option 1

Emissions Source	Emissions in Pounds per Day[a,b]					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Source	8.66	0.31	26.17	0.00	0.14	0.14
On-site Energy Use	0.13	1.09	0.46	0.01	0.09	0.09
Motor Vehicles	6.42	16.30	61.13	0.10	11.01	1.02
Maximum Daily Emissions	*15.21*	*17.70*	*87.76*	*0.11*	*11.24*	*1.25*
SCAQMD Thresholds (lb/day)	55.00	55.00	550.00	150.00	150.00	55.00
Significant Impact?	No	No	No	No	No	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

a. Assumes no natural gas fireplaces.

b. Assumes the worst-case scenario of the summer or winter modeling results.

Table 4.1-7 Proposed Project Net Daily Operational Emissions, Option 2

Emissions Source	Emissions in Pounds per Day[a,b]					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Source	5.38	0.06	4.99	0.00	0.03	0.03
On-site Energy Use	0.05	0.44	0.19	0.00	0.04	0.04
Motor Vehicles	2.37	6.21	23.36	0.04	4.10	0.38
Maximum Daily Emissions	*7.94*	*6.71*	*28.54*	*0.04*	*4.17*	*0.45*
SCAQMD Thresholds (lb/day)	55.00	55.00	550.00	150.00	150.00	55.00
Significant Impact?	No	No	No	No	No	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

a. Assumes no natural gas fireplaces.

b. Assumes the worst-case scenario of the summer or winter modeling results.

The existing plus project analysis represents the incremental change in emissions from the project compared to the sources currently occupying the project site. Table 4.1-8 (Existing Plus Project Net Daily Operational Emissions) summarizes the existing operational emissions, the estimated project operational emissions for Options 1 and 2 and the incremental increase in emissions from the project for Options 1 and 2. Because the existing site uses produce minimal emissions, implementation of either Option of the proposed project would result in a net increase in emissions for all pollutants.

For both Options 1 and 2, the daily operational emissions are below the SCAQMD thresholds for all criteria pollutants, therefore this impact is considered *less than significant*, and no mitigation is required.

Table 4.1-8 Existing Plus Project Net Daily Operational Emissions

Emissions Source	Emissions in Pounds per Day					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Operational Emissions	0.01	0.01	0.05	0.00	0.01	0.00
Project Operational Emissions (Option 1)	15.21	17.70	87.76	0.11	11.24	1.25
Project Operational Emissions (Option 2)	7.94	6.71	28.54	0.04	4.17	0.45
Project Increment (Option 1)	*15.20*	*17.69*	*87.71*	*0.11*	*11.23*	*1.25*
Project Increment (Option 2)	*7.93*	*6.10*	*28.49*	*0.04*	*4.16*	*0.45*

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

Threshold Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact 4.1-4 **Operation of Option 1 or Option 2 of the proposed project would increase local traffic volumes above existing conditions, but would not expose sensitive receptors to substantial carbon monoxide (CO) concentrations. This would be a *less-than-significant* impact.**

Project-generated traffic could contribute to decreased levels of service at nearby intersections, resulting in additional vehicle emissions and longer vehicle idling times at and near study area intersections. These circumstances could lead to CO hot spots that may affect adjacent sensitive receptors. CALINE4 was used to predict future CO concentrations at the intersection of Imperial Highway and Sepulveda Boulevard. This is the only intersection that is projected to operate at LOS D or worse during the opening year (2013) of the project under either Option 1 or Option 2 and has the highest potential CO concentrations due to vehicle idling. Table 4.1-9 (2013 Plus Project Localized Carbon Monoxide Concentrations, Option 1) summarizes the localized CO concentrations for opening year conditions for Option 1 of the proposed project.

Table 4.1-9 2013 Plus Project Localized Carbon Monoxide Concentrations, Option 1

Intersection	AM/PM	LOS	Peak Hour Volume	1-Hour Concentration (ppm)	8-Hour Concentration (ppm)	Significant?
State Standards	—	—	—	20	9	—
Imperial Highway at Sepulveda Blvd.	PM	E	8.796	6.8	2.0	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

Table 4.1-10 (2013 Plus Project Localized Carbon Monoxide Concentrations, Option 2) summarizes the localized CO concentrations for opening year conditions for Option 2 of the proposed project.

Table 4.1-10 2013 Plus Project Localized Carbon Monoxide Concentrations, Option 2

Intersection	*AM/PM*	*LOS*	*Peak Hour Volume*	*1-Hour Concentration (ppm)*	*8-Hour Concentration (ppm)*	*Significant?*
State Standards	—	—	—	20	9	—
Imperial Highway at Sepulveda Blvd.	PM	E	8,787	6.8	2.0	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

For both Options 1 and 2, the predicted localized CO levels are below the state standards for 1-hour and 8-hour concentrations, therefore this impact is considered *less than significant*, and no mitigation is required.

Threshold	Would the project create objectionable odors affecting a substantial number of people?

Impact 4.1-5 Implementation of Option 1 or Option 2 of the proposed project would not create objectionable odors affecting a substantial number of people. This would be a *less-than-significant* impact.

Objectionable odors are a localized phenomenon and are generally confined to the vicinity of the emitter of the odor. Construction activities do not usually emit offensive odors. Although construction activities occurring in association with the proposed project could generate airborne odors associated with the operation of construction vehicles (i.e., diesel exhaust) and the application of interior and exterior architectural coatings, these emissions would be temporary in nature, would generally be restricted to the immediate vicinity of the construction site and activity, and would not affect a substantial number of people. Compliance with applicable laws, including the El Segundo Municipal Code, that regulate maintenance and waste management practices, would reduce the potential for objectionable odors to occur during proposed project operations. In addition, both Options of the proposed project would be required to comply with SCAQMD Rule 402 with regards to odors. In general, operational activities associated with land uses similar to both Option 1 and Option 2 do not emit offensive odors and, as such, this impact is considered *less than significant*, and no mitigation is required.

4.1.4 Cumulative Impacts

Threshold	Would the project conflict with or obstruct implementation of the applicable air quality plan?

As discussed under Impact 4.1-1 above, growth considered to be inconsistent with the AQMP could interfere with attainment of federal or state ambient air quality standards because this growth is not included in the projections utilized in the formulation of the AQMP. Consequently, as long as growth in the Basin is within the projections for growth identified in the Growth Management chapter of the RCPG, implementation of the AQMP would not be obstructed by such growth. Should projections exceed the anticipated growth forecasts of the RCPG, impacts with respect to AQMP consistency would occur. However, as noted above, growth under the proposed project would be considered consistent

with SCAG's growth assumptions for the City of El Segundo and consistent with the RCPG (refer to Impact 4.1-1). Therefore, the project would also be considered consistent with the 2007 AQMP. The proposed project, with respect to potential conflicts with the AQMP, would not represent a cumulatively considerable contribution and the cumulative impact would be considered *less than significant*.

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

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the Basin is currently in nonattainment for ozone (for which VOC and NO_X are precursors) and PM_{10} under national and state standards, and is in nonattainment for CO under national standards, projects could cumulatively exceed an air quality standard or contribute to an existing or projected air quality exceedance. With regard to determining the significance of the proposed project contribution, the SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor provides separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts; that is, individual development projects that generate construction-related or operational emissions that exceed the SCAQMD-recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

As discussed previously under Impact 4.1-2, construction of the proposed project would exceed SCAQMD's recommended thresholds of significance and result in short-term air quality impacts. Accordingly, the impact of the proposed project is anticipated to be significant. Therefore, the emissions generated by construction of the proposed project would be cumulatively considerable and would constitute a substantial contribution to an existing or projected air quality violation. As described above under Impact 4.1-2, implementation of mitigation measures MM4.1-1 through MM4.1-16 would reduce these emissions, but not to a less-than-significant level.

As discussed previously under Impact 4.1-3, operation of the proposed project would not generate emissions that exceed the thresholds of significance recommended by the SCAQMD for any of the criteria pollutants.

Because the proposed project would exceed SCAQMD thresholds for the pollutants and precursors of ozone for which the Basin is in non-attainment, the proposed project would make cumulatively considerable contributions of these pollutants during construction of the proposed project. Because no feasible mitigation, beyond what is proposed for Impact 4.1-2 (above), is available to further reduce these contributions to levels below SCAQMD thresholds, this impact is considered to be ***cumulatively significant***.

For clarification, and as evidenced by the above analysis, this threshold essentially repeats the analysis provided under Impact 4.1-2 and Impact 4.1-3 above, and applies it to the cumulative condition, whereby any individual project that exceeds the SCAQMD recommended daily thresholds for project-

specific impacts is considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

Threshold	Would the project expose sensitive receptors to substantial pollutant concentrations?

Maximum build-out (2012) CO concentrations were calculated for the Imperial Highway at Sepulveda Boulevard intersection, as this was the only intersection within the proposed project's study area that would have a lower level of service (below LOS C), and the most daily traffic as determined from the traffic report prepared by Kimley-Horn and Associates, Inc. (Appendix E). As all other intersections are expected to operate at a better LOS, these other intersections would produce lower CO concentrations. The results of these calculations are presented in Table 4.1-11 (Future Localized Carbon Monoxide Concentrations, Option 1) and Table 4.1-12 (Future Localized Carbon Monoxide Concentrations, Option 2) for Options 1 and 2, respectively. Table 4.1-11 summarizes the localized CO concentrations for build-out conditions under Option 1 of the proposed project; Table 4.1-12 summarizes the localized CO concentrations for build-out conditions under Option 2 of the proposed project.

Table 4.1-11 Future Localized Carbon Monoxide Concentrations, Option 1

Intersection	*AM/PM*	*LOS*	*Peak Hour Volume*	*1-Hour Concentration (ppm)*	*8-Hour Concentration (ppm)*	*Significant?*
State Standards	—	—	—	20	9	—
Imperial Highway at Sepulveda Blvd.	PM	F	11,787	7.8	2.7	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

Table 4.1-12 Future Localized Carbon Monoxide Concentrations, (Option 2)

Intersection	*AM/PM*	*LOS*	*Peak Hour Volume*	*1-Hour Concentration (ppm)*	*8-Hour Concentration (ppm)*	*Significant?*
State Standards	—	—	—	20	9	—
Imperial Highway at Sepulveda Blvd.	PM	F	11,779	7.8	2.7	No

SOURCE: Atkins (2011) (calculation sheets are provided in Appendix B).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

As shown, no intersection would exceed national or state standards for 1-hour or 8-hour CO concentrations. Therefore, CO hotspots are not anticipated for build-out of either Option of the proposed project. This impact is considered *less than significant*, and no mitigation is required.

Threshold	Would the project create objectionable odors affecting a substantial number of people?

The relevant geographic area for odor impacts is the City, and related projects projected to be built include primarily residential, commercial, and office uses, and could include restaurants. Odors resulting from the construction of these projects are not likely to affect a substantial number of people, due to the

fact that construction activities do not usually emit offensive odors. As discussed under Impact 4.1-6, although construction activities occurring in association with the proposed project could generate airborne odors associated with the operation of construction vehicles (e.g., diesel exhaust) and the application of interior and exterior architectural coatings, these emissions would only occur during daytime hours, would generally be restricted to the immediate vicinity of the construction site and activity, and standard construction requirements would be imposed on the developers/applicants associated with these construction projects. Odors from construction activities would not affect a substantial number of people. The odor impacts resulting from residential and office projects are not expected to affect a substantial amount of people, as activities typically associated with these uses do not emit offensive odors, and solid waste from these projects would be stored in special areas and in containers. In addition, restaurants are typically required to have ventilation systems that prevent substantial adverse odor impacts. Any odors originating from industrial uses would not be created as part of the proposed project; thus, the project's contribution to the cumulative odor impact is not considerable. Because a less-than-significant cumulative impact would occur with respect to objectionable odors, and the proposed project would not result in objectionable odors that would affect a substantial number of people, the cumulative odor impact of the proposed project would also be ***less than significant***.

4.1.5 References

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