5.2 AIR QUALITY

This section of the Draft Environmental Impact Report (DEIR) evaluates the potential for the Crummer Site Subdivision project (proposed project) to impact air quality in a local and regional context. The air quality model output sheets are included in Appendix G of this DEIR.

5.2.1 Environmental Setting

South Coast Air Basin

The project site lies within the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (SCAQMD 2005).

Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the project site is the Santa Monica Pier Monitoring Station (ID No. 047953). The average low is reported at 49.2°F in January, and the average high is 72.1°F in August (WRCC 2013).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall averages 12.62 inches per year in the project area (WRCC 2013).

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 2005).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 2005).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (SCAQMD 2005).

Air Pollutants of Concern

Criteria Air Pollutants

Pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), volatile organic compounds (VOC), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are "criteria air pollutants," which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO_x) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

Carbon Monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (SCAQMD 2005). The SoCAB is designated under the California and National AAQS as being in attainment of CO criteria levels (CARB 2011).

Volatile Organic Compounds (VOC) are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of O_3, the South Coast Air Quality Management District (SCAQMD) has established a significance threshold for this pollutant (SCAQMD 2005).

Nitrogen Oxides (NO_x) are a byproduct of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_x are nitric oxide (NO) and nitrogen dioxide (NO_2). The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been

observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (SCAQMD 2005). The SoCAB is designated as an attainment area for NO_2 under the National AAQS and nonattainment under the California AAQS (CARB 2011).

Sulfur Dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2 (SCAQMD 2005). When sulfur dioxide forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. The SoCAB is designated as attainment under the California and National AAQS (CARB 2011).

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$) consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems (SCAQMD 2005).

The US Environmental Protection Agency's (EPA) scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to health effects and at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. Diesel particulate matter (DPM) is classified by the California Air Resources Board (CARB) as a carcinogen. The SoCAB is a nonattainment area for $PM_{2.5}$ and PM_{10} under California and National AAQS (CARB 2011).[1]

Ozone (O_3) is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_x, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Additionally, O_3 has been tied to crop damage, typically in the form of stunted growth and premature death. O_3 can also act as a corrosive, resulting in property damage such as the degradation of rubber products (SCAQMD 2005). The SoCAB is designated as extreme nonattainment under the California AAQS (1-hour and 8-hour) and National AAQS (8-hour) (CARB 2011).

[1] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. However, the EPA has not yet approved this request.

Lead (Pb) concentrations decades ago exceeded the state and federal AAQS by a wide margin, but have not exceeded state or federal air quality standards at any regular monitoring station since 1982 (SCAQMD 2005). However, in 2008 the EPA and CARB adopted more strict lead standards, and special monitoring sites immediately downwind of lead sources[2] recorded very localized violations of the new state and federal standards. As a result of these localized violations, the Los Angeles County portion of the SoCAB was designated in 2010 as nonattainment under the California and National AAQS for lead (CARB 2011). The project is not characteristic of industrial-type projects that have the potential to emit lead. Therefore, lead is not a pollutant of concern for the project.

Toxic Air Contaminants

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB 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 relatively few compounds, the most important being particulate matter from diesel-fueled engines.

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

[2] Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 identified that the Trojan Battery Company and Exide Technologies exceed the federal standards (SCAQMD 2010).

In 2000, SCAQMD conducted a study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,400 in a million. The largest contributor to this risk was diesel exhaust, accounting for 71 percent of the air toxics risk. In 2008, SCAQMD conducted its third update to its study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in one million. The largest contributor to this risk was diesel exhaust, accounting for approximately 84 percent of the air toxics risk (SCAQMD 2008).

Regulatory Framework

AAQS have been promulgated at the local, state, and federal levels for criteria pollutants. The project site is in the SoCAB and is subject to the rules and regulations imposed by SCAQMD as well as the California AAQS adopted by CARB and federal AAQS.

Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS, based on even greater health and welfare concerns.

These National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 5.2-1, these pollutants include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 5.2-1
Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.075 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm[2]	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm[1]	
	24 hours	0.04 ppm	0.014 ppm[2]	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	15 µg/m$^{3, 3}$	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	Monthly	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	*	1.5 µg/m^3	
	3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)	24 hours	25 µg/m^3	*	Industrial processes.
Visibility-Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles[1]	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.

Table 5.2-1
Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2012.
Notes: ppm: parts per million; µg/m3: micrograms per cubic meter
[1] When relative humidity is less than 70 percent.
[2] On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
[3] On December 14, 2012, EPA lowered the federal primary PM2.5 annual standard from 15.0 µg/m3 to 12.0 µg/m3. The new annual standard will become effective 60 days after publication in the Federal Register. EPA made no changes to the primary 24-hour PM2.5 standard or to the secondary PM2.5 standards.
* Standard has not been established for this pollutant/duration by this entity.

Air Quality Management Planning

SCAQMD is responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

2012 AQMP

On December 7, 2012, SCAQMD adopted the 2012 AQMP, which employs the most up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. It also addresses several state and federal planning requirements, incorporating new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and new meteorological air quality models. The 2012 AQMP builds upon the approach identified in the 2007 AQMP for attainment of federal PM and ozone standards and highlights the significant amount of reductions needed and the urgent need to engage in interagency coordinated planning to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria air pollutant standards within the timeframes allowed under the CAA. The 2012 AQMP demonstrates attainment of federal 24-hour $PM_{2.5}$ standard by 2014 and the federal 8-hour ozone standard by 2023. It includes an update to the revised EPA 8-hour ozone control plan with new commitments for short-term NO_X and VOC reductions. The plan also identifies emerging issues of ultrafine ($PM_{1.0}$) particulate matter and near-roadway exposure, and an analysis of energy supply and demand.

Lead State Implementation Plan

In 2008 EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The remainder of the SoCAB, outside the Los Angeles County nonattainment area, remain in attainment of the new standard. On May 24, 2012, CARB approved the SIP revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

Nonattainment Areas

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the SIP. Areas are classified attainment or nonattainment for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range from marginal, moderate, and serious to severe and extreme.

Transportation conformity for nonattainment and maintenance areas is required under the federal CAA to ensure federally supported highway and transit projects conform to the SIP. The EPA approved California's SIP revisions for attainment of the 1997 8-hour O_3 National AAQS for the SoCAB in March 2012. Findings for the new 8-hour O_3 emissions budgets for the SoCAB and consistency with the recently adopted 2012 RTP/SCS were submitted to the EPA for approval.

The attainment status for the SoCAB is shown in Table 5.2-2. The SoCAB is designated in attainment of the California AAQS for sulfates. The SoCAB will have to meet the new federal 8-hour O_3 standard by 2023, and the federal 24-hour $PM_{2.5}$ standards by 2014 (with the possibility of up to a five-year extension to 2019, if needed). SCAQMD has recently designated the SoCAB nonattainment for NO_2 (entire basin) and lead (Los Angeles County only) under the California AAQS.

Table 5.2-2
Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Severe-17 Nonattainment[1]
PM_{10}	Serious Nonattainment	Nonattainment[2]
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment
NO_2	Nonattainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Nonattainment (Los Angeles County only)[3]	Nonattainment (Los Angeles County only)[3]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2011.
[1] SCAQMD may petition for Extreme Nonattainment designation.
[2] Annual standard revoked September 2006. CARB approved SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the National AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards from 2004 to 2007. However, the EPA has not yet approved this request.
[3] The Los Angeles portion of the SoCAB was designated nonattainment for lead under the new federal and existing state AAQS as a result of large industrial emitters. Remaining areas within the SoCAB are unclassified.

Existing Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the proposed project, are best documented by measurements taken by the SCAQMD. The proposed project is located within Source Receptor Area (SRA) 2 – Coastal (Northwest Los Angeles County Coastal). The SCAQMD air quality monitoring station in SRA 2 located closest to the project site is the Los Angeles – VA Hospital Monitoring Station located at Wilshire Boulevard & Sawtelle in the City of Los Angeles. The Los Angeles – VA Hospital Station monitors O_3, NO_2, and CO. As this monitoring station does not monitor SO_2, PM_{10}, and $PM_{2.5}$, data was supplemented from the Los Angeles – Westchester Parkway Monitoring Station located at 7201 West Westchester Parkway in the City of Los Angeles and

South Long Beach Monitoring Station at 1305 E. Pacific Coast Highway in the City of Long Beach for these criteria pollutants. The most current five years of data monitored at this monitoring station is included in Table 5.2-3.

Table 5.2-3
Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2007	2008	2009	2010	2011
Ozone (O_3)[1]					
State 1-Hour ≥ 0.09 ppm	2	3	6	2	2
State 8-hour ≥ 0.07 ppm	2	8	5	3	0
Federal 8-Hour > 0.075 ppm	2	2	3	1	0
Max. 1-Hour Conc. (ppm)	0.117	0.111	0.131	0.099	0.098
Max. 8-Hour Conc. (ppm)	0.087	0.096	0.094	0.078	0.068
Carbon Monoxide (CO)[1]					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.0 ppm	0	0	0	0	0
Max. 8-Hour Conc. (ppm)	1.96	1.76	1.51	1.44	1.57
Nitrogen Dioxide (NO_2)[1]					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.082	0.090	0.077	0.071	0.081
Sulfur Dioxide (SO_2)[2]					
State 1-Hour ≥ 0.04 ppm	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.009	0.004	0.006	0.004	0.002
Coarse Particulates (PM_{10})[2]					
State 24-Hour > 50 µg/m^3	3	0	1	0	0
Federal 24-Hour > 150 µg/m^3	0	0	0	0	0
Max. 24-Hour Conc. (µg/m^3)	128.0	50.0	52.0	37.0	41.0
Fine Particulates ($PM_{2.5}$)[3]					
Federal 24-Hour > 35 µg/m^3	6	7	4	0	3
Max. 24-Hour Conc. (µg/m^3)	67.9	60.9	55.8	33.7	42.0

Source: CARB 2012
Notes:
ppm: parts per million; µg/m^3: or micrograms per cubic meter; NS: No Standard.
[1] Data obtained from the West Los Angeles–VA Hospital Monitoring Station in the City of Los Angeles.
[2] Data obtained from the Los Angeles – Westchester Parkway Monitoring Site in the City of Los Angeles.
[5] Data obtained from the South Long Beach Monitoring Station in the City of Long Beach.

The data show recurring violations of both the state and federal ozone standards. The data also indicate that the area regularly exceeds the state PM_{10} and have exceeded the federal $PM_{2.5}$ standards. The CO, SO_2, and NO_2 standards have not been violated in the last five years at this station.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Existing and proposed industrial, commercial, retail, and office areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest sensitive receptors are the residential homes south of the project site and the adjacent Malibu Bluffs Park to the west. These sensitive receptors are evaluated based on their expected exposure periods to air pollutants.

5.2.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.

AQ-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

AQ-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

AQ-4 Expose sensitive receptors to substantial pollutant concentrations.

AQ-5 Create objectionable odors affecting a substantial number of people.

The 2012 Initial Study, included as Appendix C, substantiates that impacts associated with the following thresholds would be less than significant:

- Threshold AQ-5

This impact will not be addressed in the following analysis.

South Coast Air Quality Management District Thresholds

The analysis of the proposed project's air quality impacts follows the guidance and methodologies recommended in SCAQMD's *CEQA Air Quality Handbook* and the significance thresholds on SCAQMD's website.[3] CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. SCAQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed though an analysis of localized CO impacts and localized significance thresholds (LSTs).

[3] SCAQMD's Air Quality Significance Thresholds are current as of March 2011 and can be found at: http://www.aqmd.gov/ceqa/hdbk.html.

Regional Significance Thresholds

SCAQMD has adopted regional construction and operational emissions thresholds to determine a project's cumulative impact on air quality in the SoCAB. Table 5.2-4 lists SCAQMD's regional significance thresholds.

Table 5.2-4
SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Nitrogen Oxides (NO_X)	100 lbs/day	55 lbs/day
Sulfur Oxides (SO_X)	150 lbs/day	150 lbs/day
Particulates (PM_{10})	150 lbs/day	150 lbs/day
Particulates ($PM_{2.5}$)	55 lbs/day	55 lbs/day

Source: SCAQMD 2011.

CO Hotspots

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. Typically, for an intersection to exhibit a significant CO concentration, it would operate at level of service (LOS) E or worse without improvements (Caltrans 1997).

Localized Significance Thresholds

SCAQMD developed LSTs to determine if emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at the project site (offsite mobile-source emissions are not included the LST analysis) would expose sensitive receptors to substantial concentrations of criteria air pollutants. LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5.2-5.

Table 5.2-5
SCAQMD Localized Significance Thresholds

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO_2 Standard (CAAQS)	0.18 ppm
24-Hour PM_{10} Standard – Construction (SCAQMD)[1]	10.4 µg/m^3
24-Hour $PM_{2.5}$ Standard – Construction (SCAQMD)[1]	10.4 µg/m^3
24-Hour PM_{10} Standard – Operation (SCAQMD)[1]	2.5 µg/m^3
24-Hour $PM_{2.5}$ Standard – Operation (SCAQMD)[1]	2.5 µg/m^3

ppm – parts per million; µg/m3 – micrograms per cubic meter
1 Threshold is based on SCAQMD Rule 403. Since the SoCAB is in nonattainment for PM10 and PM2.5, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, SCAQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5.2-6. LSTs are based on the ambient concentrations of that pollutant within the project SRA and the distance to the nearest sensitive receptor. Screening-level LST analyses for construction are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.2-5.

Table 5.2-6
SCAQMD Construction Screening-Level Localized Significance Thresholds

Air Pollutant	Threshold (lbs/day) Construction
Nitrogen Oxides (NO_x)	191
Carbon Monoxide (CO)	1,601
Coarse Particulates (PM_{10})	26
Fine Particulates ($PM_{2.5}$)	6.51

Source: SCAQMD 2003; SCAQMD 2006, for receptors 140 feet (43 meters) from the source in SRA 2. Construction LSTs are based on 4.0 acres disturbed per day.

In accordance with SCAQMD's LST methodology, screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. Based on the anticipated equipment use, construction activities would disturb approximately four acres per day. Therefore, the four-acre LSTs are the screening thresholds for construction of the proposed project for either phase. The construction screening-level LSTs in SRA 2 are shown in Table 5.2-6 for sensitive receptors at 140 feet (43 meters).

The five-acre LSTs are applicable for project operation. However, because the project is not an industrial project that has the potential to emit substantial sources of stationary emissions, operational LSTs are not an air quality impact of concern associated with the project.

Health Risk Thresholds

Whenever a project would require use of chemical compounds that have been identified in SCAQMD Rule 1401, placed on CARB's air toxics list pursuant to AB 1807, or placed on the EPA's National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the SCAQMD. Table 5.2-8 lists the SCAQMD's TAC incremental risk thresholds for operation of a project. Residential, commercial, and office uses do not use substantial quantities of TACs, and these thresholds are typically applied for new industrial projects. Although not officially adopted by SCAQMD, these thresholds are also commonly used to determine air quality land use compatibility of a project with major sources of TACs within 1,000 feet of a proposed project. The proposed project is a type of land use that would not result in the creation of new sources of TACs. Consequently, the thresholds shown below are not applicable for the proposed project.

Table 5.2-7
SCAQMD Toxic Air Contaminants Incremental Risk Thresholds

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0

Source: SCAQMD 2011.

5.2.3 Environmental Impacts

This air quality evaluation was prepared in accordance with the requirements of CEQA to determine if significant air quality impacts are likely to occur in conjunction with the type and scale of development associated with the Crummer Site Subdivision project. SCAQMD has published the *CEQA Air Quality* Handbook (Handbook) with updates on its Web site that are intended to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports and was used extensively in the preparation of this analysis.

SCAQMD has published two additional guidance documents—"Localized Significance Threshold Methodology for CEQA Evaluations" (2003) and "Particulate Matter (PM) 2.5 Significance Thresholds and Calculation Methodology" (2006)—that are intended to provide guidance in evaluating localized effects from emissions during construction. These documents were used to prepare this analysis, as was the California Emissions Estimator Model (CalEEMod), Version 2011.1.1, for determination of daily construction and operational emissions, and guidance in the SCAQMD Final Localized Significance Threshold Methodology for localized construction impacts. Construction emissions are based on the construction schedule and equipment mix provided by the applicant. Where specific information regarding project-related construction fleet mix was not available, construction assumptions were based on CalEEMod defaults (see Appendix G). SCAQMD's default construction equipment mix is based on surveys conducted by SCAQMD of construction sites. Operational emissions impacts are based on the trip generation rate provided by Arch Beach Consulting in order to estimate maximum daily criteria air pollutant emissions generated from operation of the project.

The following impact analysis addresses thresholds of significance for which the 2012 Initial Study disclosed potentially significant impacts. The applicable thresholds are identified in brackets after the impact statement.

Impact 5.2-1:	The proposed project is consistent with the applicable Air Quality Management Plan. [Threshold AQ-1]

Impact Analysis: A consistency determination with the AQMP plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental efforts of the project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the AQMP.

The regional emissions inventory for the SoCAB is compiled by SCAQMD and SCAG. Regional population, housing, and employment projections developed by SCAG are based, in part, on the city's general plan land use designations. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into the Regional Transportation Plan (RTP)/ Sustainable Communities Strategy (SCS), compiled by SCAG to determine priority transportation projects and vehicle miles traveled (VMT) within the SCAG region. The AQMP strategy is based on projections from local general plans. Projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan. The project is consistent with the City of Malibu General Plan. Furthermore, long-term criteria air pollutants generated by the five estate homes would not exceed the SCAQMD's significance thresholds. These thresholds are established to identify projects that have the potential to generate a substantial amount of criteria air pollutants. Because the proposed project would not exceed these thresholds, the project would not be considered by the SCAQMD to be a substantial emitter of criteria air pollutants. Therefore, the proposed project would be not conflict with or obstruct implementation of SCAQMD's 2012 AQMP.

Impact 5.2-2:	Construction activities associated with the proposed project would generate short-term emissions in exceedance of SCAQMD'S threshold criteria for NO_x and would therefore contribute to the ozone (o_3) and particulate matter (PM_{10} and $PM_{2.5}$) nonattainment designations of the SoCAB. [Thresholds AQ-2 and AQ-3]

Impact Analysis: Construction activities produce combustion emissions from various sources, such as on-site heavy-duty construction vehicles, vehicles hauling materials to and from the site, and motor vehicles transporting the construction crew. Grading activities produce fugitive dust emissions (PM_{10} and $PM_{2.5}$) from soil-disturbing activities. Exhaust emissions from construction activities on-site would vary daily as construction activity levels change.

Construction activities associated with new development occurring in the project area would temporarily increase localized PM_{10}, $PM_{2.5}$, VOC, NO_X, SO_X, and CO concentrations in the project vicinity and regional emissions within the SoCAB. The primary source of construction-related CO, SO_X, VOC, and NO_X emissions is gasoline- and diesel-powered, heavy-duty mobile construction equipment. Primary sources of PM_{10} and $PM_{2.5}$ emissions would be clearing and demolition activities, excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth surfaces.

Construction modeling is based on a detailed construction schedule and equipment list provided by the applicant. For purposes of this analysis, construction activities would commence in March of 2014 and buildout of the project would be completed in 2017. Grading activities would last approximately 1.5 months. It is anticipated that grading would require a total of 24,511 cubic yards of soil export and 11,658 cubic yards of soil import[4], based on the development footprint of 5 one-story single family homes with skate park development option, which is the most conservative Installation of the water main would occur concurrently with site grading activities. Building pads and construction of the internal roadway would occur after site grading. Construction of the skate park or baseball field may overlap with grading activities. Modeling is based on construction of a skate park to generate a worst case construction scenario. Construction of the skate park would take approximately four months while installation of the ball field would take approximately four days. The ball field would include infield installation (e.g., bases, pitching mound, backstop, etc…) and laying of sod for the field. Construction of the skate park would require more extensive activities as it would include installation of storm drainage, reinforcing steel, pour-in-place concrete, shotcrete, and fabricated metal edging. Construction of the homes would commence after completion of grading and trenching activities. The homes would be built in a staggered phasing. Development of Lots 1 and 2 would occur simultaneously followed by Lots 3 and 4 approximately 90 days after. Development of Lot 5 would commence 180 days after the start of Lots 1 and 2. Each of the building development phases would last approximately 19 months. Project-related construction emissions are shown in Table 5.2-8. The emissions shown in the table represents the worst-case scenario due to the amount of hauling amount required and the associated hauling activities in grading the entire site at once, including from the overlap of construction activities based on the intensity of the construction required.

[4] To capture emissions associated with total earth movement onsite, the air quality analysis assumes offsite to onsite, and onsite to offsite haul trips for soil import and export, on a lot by lot basis for the 5 one-story homes on Lots 1 through 6 and Skate Park on Lot 7 development option. Therefore, this is the most conservative approach capturing the impacts of the worst case scenario. Because export quantities exceed import quantities, soil would actually be distributed among the lots onsite eliminating the need for offsite soil import.

Table 5.2-8
Maximum Daily Construction Regional Emissions (in pounds per day)

Construction Phase	Pollutants[1,2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2014						
Grading (Site)	5	36	21	<1	8	5
Grading Site Haul 1[3]	10	96	54	<1	8	5
Grading Site Haul 2[3,4]	10	96	54	<1	9	5
District 29 Water Main Installation	2	15	11	<1	1	1
District 29 Water Main Haul	<1	<1	<1	0	<1	<1
Home Pad Installation	2	7	6	<1	1	1
Road Hogging	1	5	4	<1	1	<1
Road Base Installation	5	29	17	<1	2	1
Road Grading	1	6	5	<1	1	<1
Road Paving	2	11	8	<1	1	1
Trenching (Site)	2	11	10	<1	1	1
Backfill/Fine Grading	3	20	19	<1	2	1
Piling Installation	1	6	4	<1	<1	<1
Skate Park Installation	1	7	6	<1	1	<1
Demolition (Maintenance Shed)	<1	3	3	0	<1	<1
Building Shell Lots 1 and 2	3	19	14	<1	1	1
Year 2015						
Skate Park Installation	1	7	5	<1	1	<1
Building Shell Lots 1 and 2	2	18	14	<1	1	1
Building Shells Lots 3 and 4	2	18	14	<1	1	1
Building Shell Lot 5	2	12	10	<1	1	1
Finishing Homes – Lots 1 and 2	1	5	5	<1	<1	<1
Finishing Homes – Lots 3 and 4	1	4	4	<1	<1	<1
Finishing Home – Lot 5	<1	3	3	<1	<1	<1
Year 2016						
Finishing Homes – Lots 1 and 2	1	5	5	<1	<1	<1
Finishing Homes – Lots 3 and 4	<1	4	4	<1	<1	<1
Finishing Home – Lot 5	<1	3	3	<1	<1	<1
Architectural Coating – Lots 1 and 2	2	2	2	0	<1	<1
Architectural Coating – Lots 3 and 4	2	2	2	0	<1	<1
Architectural Coating – Lot 5	1	2	2	0	<1	<1
Year 2017						
Finishing Home – Lot 5	<1	3	3	<1	<1	<1
Architectural Coating	1	2	2	0	<1	<1
Finish Common Area	<1	3	3	0	<1	<1
Paving	1	2	2	0	<1	<1
Maximum Daily Emissions	16[5]	148[5]	86[5]	<1[5]	18[6]	10[5]
SCAQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	Yes	No	No	No	No

Source: CalEEMod, Version 2011.1.1.
Notes: Totals may not total to 100 percent due to rounding.
[1] Construction phasing is based on the preliminary information provided by the Applicant and the haul amounts are based on the development of the 5 one-story single family homes with the skate park scenario. Where specific information regarding project-related construction activities was not available, construction assumptions

Table 5.2-8
Maximum Daily Construction Regional Emissions (in pounds per day)

Construction Phase	Pollutants[1,2]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$

were based on CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.
[2] PM_{10} and $PM_{2.5}$ fugitive dust emissions assume application of Rule 403, which includes watering exposed surfaces at least two times daily, managing haul road dust by watering two times daily, street sweeping, and restricting speeds onsite to 15 miles per hour.
[3] Represents emissions from haul of the soil produced from grading activities.
[4] For purposes of this analysis, this additional phase was included based on the information provided by the Applicant that one day out of the anticipated 35 days for soil hauling would result in a lesser haul amount than the other 34 days.
[5] Maximum daily emissions are based on the overlap of the Grading (Site), Grading Site Haul 1, Water Main Installation, and Water Main Haul phases.
[6] Maximum daily emissions are based on the overlap of the Grading (Site), Grading Site Haul 2, and Water Main Installation phases.

As shown in the table, construction activities would exceed the SCAQMD regional construction threshold for NO_X. The primary source of NO_X emissions would be from both off- and on-road construction equipment exhaust. NO_X is a precursor to both the formation of ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$). Consequently, emissions of NO_X that exceed the SCAQMD regional significance thresholds would significantly contribute to the ozone and particulate matter nonattainment designations of the SoCAB. Therefore, impacts to the regional air quality from construction-related air pollutant emissions would be potentially significant.

Impact 5.2-3: **Long-term operation of the project would not generate vehicle trips and associated emissions in exceedance of SCAQMD's Regional threshold criteria. [Thresholds AQ-2 and AQ-3]**

Impact Analysis: Long-term air emission impacts are those associated with changes in stationary and mobile sources related to the proposed project. The following analysis describes regional air quality impacts from full buildout of the Crummer Site Subdivision project.

Mobile- and stationary-source emissions generated by the project were compiled using CalEEMod to estimate project-related increases in air pollutant emissions. Project-related vehicle trips were obtained from the traffic impact analysis conducted by Arch Beach Consulting (December 2012). According to the traffic study, the highest number of trips the project would generate would occur on the weekends when the baseball field is in use. The project would generate 970 average daily trips (ADT) on the weekends. Approximately 50 trips would be generated by the five residential homes and 920 trips would be generated by the baseball field component of the proposed project. The skate park would generate approximately 60 ADTs. Development of the project with the baseball field would represent the worst-case scenario because it would yield a higher trip generation compared to the proposed project with the skate park option. Consequently, modeling of project-related criteria air pollutants is based on operation of the baseball field.

Project operation-related emissions are shown in Table 5.2-9, and model runs are included in Appendix G. As shown in this table, operational emissions would not exceed the SCAQMD's thresholds. Therefore, criteria air pollutant emissions generated by the proposed project would not cumulatively contribute to nonattainment designations of the SoCAB.

Table 5.2-9
Regional Operational Emissions (in pounds per day)

Source	Pollutants (lb/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Summer						
Area	1	0	<1	0	<1	<1
Energy	<1	<1	<1	0	0	0
Mobile	4	3	37	<1	10	<1
Total Emissions	5	3	38	<1	10	1
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Regional Threshold?	No	No	No	No	No	No
Winter						
Area	1	0	<1	0	<1	<1
Energy	<1	<1	<1	0	0	0
Mobile	4	4	36	<1	10	1
Total Emissions	5	4	36	<1	10	1
SCAQMD Regional Threshold	55	55	550	150	150	55
Exceeds Regional Threshold?	No	No	No	No	No	No

Source: CalEEMod Version 2011.1.1.
Note: Totals may not total to 100 percent due to rounding.

Impact 5.2-4: Construction of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]

Impact Analysis: The proposed project could expose sensitive receptors to elevated pollutant concentrations during construction activities if it would cause or contribute significantly to elevated levels. Unlike the mass of construction emissions shown in the regional emissions analysis in Table 5.2-8, described in pounds per day, localized concentrations refer to an amount of pollutant in a volume of air (ppm or $\mu g/m^3$) and can be correlated to potential health effects. Health risk assessment is based on risk accumulated over a 70-year lifetime. Given the relatively short-term construction schedule for activities (0.5 year compared to 70 years), the proposed project would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. Based on this, SCAQMD does not require a risk assessment for short-term emissions generated by diesel exhaust from construction equipment. Therefore, project-related diesel particulate matter impacts during construction would not be significant.

LSTs are the amount of project-related emissions (lbs/day) at which localized concentrations (ppm or $\mu g/m^3$) could exceed the ambient air quality standards for criteria air pollutants for which the SoCAB is designated nonattainment. LSTs are based on the size of the project site and distance to the nearest sensitive receptor. Thresholds are based on the California AAQS, which are the most stringent AAQS, established to provide a margin of safety in the protection of the public health and welfare. They are designed to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise.

Localized Construction Analysis

Onsite construction emissions generated are shown in Table 5.2-10. As shown in the table, maximum daily construction emissions would not exceed the SCAQMD LSTs for NO_X, CO, PM_{10}, and $PM_{2.5}$. Therefore, construction emissions would not exceed the CAAQS and the project construction would not expose sensitive receptors to substantial pollutant concentrations. Localized air quality impacts from construction activities would be less than significant.

Table 5.2-10
Regional Construction Emissions Compared to SCAQMD's Screening-Level LSTs

Source	Pollutants (lb/day)[1,2]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Year 2014				
Grading (Site)	37	20	7	5
Grading Site Haul 1[3]	0	0	<1	<1
Grading Site Haul 2[3,4]	0	0	<1	<1
District 29 Water Main Installation	15	10	1	1
District 29 Water Main Haul	0	0	0	0
Home Pad Installation	7	5	1	1
Road Hogging	4	4	<1	<1
Road Base Installation	23	13	1	1
Road Grading	6	4	1	<1
Road Paving	10	7	1	1
Trenching (Site)	<1	1	<1	<1
Backfill/Fine Grading	13	10	1	1
Piling Installation	6	3	<1	<1
Skate Park Installation	7	4	<1	<1
Demolition (Maintenance Shed)	2	2	<1	<1
Building Shell Lots 1 and 2	18	13	1	1
Year 2015				
Skate Park Installation	6	4	<1	<1
Building Shell Lots 1 and 2	17	13	1	1
Building Shells Lots 3 and 4	17	13	1	1
Building Shell Lot 5	11	9	1	1
Finishing Homes – Lots 1 and 2	5	4	<1	<1
Finishing Homes – Lots 3 and 4	3	3	<1	<1
Finishing Home – Lot 5	3	3	<1	<1
Year 2016				
Finishing Homes – Lots 1 and 2	4	4	<1	<1
Finishing Homes – Lots 3 and 4	3	3	<1	<1
Finishing Home – Lot 5	3	3	<1	<1
Architectural Coating – Lots 1 and 2	2	2	<1	<1
Architectural Coating – Lots 3 and 4	2	2	<1	<1
Architectural Coating – Lot 5	2	2	<1	<1

Table 5.2-10
Regional Construction Emissions Compared to SCAQMD's Screening-Level LSTs

Source	Pollutants (lb/day)[1,2]			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Year 2017				
Finishing Home – Lot 5	3	3	<1	<1
Architectural Coating – Lot 5	2	2	<1	<1
Finish Common Area	2	3	<1	<1
Paving	2	3	<1	<1
Overall Maximum Daily Emissions[5]	50	30	8	5.67
SCAQMD Threshold	196	1,296	26	6.51
Exceeds Threshold?	No	No	No	No

Source: CalEEMod Version 2011.1.1., and SCAQMD, Localized Significance Methodology, 2006, October, Appendix A. Construction PM_{10}, and $PM_{2.5}$ LSTs are based on 4.0 acres disturbed per day with receptors (southern residences) at 140 feet (43 meters). Construction NO_X andCO LSTs are based on 4.0 acres disturbed per day with receptors (existing baseball field) at 82 feet (25 meters). In accordance with SCAQMD methodology, only on-site stationary sources and mobile equipment occurring on the project site are included in the analysis. Use of the existing fields by a receptor would be intermittent and relatively short in duration. Furthermore, the majority of events (i.e., games) would be held during the weekends and therefore would not coincide with construction activities which would only occur during the weekdays.

Notes: Totals may not total to 100 percent due to rounding.

[1] Air quality modeling based on a construction schedule and equipment provided by the Applicant and the haul amounts are based on the development of the 5 single-family homes with the skate park scenario. Where specific construction information was not available, construction assumptions were based on CalEEMod defaults.

[2] Includes implementation of fugitive dust control measures required by SCAQMD under Rule 403, including watering disturbed areas a minimum of two times per day, reducing speed limit to 15 miles per hour on unpaved surfaces, replacing ground cover quickly, and street sweeping with Rule 1186-compliant sweepers.

[3] Represents emissions from haul of the soil produced from grading activities.

[4] For purposes of this analysis, this additional phase was included based on the information provided by the Applicant that one day out of the anticipated 35 days for soil hauling would result in a lesser haul amount than the other 34 days.

[5] Maximum daily emissions are based on the overlap of the Grading (Site), Grading Site Haul 1, Water Main Installation, and Water Main Haul phases.

Impact 5.2-5: Operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]

Impact Analysis: Operation of the proposed project would not generate substantial quantities of emission from onsite, stationary sources. Land uses that have the potential to generate substantial stationary sources of emissions that would require a permit from SCAQMD include industrial land uses, such as chemical processing, and warehousing operations where substantial truck idling could occur onsite. The proposed project would require occasional use of landscaping equipment for either field and/or landscaping maintenance. Air pollutant emissions generated from these activities are nominal, and no significant impact would occur.

CO Hotspot Analysis

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. At the time of the 1993 Handbook, the SoCAB was designated nonattainment under the California AAQS and National AAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined. In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hot spot analysis conducted for the attainment by SCAQMD for busiest intersections in Los Angeles during the peak morning and

afternoon periods plan did not predict a violation of CO standards. [5] As identified in SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection.

Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2011). The proposed project would not produce the volume of traffic required to generate a CO hotspot. The highest number of trips generated would be 970 average daily trips with a high of 97 peak hour trips during the Saturday midday peak hour. Therefore, CO hotspots are not an environmental impact of concern for the proposed project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

Impact 5.2-6:	Proximity to the Pacific Coast Highway would not expose sensitive receptors to substantial pollutant concentrations. [Threshold AQ-4]

Impact Analysis: Recent air pollution studies have shown an association between proximity to major air pollution sources and a variety of health effects, which are attributed to a high concentration of air pollutants. Because sensitive land uses are outside CARB jurisdiction, CARB established the Air Quality and Land Use Handbook: A Community Health Perspective in May 2005 to address the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities (CARB 2005). This guidance document was developed as a tool for assessing compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

CARB's recommendations on the siting of new sensitive land uses were developed from a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that close proximity to air pollution sources substantially increases exposure and the potential for adverse health effects relative to the existing background concentrations in the air basin. However, the impact of air pollution from these sources is on a gradient that at some point becomes indistinguishable from the regional air pollution problem. Guidance from CARB and the California Air Pollutant Control Officer's Association (CAPCOA) recommends the evaluation of vehicle-generated emissions when freeways with daily volumes of 100,000 vehicles or more per day are within 500 feet of sensitive land uses (CARB 2005); CAPCOA 2009).

The project site abuts the Pacific Coast Highway. According to Caltrans, Pacific Coast Highway, east of Malibu Canyon road had traffic volumes of 36,500 average annual daily trips (AADT) in 2011 (Caltrans 2012). Because traffic volumes on Pacific Coast Highway are substantially lower than 100,000 vehicles per day, placement of residential uses proximate to the highway would not expose sensitive receptors to substantial air pollutant concentrations.

[5] The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

5.2.4 Cumulative Impacts

In accordance with SCAQMD's methodology, any project that produces a significant project-level regional air quality impact in an area that is in nonattainment contributes to the cumulative impact. Cumulative projects within the local area include new development and general growth within the project area. The greatest source of emissions within the SoCAB is mobile sources. Due to the extent of the area potentially impacted from cumulative project emissions (i.e., the SoCAB), SCAQMD considers a project cumulatively significant when project-related emissions exceed the SCAQMD regional emissions thresholds shown in Table 5.2-4. No significant cumulative impacts were identified with regard to CO hotspots.

Construction

The SoCAB is designated nonattainment for O_3, $PM_{2.5}$, PM_{10}, and lead (Los Angeles County only) under the California and National AAQS and nonattainment for NO_2 under the California AAQS.[6] Construction of cumulative projects will further degrade the regional and local air quality. Air quality will be temporarily impacted during construction activities. However, with implementation of Mitigation Measure 2-1, construction emissions associated with the proposed project would not exceed the SCAQMD's regional construction emissions thresholds. Therefore, the project's contribution to cumulative air quality impacts would be less than cumulatively considerable and would be less than significant.

Operation

For operational air quality emissions, any project that does not exceed or can be mitigated to less than the daily regional threshold values is not considered by the SCAQMD to be a substantial source of air pollution and does not add significantly to a cumulative impact. Operation of the project would not result in emissions in excess of the SCAQMD regional emissions thresholds for long-term operation for VOC, NO_x, CO, SO_X, PM_{10}, and $PM_{2.5}$. Therefore, the project's contribution to cumulative air quality impacts would be less than significant.

5.2.5 Existing Regulations and Standard Conditions

- SCAQMD Rule 201: Permit to Construct
- SCAQMD Rule 402: Nuisance Odors
- SCAQMD Rule 403: Fugitive Dust
- SCAQMD Rule 1113: Architectural Coatings
- SCAQMD Rule 1403: Asbestos Emissions from Demolition/Renovation Activities
- SCAQMD Rule 1186: Street Sweeping
- CARB Rule 2480 (13 CCR 2480): Airborne Toxics Control Measure to Limit School Bus Idling and Idling at Schools: limits nonessential idling for commercial trucks and school buses within 100 feet of a school.

[6] CARB approved the SCAQMD's request to redesignate the SoCAB from serious nonattainment for PM_{10} to attainment for PM_{10} under the national AAQS on March 25, 2010, because the SoCAB has not violated federal 24-hour PM_{10} standards during the period from 2004 to 2007. However, the EPA has not yet approved this request.

- CARB Rule 2485(13 CCR 2485): Airborne Toxic Control Measure to Limit Diesel-Fuel Commercial Vehicle Idling: limits nonessential idling to five minutes or less for commercial trucks.
- CARB Rule 2449(13 CCR 2449): In-Use Off-Road Diesel Idling Restricts: limits nonessential idling to five minutes or less for diesel-powered off-road equipment.
- Building Energy Efficiency Standards (Title 24)
- Appliance Energy Efficiency Standards (Title 20)
- Motor Vehicle Standards (AB 1493)

5.2.6 Level of Significance Before Mitigation

Upon implementation of regulatory requirements and standard conditions of approval, the following impacts would be less than significant: 5.2-1, 5.2-3, 5.2-4, 5.2-5, and 5.2-6.

Without mitigation, the following impact would be **potentially significant**:

- Impact 5.2-2 Construction activities associated with the proposed project would generate short-term emissions in exceedance of SCAQMD'S threshold criteria for NO_X and would therefore contribute to the ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$) nonattainment designations of the SoCAB.

5.2.7 Mitigation Measures

Impact 5.2-2

Exhaust Emissions

2-1 The construction contractor shall implement the following measures to reduce construction exhaust emissions during grading and construction activities:

- The construction contractor shall ensure that all construction equipment is properly serviced and maintained to the manufacturer's standards to reduce operational emissions.
- The construction contractor shall limit nonessential idling of construction equipment to no more than five consecutive minutes.
- Where feasible, use haul trucks with engines that are 2010 or newer for soil import and export activities.
- The construction contractor shall limit soil hauling activities associated with the site grading phase to a maximum of 38 trucks per day (76 one-way soil haul trips per day for haul trips).
- The construction contractor shall use USEPA-rated Tier 3 construction engines for equipment rated at 50 horsepower or greater for general site grading activities. Tier 3 engines between 90 and 750 horsepower are available for 2006 to 2008 model years.

- A list of construction equipment by type and model year shall be maintained by the construction contractor onsite.

These requirements shall be noted on all construction management plans and verified by the City of Malibu during site grading activities.

5.2.8 Level of Significance After Mitigation

Impact 5.2-2

Mitigation Measure 2-1 caps the number of haul truck to no more than 38 trucks (76 truck trips) per day to minimize off-site emissions of NO_x from haul trucks. Mitigation Measure 2-1 also requires the construction contractor to use newer, USEPA-rated Tier 3, equipment to reduce onsite emissions from offroad construction equipment during grading activities. As shown in Table 5.2-11, the application of these two requirements would reduce construction-related regional NO_X emissions to below the SCAQMD regional NO_X threshold. Therefore, with implementation of mitigation, Impact 5.2-2 would be less than significant.

Table 5.2-11
Maximum Daily Construction Regional Emissions – Mitigated (in pounds per day)

Construction Phase	Pollutants[1,2,3]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2014						
Grading (Site)	3	18	20	<1	7	4
Grading Site Haul 1	6	57	32	<1	5	3
Grading Site Haul 2	5	48	27	<1	4	2
District 29 Water Main Installation	2	15	11	<1	1	1
District 29 Water Main Haul	<1	<1	<1	0	<1	<1
Home Pad Installation	2	7	6	<1	1	1
Road Hogging	1	5	4	<1	1	<1
Road Base Installation	5	29	17	<1	2	1
Road Grading	1	6	5	<1	1	<1
Road Paving	2	11	8	<1	1	1
Trenching (Site)	2	11	10	<1	1	1
Backfill/Fine Grading	3	20	19	<1	2	1
Piling Installation	1	6	4	<1	<1	<1
Skate Park Installation	1	7	6	<1	1	<1
Demolition (Maintenance Shed)	<1	3	3	0	<1	<1
Building Shell Lots 1 and 2	3	19	14	<1	1	1
Year 2015						
Skate Park Installation	1	7	5	<1	1	<1
Building Shell Lots 1 and 2	2	18	14	<1	1	1
Building Shells Lots 3 and 4	2	18	14	<1	1	1
Building Shell Lot 5	2	12	10	<1	1	1
Finishing Homes – Lots 1 and 2	1	5	5	<1	<1	<1
Finishing Homes – Lots 3 and 4	1	4	4	<1	<1	<1
Finishing Home – Lot 5	<1	3	3	<1	<1	<1

Table 5.2-11
Maximum Daily Construction Regional Emissions – Mitigated (in pounds per day)

Construction Phase	Pollutants[1,2,3]					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2016						
Finishing Homes – Lots 1 and 2	1	5	5	<1	<1	<1
Finishing Homes – Lots 3 and 4	<1	4	4	<1	<1	<1
Finishing Home – Lot 5	<1	3	3	<1	<1	<1
Architectural Coating – Lots 1 and 2	2	2	2	0	<1	<1
Architectural Coating – Lots 3 and 4	2	2	2	0	<1	<1
Architectural Coating – Lot 5	1	2	2	0	<1	<1
Year 2017						
Finishing Home – Lot 5	<1	3	3	<1	<1	<1
Architectural Coating	1	2	2	0	<1	<1
Finish Common Area	<1	3	3	0	<1	<1
Paving	1	2	2	0	<1	<1
Maximum Daily Emissions[4]	11	91	63	<1	13	8
SCAQMD Regional Construction Threshold	75	100	550	150	150	55
Significant?	No	No	No	No	No	No

Source: CalEEMod, Version 2011.1.1.
Notes: Totals may not total to 100 percent due to rounding.
[1] Construction phasing is based on the preliminary information provided by the applicant. Where specific information regarding project-related construction activities was not available, construction assumptions were based on CalEEMod defaults, which are based on construction surveys conducted by SCAQMD of construction equipment and phasing for comparable projects.
[2] PM_{10} and $PM_{2.5}$ fugitive dust emissions assume application of Rule 403, which includes watering exposed surfaces at least two times daily, managing haul road dust by watering two times daily, street sweeping, and restricting speeds onsite to 15 miles per hour.
[3] Incorporates the requirements from Mitigation Measure 2-1 that limits the number of haul trucks to no more than 38 trucks (76 truck trips) per day and use of USEPA-rated tier 3 offroad construction equipment during grading activities.
[4] Maximum daily emissions are based on the overlap of the Grading (Site), Grading Site Haul 1, Water Main Installation, and Water Main Haul phases.