3.3 Air Quality

This section provides an overview of the existing air quality at the project site and surrounding region, a summary of applicable regulations, and analyses of potential short-term and long-term air quality impacts from implementation of the proposed project. Mitigation measures are recommended as necessary to reduce significant air quality impacts.

3.3.1 Environmental Setting

Climate and Meteorology

The proposed project site consists of two non-contiguous sites, Phase 1 (south parcel) and Phase 2 (north parcel), that are located in the southeastern part of unincorporated Orange County. The project site is located within the South Coast Air Basin (Basin), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin is a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, and all of Orange County.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of Southern California combine to make the Basin an area of high air pollution potential. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is disrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions which produce ozone.

Criteria Air Pollutants

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine

particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. These pollutants are referred to as "criteria air pollutants" because they are the most prevalent air pollutants known to be injurious to human health. Extensive health-effects criteria documents regarding the effects of these pollutants on human health and welfare have been prepared over the years.1 Standards have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal Clean Air Act (CAA). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NOx). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by USEPA and is based on their own exempt list. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, it remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth ("rainout"), or absorption by water molecules in clouds that later fall to earth with rain ("washout").

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements

1 Additional sources of information on the health effects of criteria pollutants can be found at CARB and USEPA's websites at http://www.arb.ca.gov/research/health/health.htm and http://www.epa.gov/air/airpollutants.html, respectively.

and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide

NO2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO2. The combined emissions of NO and NO2 are referred to as NOx, which are reported as equivalent NO2. Aside from its contribution to ozone formation, NO2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO2 is a colorless, extremely irritating gas or liquid that enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO2 oxidizes in the atmosphere, it forms sulfur trioxide (SO3). Collectively, these pollutants are referred to as sulfur oxides (SOx).

Major sources of SO2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO2 aggravate lung diseases, especially bronchitis. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Particulate matter can also damage materials and reduce visibility. One common source of PM2.5 is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH3), NOx, and SOx.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks; and motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 is largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved due to enhanced controls in the metals processing industry. In the Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the California Almanac of Emissions and Air Quality (CARB, 2009), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Odorous Emissions

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Offensive odors are unpleasant and can lead to public distress generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical

harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

Project Area Setting

Existing Air Quality

SCAQMD maintains monitoring stations within district boundaries that monitor air quality and compliance with associated ambient standards. The project site is located within the Saddleback Valley and Lake Elsinore Air Monitoring Subregions. The nearest monitoring to the project site is the Lake Elsinore Monitoring Station (506 W. Flint Street in Lake Elsinore), which is located approximately six miles northeast of the project site. This station monitors the ambient concentrations of ozone, CO, NO_2. The station does not monitor PM_{10} and $PM_{2.5}$. Therefore, the PM_{10} and $PM_{2.5}$ data was obtained from the Saddleback Valley Monitoring Station, which is the next closest to the project site. Historical data from the Lake Elsinore Monitoring Station for ozone, CO, NO_2, and data from the Saddleback Valley Monitoring Station for PM_{10} and $PM_{2.5}$ for three years (2012 – 2014) are shown in **Table 3.3-1**.

Both CARB and USEPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Nonattainment is defined as any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the primary or secondary ambient air quality standard for the pollutant. Attainment is defined as any area that meets the primary or secondary ambient air quality standard for the pollutant. Unclassifiable is defined as any area that cannot be classified on the basis of available information as meeting or not meeting the primary or secondary ambient air quality standard for the pollutant. In addition, California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

As shown below in **Table 3.3-2**, the Basin is currently classified as both a federal and state nonattainment area for 1-hour and 8-hour ozone and annual PM2.5. It is also classified as a state nonattainment for PM10 for both 24-hour and annual standards. (CARB, 2016). In addition, while the Los Angeles County portion of the Basin is classified as a federal nonattainment area for lead due to air quality data measured near a large lead-acid battery recycling facility, the remainder of the Basin is classified as a federal unclassifiable/attainment area for lead. The Basin is a also a federal attainment/maintenance area for 24-hour PM10, NO2, both 1-hour and 8-hour for CO, and SO2 (SCAQMD, 2016).2

2 A maintenance area is an area that was designated nonattainment for one of the National Ambient Air Quality Standards (NAAQS), but later met the standard and was re-designated to attainment. To ensure the air quality in this area continues to meet the NAAQS, states are required to develop and implement Maintenance State Implementation Plans.

TABLE 3.3-1
AIR QUALITY DATA SUMMARY (2012 – 2014)

Pollutant	Standard[a]	Monitoring Data by Year		
		2012	2013	2014
Ozone				
Highest 1 Hour Average (ppm)		0.111	0.102	0.104
Days over State Standard	0.09 ppm	10	6	4
Highest 8 Hour Average (ppm)		0.090	0.089	0.086
Days over National Standard	0.075 ppm	17	12	6
Days over State Standard	0.070 ppm	32	25	14
Carbon Monoxide				
Highest 8 Hour Average (ppm)		0.52	0.6	1.4
Days over National Standard	9.0 ppm	0	0	0
Days over State Standard	9.0 ppm	0	0	0
Nitrogen Dioxide				
Highest 1 Hour Average (ppm)		0.048	0.047	0.045
Days over National Standard	0.100 ppm	0	0	0
Days over State Standard	0.18 ppm	0	0	0
Annual Average (ppm)		0.010	8.4	8.2
Days over National Standard	0.053 ppm	0	0	0
Days over State Standard	0.030 ppm	0	0	0
Particulate Matter (PM_{10})				
Highest 24 Hour Average ($\mu g/m^3$)[b]		37	51	41
Days over National Standard (measured)[c]	150 $\mu g/m^3$	0	0	0
Days over State Standard (measured)[c]	50 $\mu g/m^3$	0	1	0
Annual Average ($\mu g/m^3$)[b]	20 $\mu g/m^3$	17.3	19.3	20.2
Particulate Matter ($PM_{2.5}$)				
Highest 24 Hour Average ($\mu g/m^3$)[b]		27.6	28	25.5
Days over National Standard (measured)[c]	35 $\mu g/m^3$	0	0	0
Annual Average ($\mu g/m^3$)[b]	12 $\mu g/m^3$	7.91	8.08	8.02

Notes:
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
* = Insufficient data available to determine the value.

[a] Generally, state standards and national standards are not to be exceeded more than once per year.

[b] Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.

[c] Measurements are usually collected every six days. Days over the standard represent the measured number of days that the standard has been exceeded.

Source: CARB, 2014.

TABLE 3.3-2
SOUTH COAST AIR BASIN ATTAINMENT STATUS

Pollutant	Attainment Status	
	Federal Standards	State Standards
Pollutant	**Federal Standards**	**State Standards**
Ozone (1-hour)	Non-attainment/Extreme	Non-attainment
Ozone (8-hour)	Non-attainment/Extreme	Non-attainment
PM_{10}	Attainment/Maintenance	Non-attainment
$PM_{2.5}$	Non-attainment	Non-attainment
Carbon Monoxide	Attainment/Maintenance	Attainment
Nitrogen Dioxide	Attainment/Maintenance	Attainment
Sulfur Dioxide	Attainment	Attainment
Sulfates	N/A	Attainment
Lead	Non-attainment	Non-attainment

Source: CARB, 2016

Sensitive Land Uses

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition, residential uses are considered more sensitive to air quality conditions than commercial and industrial uses, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation.

Existing sensitive receptors in the vicinity of the project site consist of sparsely located rural single-family residential uses. The nearest single-family residences to Phase 1 (south parcel) are located approximately 1,340 feet away to the north, near Long Canyon Road. The nearest sensitive receptor to Phase 2 (north parcel) is a single-family residence located approximately 160 feet east of the southeastern portion of the site, followed by a residence located approximately 670 feet way.

In addition, low density rural single-family residential structures are located to the west of the Phase 2 (north parcel) boundary. The nearest structure located approximately 170 feet away. However, all of these residences to the west of Phase 2 (north parcel) are vacant.

There is currently one occupied residence located within the southwest corner of Phase 2 (north parcel); however, this residence would be vacated at the start of project construction.

Regulatory Setting

The project site is located within the South Coast Basin. Air quality in the project area is regulated by the USEPA, CARB, and SCAQMD. The County of Orange General Plan also contains a component in the Resources Element related to air quality.

United States Environmental Protection Agency

Criteria Air Pollutants

At the federal level, the United Stated Environmental Protection agency (USEPA) has been charged with implementing national air quality programs. USEPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The CAA requires USEPA to establish National Ambient Air Quality Standards (NAAQS). USEPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO2, SO2, PM_{10}, $PM_{2.5}$, and lead. **Table 3.3-3** shows the NAAQS for these pollutants.

The CAA also requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The CAA Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If USEPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking. USEPA's primary role at the state level is to oversee state air quality programs. USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

Hazardous Air Pollutants

USEPA has programs for identifying and regulating hazardous air pollutants (HAPs). Title III of the CAAA directed USEPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (tpy) of any HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), USEPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring maximum achievable control technology (MACT). For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), USEPA promulgated health-risk-based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

TABLE 3.3-3
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.07 ppm	0.075 ppm		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm		
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.50 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Arithmetic Mean	---	0.03 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 µg/m^3	150 µg/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 µg/m^3	---		
Fine Particulate Matter (PM2.5)	24 hours	---	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3		
Lead (Pb)	30 Day Average	1.5 µg/m^3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	*Present source:* lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	---	1.5 µg/m^3		
	Rolling 3-Month Average	---	0.15 µg/m^3		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO_4)	24 hour	25 µg/m^3	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.

Note: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.
Source: CARB, 2013c.

The CAAA also required USEPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

California Air Resources Board

Criteria Air Pollutants

The California Air Resources Board (CARB), a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. CARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, requires CARB to establish the California Ambient Air Quality Standards (CAAQS). CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. Applicable CAAQS are shown in **Table 3.3-2**.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing compliance by local air districts with California and federal laws; approving local air quality plans; submitting SIPs to USEPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Toxic Air Contaminants

Air quality regulations also focus on toxic air contaminants (TACs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established. Instead, USEPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the MACT or best available control technology (BACT) for toxics and to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the districts, establish the regulatory framework for TACs.

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (Hot Spots Act) (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted USEPA's list of HAPs as TACs.

Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Air Toxics Hot Spots Information and Assessment Act requires existing facilities emitting toxic substances above a specified level to prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (Handbook), which provides guidance concerning land use compatibility with TAC sources (CARB, 2005). Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way. Based on CARB's Community Health Air Pollution Information System (CHAPIS), no major TAC sources are located in proximity to the project site.

SCAQMD

Criteria Air Pollutants

SCAQMD attains and maintains air quality conditions in the Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SCAQMD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA, CAAA, and CCAA. Air quality plans applicable to the proposed project are discussed below.

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the air quality management plan (AQMP), which addresses federal and state CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin.

The 2012 AQMP was adopted by the SCAQMD Governing Board on December 12, 2012. The purpose of the 2012 AQMP for the Basin is to set forth a comprehensive and integrated program that will lead the region into compliance with the federal 24-hour PM2.5 air quality standard, and to provide an update to the Basin's commitment towards meeting the federal 8-hour ozone standards (SCAQMD, 2013). The AQMP would also serve to satisfy recent USEPA requirements for a new attainment demonstration of the revoked 1-hour ozone standard, as well as a vehicle

miles travelled (VMT) emissions offset demonstration.3 Specifically, once approved by CARB, the AQMP would serve as the official SIP submittal for the federal 2006 24-hour PM2.5 standard, for which USEPA has established a due date of December 14, 2012. In addition, the AQMP updates specific new control measures and commitments for emissions reductions to implement the attainment strategy for the 8-hour ozone SIP. The 2012 AQMP sets forth programs which require integrated planning efforts and the cooperation of all levels of government: local, regional, state, and federal. SCAQMD staff has begun the development process for the 2016 AQMP.

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations. Specific rules applicable to the proposed project include the following:

Rule 401 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. SCAQMD Rule 403 governs emissions of fugitive dust during and after construction. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires project applicants to control fugitive dust using the best available control measures such that dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a, offsite nuisance. Applicable Rule 403 dust suppression (and PM_{10} generation) techniques to reduce impacts on nearby sensitive receptors may include, but are not limited to, the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).

3 Although the federal 1-hour ozone standard was revoked in 2005, the USEPA has proposed to require a new 1-hour ozone attainment demonstration in the South Coast extreme ozone nonattainment area as a result of a recent court decision. Although USEPA has replaced the 1-hour ozone standard with a more health protective 8-hour standard, the CAA anti-backsliding provisions require that California have approved plans for attaining the 1-hour standard.

- Water active sites at least three times daily. Locations where grading is to occur shall be thoroughly watered prior to earthmoving.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspend all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Provide bumper strips or similar best management practices where vehicles enter and exit the construction site onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- Replant disturbed areas as soon as practical.
- Sweep onsite streets (and offsite streets if silt is carried to adjacent public thoroughfares) to reduce the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

Rule 445 – Wood Burning. This rule prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

Rule 481 – Spray Coating. This rule applies to all spray painting and spray coating operations and equipment and states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

- The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.
- Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.
- An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

Rule 1108 - Volatile Organic Compounds. This rule governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the Basin. This rule also regulates the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

Rule 1110.2 – Combustion Engines. Rule 1110.2 regulates oxides of nitrogen (NOx), carbon monoxide (CO), and volatile organic compound (VOC) emissions from liquid and gas fueled internal combustion engines operating in the SCAQMD producing more than 50 rated brake horsepower (bhp).

Rule 1113 – Architectural Coatings. No person shall apply or solicit the application of any architectural coating within the SCAQMD with VOC content in excess of the values specified in a table incorporated in the Rule.

Rule 1143 – Paint Thinners and Solvents. This rule governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce CARB control measures. Under SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from SCAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SCAQMD limits emissions and public exposure to TACs through a number of programs. SCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

The Air Toxics Control Plan (March 2000, revised March 26, 2004) is a planning document designed to examine the overall direction of SCAQMD's air toxics control program. It includes development and implementation of strategic initiatives to monitor and control air toxics emissions. Control strategies that are deemed viable and are within SCAQMD's jurisdiction will each be brought to the SCAQMD Board for further consideration through the normal public review process. Strategies that are to be implemented by other agencies will be developed in a cooperative effort, and the progress will be reported back to the Board periodically.

In September 2008 the SCAQMD completed the Multiple Air Toxics Exposure Study III (MATES III). MATES III is a monitoring and evaluation study conducted in the Basin and is a follow up to previous air toxics studies. The study consists of several elements including a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the Basin. The study focuses on the carcinogenic risk from exposure to air toxics. However, it does not estimate mortality or other health effects from particulate exposures. MATES III shows that the region around the Specific Plan area has an estimated carcinogenic risk of 258 in a million. These model estimates were based on monitoring data collected at ten fixed sites within the Basin. As of June 2012, SCAQMD began conducting the MATES IV.

County of Orange General Plan Resources Element

The Resources Element of the Orange County General Plan contains the following goals, objectives, and policies that are relevant to the proposed project:

Goal 1: Promote optimum sustainable environmental quality standards for air resources.

Objective 1.1: To the extent feasible, attainment of federal and state air quality standards by the year 2007.

Policy 1: To develop and support programs which improve air quality or reduce air pollutant emissions.

3.3.2 Thresholds of Significance

According to Appendix G of the *CEQA Guidelines* and the County of Orange Environmental Analysis Checklist, a project could have a significant adverse effect on air quality resources if it would:

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

It was determined in the NOPs/Initial Studies (see Appendices A1 and A2 of this EIR) that implementation of the proposed project would have a less than significant impact related to odors. Odors resulting from the temporary construction of the proposed project are not likely to affect a substantial number of people due to the fact that construction activities do not usually emit offensive odors, and the project is not located in a highly populated or visited area. Additionally, the project would only involve residential uses, which are not land uses that are typically associated with the generation of objectionable odors such as large commercial or industrial uses. Therefore, no further analysis of this significance criterion is included in the EIR.

The comments from the SCAQMD related to air quality were received in response to the NOPs/Initial Studies, which provided direction regarding air quality analysis methodology, mitigation measures, and data sources. As described below, SCAQMD methodologies and thresholds have been integrated into the air quality analysis for the proposed project.

Regional Thresholds: Orange County has not developed specific air quality thresholds for air quality impacts. However, as stated in Appendix G of the *CEQA Guidelines*, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. As such, the significance thresholds and analysis

methodologies in SCAQMD's *CEQA Air Quality Handbook* are used in evaluating project impacts. SCAQMD has established daily mass thresholds for regional pollutant emissions, which are shown in **Table 3.3-4**.

TABLE 3.3-4
SCAQMD REGIONAL AIR QUALITY SIGNIFICANCE THRESHOLDS

	Mass Daily Thresholds (lbs/day)	
Pollutant	**Construction**	**Operations**
Oxides of Nitrogen (NO_X)	100	55
Reactive Organic Gases (ROG)	75	55
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Oxides of Sulfur (SO_X)	150	150
Carbon Monoxide (CO)	550	550
Lead[a]	3	3
TACs (including carcinogens and non-carcinogens: Maximum Incremental Cancer Risk : ≥ 10 in 1 million Cancer Burden: > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index: ≥ 1.0 (project increment)		

[a] As the proposed project would not involve the development of any major lead emissions sources, lead emissions would not be analyzed further in the EIR.
Source: SCAQMD, 2015.

Localized Significance Thresholds. SCAQMD has also developed localized significance thresholds (LSTs) that represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and thus would not cause or contribute to localized air quality impacts. LSTs are developed based on the ambient concentrations of that pollutant for each of the 38 source receptor areas (SRAs) in the Basin. The localized thresholds, which are found in the mass rate look-up tables in the "Final Localized Significance Threshold Methodology" document prepared by SCAQMD, were developed for use on projects that are less than or equal to five acres in size and are only applicable to the following criteria pollutants: NOx, CO, PM_{10}, and $PM_{2.5}$.

Although the project site is greater than five acres, the applicable SCAQMD localized thresholds for a five-acre site from the "Final Localized Significance Threshold Methodology" document's mass rate look-up tables are used to first provide a conservative screening analysis of the project's construction emissions. This is conservative because it estimates emissions of the entire project area and concentrates them into a 5-scre site. Thereby, the evaluation analyzes a concentrated amount of emissions. The determination of significance is based on whether the peak daily construction emissions exceed the LSTs for a five-acre site. The LSTs for a five-acre site in SRA 25, which is the closest SRA to the project, are shown in **Table 3.3-5**.

TABLE 3.3-5
SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS

Pollutant Monitored Within SRA 25 – Lake Elsinore	5-Acre Site[a]				
	Allowable emissions (pounds/day) as a function of receptor distance (feet) from site boundary				
	82 (ft)	164 (ft)	328 (ft)	656 (ft)	1,640 (ft)
Construction Thresholds					
Nitrogen Oxides (NO_x)[b]	371	416	520	672	1,072
Carbon Monoxide (CO)	1,956	2,714	4,282	8,547	29,256
Respirable Particulate Matter (PM_{10})	13	40	57	96	207
Fine Particulate Matter ($PM_{2.5}$)	8	10	16	31	105

[a] Although the project site exceeds five acres, the LSTs for a five-acre site is used to provide an initial screening analysis of the proposed project's construction emissions. If the project's construction emissions would exceed the LSTs in this table, then further analysis using dispersion modeling, as recommended by the SCAQMD, would be performed to determine the magnitude of the project's localized air quality impacts on its surrounding off-site sensitive receptors. However, if the project's construction emissions would not exceed the LSTs in this table, then it can be concluded that the project would not result in adverse localized air quality impacts on its surrounding off-site sensitive receptors during construction.

[b] The localized thresholds listed for NOx in this table take into consideration the gradual conversion of NO to NO_2.The analysis of localized air quality impacts associated with NOx emissions focuses on NO_2 levels as they are associated with adverse health effects.

Source: SCAQMD, 2009.

3.3.3 Methodology

This analysis 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 at the project site and on roadways resulting from construction-related traffic. Additionally, emissions would also be generated from operations of the future residential uses at the project site and from traffic volumes generated by these new uses. The net increase in emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to the applicable thresholds of significance recommended by SCAQMD.

Construction Emissions

Short-term construction-generated emissions of criteria air pollutants and ozone precursors were assessed in accordance with methods recommended by SCAQMD. The proposed project's regional emissions were modeled using the California Emissions Estimator Model (CalEEMod), as recommended by SCAQMD, and inclusion of all required SCAQMD Rules, which are listed in Section 3.3-1. CalEEMod was used to determine whether short-term construction-related emissions of criteria air pollutants associated with the proposed project would exceed applicable regional thresholds and where mitigation would be required. Modeling was based on project-specific data. Modeling files are provided in Appendix B of this EIR. Predicted short-term construction-generated emissions associated with the project were compared with applicable SCAQMD regional thresholds for determination of significance.

In addition, to determine whether or not construction activities associated with the proposed project would create significant adverse localized air quality impacts on nearby sensitive receptors, the worst-case daily emissions contribution from the proposed project were compared to SCAQMD's LSTs that are based on the pounds of emissions per day that can be generated by a project without causing or contributing to adverse localized air quality impacts. The daily total on-site combustion, mobile, and fugitive dust emissions associated with each construction phase were combined and evaluated against SCAQMD's LSTs for a five-acre site, which provides a conservative evaluation because it estimates emissions of the entire project area and concentrates them into a 5-scre site.

Operational Emissions

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions, were also quantified using the CalEEMod computer model. Area-source emissions were modeled according to the size and type of land uses proposed. Mass mobile-source emissions were modeled based on the increase in daily vehicle trips that would result from the project. Project trip generation rates were available from the traffic impact analysis prepared for the project (see Appendix J of this EIR). Predicted long-term operational emissions were compared with applicable SCAQMD thresholds for determination of significance.

3.3.4 Project Impacts

Impact 3.3-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. As the project site is located within the Basin, which is under the jurisdiction of SCAQMD, the SCAQMD's AQMP is the applicable air quality plan for the proposed project. Projects that are consistent with the regional population, housing, and employment forecasts identified by SCAG are considered to be consistent with the AQMP growth projections, since the forecast assumptions by SCAG forms the basis of the land use and transportation control portions of the AQMP. Additionally, because SCAG's regional growth forecasts are based upon, among other things, land uses designated in general plans, a project that is consistent with the land use designated in a general plan would also be consistent with the SCAG's regional forecast projections, and thus also with the AQMP growth projections.

The project site is currently designated under the County General Plan as Open Space (OS), which identifies land containing non-renewable and renewable resource cares, materials recovery/recycling facilities, and employment uses in conjunction with large open space areas if they are consistent with the open space character of the area. Since the project proposes to develop a total of 72 single-family residences, and the project includes a General Plan land use designation amendment from OS to Rural Residential (1A).

Although the proposed project would require a General Plan Amendment, the project would not result in a development density that is inconsistent with SCAG's growth forecasts. As discussed in Section 3.12, *Population and Housing*, of this EIR, the estimated net increase of 230 new residents that would result from the proposed 72 units would only constitute approximately 0.41 percent of the projected population growth in the unincorporated area of the County; and 0.07 percent of the entire County's projected population growth in 2035. In addition, development of

the 584.1-acre project site per its existing zoning designation of General Agricultural (A1), which allows for four acres per dwelling unit, would result in a build out of 146 dwelling units on the project site. The proposed project would only develop 72 residential units, and the remainder of the project site would consist of preserved open space, landscaping, and fuel modification areas that would not be developed. Therefore, the proposed project would result in fewer residential units than the allowable under the existing zoning criteria, and would be consistent with the growth projections in the County's General Plan, which are based on land use and zoning designations.

Thus, the population increase resulting from the proposed project would not exceed SCAG's growth projections. The housing provided by the project would serve to meet an existing housing demand that is already accounted for by SCAG for the region. As such, the proposed project would not conflict with, or obstruct, implementation of the AQMP and impacts would be less than significant.

Impact 3.3-2: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction

Less than Significant Impact. The proposed project would involve the development of 72 single-family residences and the associated infrastructure, including roadways, water lines, septic systems, fuel modification areas, vineyards, landscaping, and other associated amenities. Pollutant emissions associated with project construction would be generated from the following construction activities: (1) site preparation, grading, and excavation; (2) construction workers traveling to and from project site; (3) delivery and hauling of construction supplies to, and debris from, the project site; (4) fuel combustion by onsite construction equipment; (5) building construction; application of architectural coatings; and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants.

The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring. The development area for Phase 1 (south parcel) includes 42.7 acres of residential building pads, and 65.9 acres of streets, landscape, fuel modification, and vineyards. Phase 1 (south parcel) would require cut and fill of soils, which would be balanced onsite and would not require import or export haul trips. A maximum of 10,000 cubic yards would be graded, excavated, or filled on a maximum day.

The development area for Phase 2 (north parcel) includes 32.0 acres of residential building pads, and 28.9 acres of streets, landscape, fuel modification, and vineyards. Phase 2 (north parcel) also requires cut and fill, which would be balanced onsite and would not require import or export haul trips. A maximum of 10,000 cubic yards of soils would be also be excavated or graded per day for development of the Phase 2 (north parcel).

Construction emissions are short-term and temporary. The maximum daily construction emissions for the proposed project were estimated using CalEEMod; and the modeling includes compliance with SCAQMD Rules 403, 481, 1108, 1113, and 1143 (described above), which

reduces air contaminants during construction. **Table 3.3-6** provides the maximum daily emissions of criteria air pollutants from construction of the project during both summer and winter seasons for both project phases.

TABLE 3.3-6
PROPOSED PROJECT CONSTRUCTION EMISSIONS

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Activities	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
			Phase 1			
Summer	29.61	85.08	61.14	0.10	10.77	6.54
Winter	29.65	85.09	61.03	0.10	10.77	6.54
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No
			Phase 2			
Summer	40.69	51.33	37.82	0.06	9.13	5.43
Winter	40.69	51.33	37.73	0.06	9.13	5.43
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

Source: 2016 CalEEMOD modeling, Entech Consulting, see Appendix B for model output.

As shown, the maximum daily construction emissions would not exceed any of SCAQMD's daily significance thresholds for either project phase. Thus, the construction of the proposed project would not result in a violation of an air quality standard or substantially contribute to an existing or projected air quality violation, and impacts related to project construction would be less than significant.

Operation

Less than Significant Impact. Implementation of the proposed project would result in long-term emissions of criteria air pollutants from area sources generated by the proposed residential uses, such as vehicular emissions, natural gas consumption, landscaping, applications of architectural coatings, and use of consumer products. According to the traffic impact analysis prepared for the project, the proposed residential uses would generate 690 additional vehicle trips per day (see Appendix J of this EIR).

Operation emissions associated with the proposed project are provided in **Table 3.3-7**. As shown, the long-term emissions of criteria air pollutants that would be generated by operation of the proposed 72 single-family residences would be below SCAQMD's thresholds. Therefore, the project's operational emissions would not result in a violation of an air quality standard or substantially contribute to an existing or projected air quality violation, and impacts related to operation of the proposed project would be less than significant.

TABLE 3.3-7
PROPOSED PROJECT OPERATIONAL EMISSIONS

	Estimated Maximum Daily Emissions (lbs/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	3.11	1.26	6.51	0.008	0.13	0.13
Electricity Consumption and Natural Gas Combustion	0.07	0.57	0.24	0.004	0.05	0.05
Mobile Sources	1.85	8.59	25.23	0.069	5.10	1.43
Total Emissions	**5.03**	**10.42**	**31.98**	**0.08**	**5.28**	**1.60**
Regional Significance Threshold	*55*	*55*	*550*	*150*	*100*	*55*
Significant Impact?	No	No	No	No	No	No

Note: Operational emissions would be different during summer and winter. Maximum daily emissions of ROG and NO_X would be higher during the winter while emissions of CO and SO_2 would be higher in the summer. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.
Source: 2016 CalEEMOD modeling, Entech Consulting, see Appendix B for model output.

Impact 3.3-3: Would the project 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)?

Less than Significant Impact. According to SCAQMD's methodology, if an individual project results in air emissions of criteria pollutants (ROG, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$) that exceeds the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the proposed project region is in non-attainment under an applicable federal or state ambient air quality standard.

As described in Impact 3.3-2 above, emissions from construction and operations of the proposed project would be below SCAQMD's thresholds (see **Tables 3.3-6** and **3.3-7**). Therefore, the proposed project's construction and operational emissions contribution would be less than cumulatively considerable, and cumulative air quality impacts would be less than significant.

Impact 3.3.4: Would the project expose sensitive receptors to substantial pollutant concentrations.

CO Hotspots

Less than Significant Impact. CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions), particularly during peak commute hours and certain meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals. As a result, SCAQMD recommends analysis of CO emissions at a local and regional level.

An appropriate qualitative screening procedure is provided in the procedures and guidelines contained in *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) to determine

whether a project poses the potential for a CO hotspot (UCD ITS, 1997). This is the protocol recommended by the California Department of Transportation (Caltrans) for project-level air quality analysis needed for federal conformity determinations, and is the standard method for project-level CO analysis used by Caltrans. A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. According to the Protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at level of service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project, to operate at LOS E or F.

The proposed project's traffic analysis (see Appendix J of this EIR) indicates that none of the signalized intersections that were analyzed would operate at LOS E or LOS F under 2017 cumulative conditions. However, under 2035 cumulative conditions without the project, the traffic analysis indicates that LOS E would occur at the signalized intersection of Antonio Parkway/La Pata Avenue and Ortega Highway during the a.m. peak hour, and LOS F would occur at the signalized intersection of Ortega Highway and Grand Avenue during the p.m. peak hour (under the scenario without intersection improvements). As such, given these future 2035 traffic conditions, the addition of traffic associated with the project would increase the average delay at these two intersections that are projected to operate at LOS E and F conditions in 2035, and as a result may worsen CO concentrations at these two intersections.

Based on the future (2035) with project traffic volumes that would occur at the two intersections where acceptable LOS would be exceeded, it was determined that the greatest peak hour traffic volume at the intersection of Antonio Parkway/La Pata Avenue and Ortega Highway would be 6,598 vehicles during the a.m. peak hour and the greatest peak hour traffic volume at the intersection of Ortega Highway and Grand Avenue would be 4,027 vehicles during the p.m. peak hour. Although the Antonio Parkway/La Pata Avenue and Ortega Highway intersection and the Ortega Highway and Grand intersection would operate at LOS E and LOS F under future (2035) with project conditions, respectively, the peak hour traffic volumes occurring at these two intersections would not be substantial enough to result in CO hotspots.

Various air quality agencies in California have developed conservative CO hotspot screening methods, though the SCAQMD has not developed quantitative CO screening criteria. For instance, the Sacramento Metropolitan Air Quality Management District (SMAQMD) states that a project would result in a less-than-significant impact to air quality for local CO if a project would not result in an affected intersection experiencing more than 31,600 vehicles per hour, while the Bay Area Air Quality Management District (BAAQMD) uses a traffic volume of 44,000 vehicles per hour as the threshold for CO analysis. Thus, the 6,598 and 4,027 vehicles per hour that would occur at the intersection of Antonio Parkway/La Pata Avenue and Ortega Highway and the intersection of Ortega Highway and Grand Avenue, respectively, from implementation of the project would not result in an air quality impact associated with CO hotspots. Furthermore, with implementation of the planned intersection improvement at Ortega Highway and Grand Avenue, the p.m. peak hour would improve to LOS D. As such, impacts

associated with CO hotspots resulting from implementation of the project would be less than significant.

Localized Construction Air Quality Impacts – Criteria Air Pollutants

Less than Significant Impact. As discussed previously, the daily construction emissions generated onsite by the proposed project at Phase 1 (south parcel) and Phase 2 (north parcel) are evaluated against SCAQMD's LSTs for a five-acre site as a conservative screening analysis to determine whether the emissions would cause or contribute to adverse localized air quality impacts.[4]

Since the mass rate look-up tables provided by SCAQMD only provides LSTs at receptor distances of 82, 164, 328, 656, and 1,640 feet, the LSTs for a receptor distance of 1,640 feet is used to evaluate Phase 1 (south parcel), and the LSTs for a receptor distance of 164 feet is used to evaluate Phase 2 (north parcel). **Table 3.3-8** identifies daily localized onsite emissions that are estimated to occur during construction of both phases of the proposed project.

TABLE 3.3-8
PROPOSED PROJECT LOCALIZED DAILY CONSTRUCTION EMISSIONS

	Estimated Maximum Daily Emissions (lbs/day)			
Construction Activities	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Phase 1				
Site Preparation Emissions	33.72	22.96	6.37	3.93
Significance Threshold[c]	*1,072*	*29,256*	*207*	*105*
Significant Impact?	No	No	No	No
Grading and Excavation Emissions	51.24	36.72	4.18	2.55
Significance Threshold[c]	*1,072*	*29,256*	*207*	*105*
Significant Impact?	No	No	No	No
Drainage/Utilities Emissions	23.55	17.87	0.90	0.90
Significance Threshold	*1,072*	*29,256*	*207*	*105*
Significant Impact?	No	No	No	No
Building Construction Emissions	23.55	17.87	0.90	0.90
Significance Threshold	*1,072*	*29,256*	*207*	*105*
Significant Impact?	No	No	No	No
Paving Emissions	20.11	17.30	0.67	0.67
Significance Threshold	*1,072*	*29,256*	*207*	*105*
Significant Impact?	No	No	No	No
Architectural Coatings Emissions	0.02	0.26	0.05	0.01
Significance Threshold	*1,072*	*29,256*	*207*	*105*
Significant Impact?	No	No	No	No
Total Phase 1 Emissions				
Total Phase 1 Emissions	**152.19**	**112.98**	**13.07**	**8.96**
Significance Threshold	*1,072*	*29,256*	*207*	*105*

[4] According to SCAQMD's LST methodology, LSTs are only applicable to the on-site construction emissions that are generated by a project and do not apply to emissions generated offsite such as mobile emissions on roadways from worker, vendor, and haul truck trips.

Construction Activities	Estimated Maximum Daily Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Significant Impact?	No	No	No	No
Phase 2				
Site Preparation Emissions	33.72	22.96	9.08	5.42
Significance Threshold	*416*	*2,714*	*40*	*10*
Significant Impact?	No	No	No	No
Grading and Excavation Emissions	51.24	36.72	4.88	2.93
Significance Threshold	*416*	*2,714*	*40*	*10*
Significant Impact?	No	No	No	No
Drainage/Utilities Emissions	23.55	17.87	0.90	0.90
Significance Threshold	*416*	*2,714*	*40*	*10*
Significant Impact?	No	No	No	No
Building Construction Emissions	23.55	17.87	0.90	0.90
Significance Threshold	*416*	*2,714*	*40*	*10*
Significant Impact?	No	No	No	No
Paving Emissions	20.11	17.30	0.67	0.67
Significance Threshold	*416*	*2,714*	*40*	*10*
Significant Impact?	No	No	No	No
Architectural Coatings Emissions	2.35	1.83	0.10	0.10
Significance Threshold	*416*	*2,714*	*40*	*10*
Significant Impact?	No	No	No	No
Total Phase 2 Emissions				
Total Phase 2 Emissions	**154.52**	**114.55**	**16.53**	**10.92***
Significance Threshold	*416*	*2,714*	*40*	*10*
Significant Impact?	No	No	No	No*

* All of the phases would not overlap (i.e. site preparation and building construction would not occur simultaneously). Thus, actual $PM_{2.5}$ maximum daily emissions would be less than the threshold of 10.
Source: 2016 CalEEMOD modeling, Entech Consulting, see Appendix B for model output.

As shown in **Table 3.3-8**, the daily emissions generated onsite by the proposed project during all phases of construction would not exceed the applicable SCAQMD LSTs. Therefore, localized air quality impacts resulting from project construction would be less than significant.

Localized Construction Air Quality Impacts – Toxic Air Contaminants

Less than Significant Impact. Project construction would result in short-term emissions of diesel PM, a toxic air contaminant (TAC). Diesel PM poses a carcinogenic health risk that is measured using an exposure period of 70 years. The exhaust of off-road heavy-duty diesel equipment would emit diesel PM during site preparation (e.g., clearing); site grading and excavation; paving; installation of utilities, materials transport and handling; building construction; and other miscellaneous activities. SCAQMD has not adopted a methodology for analyzing such impacts and has not recommended that health risk assessments be completed for construction-related emissions of TACs.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., the potential exposure to TACs to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, carcinogenic health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with the proposed project.

The construction period for the proposed project would be much less than the 70-year period used for risk determination. Because off-road heavy-duty diesel equipment would be used only for short time periods, project construction would not expose sensitive receptors to substantial emissions of TACs. This impact would be less than significant.

Operation

Less than Significant Impact. As the proposed project would involve the development of low-density, single-family residential uses at the project site, it would not introduce any new stationary sources of TACs, such as diesel-fueled backup generators that are more commonly associated with large commercial and industrial uses. Therefore, the project would not expose surrounding sensitive receptors to TAC emissions.

CARB's Handbook includes the recommendation to avoid the siting of new sensitive land uses (e.g., residences, schools) within 500 feet of freeways, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. Ortega Highway, which experiences the highest traffic volumes in the project vicinity, is located more than 2,000 feet from the project site. In addition, the projected 2017 and 2035 average daily trip (ADT) volumes on roadways in the proposed project area are less than CARB's specified criteria. Under future 2017 with project conditions, the highest daily traffic volumes on the segment of Ortega Highway that passes by the project site is approximately 13,200 ADT. In 2035, which is the year used to evaluate the long-range conditions of the project in the traffic impact analysis, the maximum daily traffic volumes with the project on Ortega Highway is approximately 18,600 ADT. Therefore, the location of the proposed sensitive uses would be in concurrence with CARB recommendations. Additionally, based on CARB's CHAPIS, no major TAC sources are located near the project site. Based on the criteria in the CARB guidance document, the proposed project would not have the potential to expose sensitive receptors to TACs from mobile sources to an extent that health risks could result, and impacts would be less than significant.

3.3.5 Cumulative Impacts

The project site is located within the South Coast Basin, which is considered the cumulative study area for air quality. As discussed in Impact 3.3-3, SCAQMD recommends that if an individual project results in air emissions of criteria pollutants (ROG, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the

proposed project region is in non-attainment under an applicable federal or state ambient air quality standard.

As described above, all criteria pollutants generated by construction of the project would be below SCAQMD's thresholds. Thus, construction of the proposed project would result in a less than cumulatively considerable impact related to air quality.

In addition, the operational emissions associated with the proposed project would not exceed the SCAQMD's thresholds of significance for any of the criteria pollutants (see **Table 3.3-7**). Furthermore, the proposed project would be consistent with SCAQMD's AQMP. Thus, the proposed project would not conflict with SCAQMD's air quality planning efforts for nonattainment pollutants and would not lead to a cumulatively considerable net increase in nonattainment pollutants during operations. Overall, the proposed project's construction and operational emissions would be less than cumulatively considerable, and less than significant.