2.2 Air Quality

This section discusses the existing ambient air quality and potential impacts resulting from the implementation of the Warner Ranch Project (proposed project). Information and analysis in this section have been compiled based on an understanding of the existing ambient air quality of the San Diego Air Basin (SDAB), review of applicable laws, regulations, and guidelines, and the "*Air Quality Assessment, Warner Ranch Residential Development"* prepared by LDN Consulting (2015) in compliance with the County Report Content and Format Requirements for Air Quality (2007) and included as Appendix D.

2.2.1 Existing Conditions

The project site is approximately 513 acres in size, composed of seven individual parcels. Approximately 77 percent of the site is undeveloped; the remaining 23 percent, or approximately 117.6 acres, is developed and presently supports active agricultural and ranch uses, as well as disturbed land. The undeveloped areas are located in the northern and eastern portions of the site. Areas supporting agricultural uses and ranch facilities are more centrally located in the southern portion of the property. Existing development on site includes the Warner Ranch Quarter Horses equestrian facility and associated support buildings such as an office, stables, and arena; equipment and feed garages; and irrigation equipment/storage (Figure 1-26).

The agricultural areas on site include two avocado orchards in the western portion of the property, two citrus orchards in the south–central portion of the site, and pastures for livestock. Several existing residences are adjacent to the orchards and pastures, as well as a main house and garage. There are also existing asphalt roads crossing throughout the agricultural and ranch areas to allow access for operation and maintenance.

The San Luis Rey River, Pala Creek, and Gomez Creek are the main water bodies in the area of the project area. Gomez Creek flows north-to-south along the western side of the project site and converges with the San Luis Rey River further to the south. In addition, Pala Creek traverses the northeastern corner of the property.

The undeveloped portion of the site consists largely of coastal sage scrub and southern mixed chaparral with smaller but visually distinctive areas of coast live oak woodland, southern cactus scrub, scrub oak chaparral, and grasslands in the upland areas, and mulefat scrub, coast live oak riparian forest, southern cottonwood–willow riparian forest, and sycamore alluvial riparian woodland in wetland areas. Vegetation breaks for boulders outcrops and rocky ridgelines.

2.2.1.1 Climate and Topography

The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit [°F]) from the mid-40s to the high 90s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10 percent) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains and in the project site area the average annual precipitation is approximately 13.69 inches.

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east. Along with local meteorology, the topography influences the dispersal and movement of pollutants in the air basin. The mountains to the east prohibit dispersal of pollutants in that direction and help trap them in inversion layers. Specifically, the southern portion of the project site is characterized by relatively flat land and moderately to steeply sloped land in the northern, northwestern, and eastern areas with elevations ranging from approximately 350 feet to 1,000 feet above mean sea level.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

2.2.1.2 Air Pollution Climatology

The project site is located within the SDAB and is subject to the San Diego Air Pollution Control District (SDAPCD) guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California. The SDAB is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and O_3.

The SDAB lies in the southwest corner of California and comprises the entire San Diego region, covering 4,260 square miles, and is an area of high air pollution potential. The basin experiences warm summers, mild winters, infrequent rainfall, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, commonly known as smog.

Light daytime winds, predominately from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and the large number of motor vehicles traveling. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the basin are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County. This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within the County. The transport of air pollutants from Los Angeles to San Diego has also occurred within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

2.2.1.3 Air Quality Characteristics

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The Pala community near the project site includes schools and residential uses.

2.2.1.4 Pollutants and Effects

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards (AAQS), or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include: O_3, NO_2, CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead (Pb). These pollutants are discussed below. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. In addition to criteria air pollutants, another pollutant of concern for the proposed project is diesel particulate matter (DPM) which is classified as a toxic air contaminant (TAC) by CARB.

Ozone. O_3 is a colorless gas that is formed in the atmosphere when volatile organic compounds (VOCs), sometimes referred to as reactive organic gases (ROGs), and NO_x react in the presence of ultraviolet sunlight. O_3 is not a primary pollutant; it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of VOCs and NO_x, the precursors of O_3, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in O_3 formation and ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. Short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes.

Nitrogen Dioxide. Most NO_2, like O_3, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as NO_x and are major contributors to O_3 formation. High concentrations of NO_2 can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis and some increase in bronchitis in children (2 and 3 years old) has also been observed at concentrations below 0.3 parts per million by volume (ppm).

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

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

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

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

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

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

Toxic Air Contaminants (TAC). A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced either on short-term (acute) or long-term (chronic) exposure to a given TAC.

2.2.1.5 Local Air Quality

SDAB Attainment Designation

An area is designated in attainment when it is in compliance with the National Ambient Air Quality Standards (NAAQS) and/or California Ambient Air Quality Standards (CAAQS). These standards are set by the U.S. Environmental Protection Agency (EPA) or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

The criteria pollutants of primary concern that are considered in this air quality assessment include O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. Although there are no ambient standards for VOCs or NO_x, they are important as precursors to O_3.

The SDAB is designated by EPA as an attainment area for the 1997 8-hour NAAQS for O_3 and as a marginal nonattainment area for the 2008 8-hour NAAQS for O_3. The SDAB was designated in attainment for all other criteria pollutants under the NAAQS with the exception of PM_{10}, which was determined to be unclassifiable. It is classified as a federal maintenance area for CO. The SDAB is currently designated nonattainment for O_3, both 1-hour and 8-hour, and PM_{10} and $PM_{2.5}$ under the CAAQS. It is designated attainment for CO, NO_2, SO_2, Pb, and sulfates.

Table 2.2-1, SDAB Attainment Classification, summarizes SDAB's federal and state attainment designations for each of the criteria pollutants.

2.2.1.6 Air Quality Monitoring Data

The SDAPCD operates a network of ambient air monitoring stations throughout San Diego County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The SDAPCD monitors air quality conditions at 10 locations throughout the basin. The Escondido monitoring station is closest in proximity to the project site. Concentrations at this station, approximately 16.5 miles south of the site, are considered most representative of the project site. Ambient concentrations of pollutants from 2011 through 2013 are presented in Table 2.2-2, Ambient Air Quality at Escondido East Valley Parkway Monitoring Station.

The federal and state 8-hour O_3 standards were exceeded every year from 2011 to 2013, while the 1-hour O_3 standards were only exceeded in 2011. The state and federal 24-hour PM_{10} standard was exceeded in 2013, and NO_2 emissions exceeded the annual threshold every year from 2011 to 2013. The federal 24-hour $PM_{2.5}$ standard was exceeded in 2012 and 2013. Air quality within the project region was in compliance with both CAAQS and NAAQS for NO_2 and CO during this monitoring period.

2.2.2 Regulatory Setting

<u>Federal</u>

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. In 1971, in order to achieve the purposes of Section 109 of the CAA, the EPA developed primary and secondary NAAQS, shown in Table 2.2-3, Ambient Air Quality Standards. The EPA is responsible for implementing most aspects of the CAA, including the setting of NAAQS for major air pollutants, hazardous air pollutant (HAPs) standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. NAAQS are established for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and Pb.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

State

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts (AQMDs) and air pollution control districts (APCDs) at the regional and county levels. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (CCAA) of 1988, responding to the federal CAA, and regulating emissions from motor vehicles and consumer products.

CARB has established CAAQS, which are generally more restrictive than the NAAQS, consistent with the CAA, which requires state regulations to be at least as restrictive as the federal requirements. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

As part of its diesel risk reduction program, CARB adopted an Airborne Toxic Control Measure (ATCM) that applies to new and in-use stationary compression-ignition (i.e., diesel) engines. The ATCM was adopted in 2004 and revised in November 2010 with an effective date of May 19, 2011. After December 31, 2008, the ATCM requires that new emergency standby engines must comply with EPA emission standards applicable to a 2007-model-year off-road engine of the same horsepower rating. The ATCM further limits the particulate matter emissions from an emergency standby engine operated less than 50 hours per year for maintenance and testing to 0.15 gram per brake-horsepower-hour.

Local

San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local AQMDs and APCDs are responsible for enforcing standards and regulating stationary sources. The proposed project is located within the SDAB and is subject to SDAPCD guidelines and regulations. In San Diego County, O_3 and particulate matter are the pollutants of main concern, since exceedances of state AAQS for those pollutants are experienced here in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 nonattainment area and a CO maintenance area (western part of the SDAB only); the project area is a CO attainment area.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the AAQS in the SDAB. The County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis (most recently in 2009). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County and the cities in the county, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the county as part of the development of their general plans.

The *Eight-Hour Ozone Attainment Plan for San Diego County* indicates that local controls and state programs would allow the region to reach attainment of the federal 8-hour O_3 standard by 2009 (SDAPCD 2007). In this plan, SDAPCD relies on the RAQS to demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NO_x and VOCs) by identifying measures and regulations intended to reduce these contaminants. The control measures identified in the RAQS generally focus on stationary sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and the EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS. In the *Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County*, the SDAB did not reach attainment of the federal 1997 standard until 2011 (SDAPCD 2012). This plan, however, demonstrates the region's attainment of the 1997 O_3 NAAQS and outlines the plan for maintaining attainment status. CARB approved this plan on December 6, 2012.

In December 2005, SDAPCD prepared a report titled *Measures to Reduce Particulate Matter in San Diego County* to address implementation of Senate Bill (SB) 656 in San Diego County (SB 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluates the implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust.

As stated above, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations would apply to construction of the proposed project and some of the proposed stationary sources:

- **SDAPCD Regulation II: Permits; Rule 10: Permits Required.** Requires that any person building, erecting, altering, or replacing any article, machine, equipment or other contrivance, the use of which may cause the issuance of air contaminants, shall receive written authorization (Authority to Construct) and a Permit to Operate from the SDAPCD (SDAPCD 2000).
- **SDAPCD Regulation II: Permits; Rule 20.1: New Source Review – General Provisions.** Establishes the general provisions, including exemptions, definitions, and emission calculations, that apply to any new or modified emission unit, any replacement emission unit, any relocated emission unit or any portable emission unit for which an Authority to Construct or Permit to Operate is required (SDAPCD 1998a).
- **SDAPCD Regulation II: Permits; Rule 20.2: New Source Review – Non-Major Sources.** Applies to any new or modified stationary source, to any new or modified emission unit and to any relocated emission unit that is not considered a major stationary source. As applied to new or modified sources, the rule requires (1) the use of Best Available Control Technology (BACT) where the emissions of PM_{10}, NO_x, VOC, or SO_x would increase by 10 pounds per day or more; (2) an air quality impact analysis if the emissions of PM_{10}, NO_x, VOC, SO_x, or Pb exceed designated trigger levels; and (3) establishes public noticing requirements prior to issuance of a permit (SDAPCD 1998b).
- **SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions.** Prohibits any activity causing air contaminant emissions darker than 20 percent opacity for more than an aggregate of 3 minutes in any consecutive 60-minute time period. In addition, Rule 50 prohibits any diesel pile-driving hammer activity causing air contaminant emissions for a period or periods aggregating more than 4 minutes during the driving of a single pile (SDAPCD 1997).

- **SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance.** Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1969).
- **SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust.** Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as trackout and carryout onto paved roads beyond a project site (SDAPCD 2009).
- **SDAPCD Regulation IV: Prohibitions; Rule 67.0: Architectural Coatings.** Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2001)**.**
- **SDAPCD Regulation XII: Prohibitions; Rule 1200: Toxic Air Contaminants – New Source Review.** (SDAPCD 1996). Applies to any new, relocated, or modified emission unit which may increase emissions of one or more TACs that requires an Authority to Construct or Permit to Operate. The rule establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs. Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of Toxics-BACT (T-BACT), or an incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than one.
- **SDAPCD Regulation XI: National Emission Standards for Hazardous Air Pollutants; Subpart M, Rule 361.145: Standard for Demolition and Renovation.** Requires owners and operators of a demolition or renovation activity to provide written notification of planned asbestos stripping or removal to the Control Officer no less than 10 days prior to demolition and/or asbestos removal. A Notification of Demolition and Renovation Form and fee is required with written notification. Procedures for asbestos emission control are provided under Rule 361.145 and must be followed in accordance with this regulation (SDAPCD 1995).

County of San Diego General Plan

The County's General Plan Conservation and Open Space Element includes plans, goals, and policies regarding air quality. There is a strong correlation between land use planning, transportation system planning, and the emission of air quality pollutants and criteria pollutants that degrade air quality within a region. The primary opportunities to reduce air quality pollutants are in the urbanized areas of the County where there are land use patterns that can best support the increased use of transit and pedestrian activities since most air pollutants result from mobile source emissions. The unincorporated County can also be a part of the solution by producing development patterns that contribute to reducing the dependence on the automobile and by promoting development with lower energy demands. Select applicable General Plan policies are listed below:

- COS-14, Sustainable Land Development. Land use development techniques and patterns that reduce emissions of criteria pollutants and GHGs through minimized transportation and energy demands, while protecting public health and contributing to a more sustainable environment.
- COS-14.1, Land Use Development Form. Require that development be located and designed to reduce vehicular trips (and associated air pollution) by utilizing compact regional and community-level development patterns while maintaining community character.
- COS-14.2, Villages and Rural Villages. Incorporate a mixture of uses within Villages and Rural Villages that encourage people to walk, bicycle, or use public transit to reduce air pollution and GHG emissions.
- COS-14.3, Sustainable Development. Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.
- COS-14.4, Sustainable Technology and Projects. Require technologies and projects that contribute to the conservation of resources in a sustainable manner, that are compatible with community character, and that increase the self-sufficiency of individual communities, residents, and businesses.
- COS-14.8, Minimize Air Pollution. Minimize land use conflicts that expose people to significant amounts of air pollutants.
- COS-14.9, Significant Producers of Air Pollutants. Require projects that generate potentially significant levels of air pollutants and/or GHGs such as quarries, landfill operations, or large land development projects to incorporate renewable energy, and the best available control technologies and practices into the project design.
- COS-14.10, Low-Emission Construction Vehicles and Equipment. Require County contractors and encourage other developers to use low-emission construction vehicles and equipment to improve air quality and reduce GHG emissions.
- COS-15.4, Title 24 Energy Standards. Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.

- COS-15.6, Design and Construction Methods. Require development design and construction methods to minimize impacts to air quality.
- COS-16, Sustainable Mobility. Transportation and mobility systems that contribute to environmental and human sustainability and minimize GHG and other air pollutant emissions.
- COS-16.2, Single-Occupancy Vehicles. Support transportation management programs that reduce the use of single-occupancy vehicles.
- COS-16.3, Low-Emissions Vehicles and Equipment. Require County operations and encourage private development to provide incentives (such as priority parking) for the use of low- and zero-emission vehicles and equipment to improve air quality and reduce GHG emissions.

2.2.3 Analysis of Project Effects and Determination as to Significance

Methodology and Assumptions

Air quality impacts associated with the project are related to emissions from short-term construction and long-term operations. Construction may affect air quality as a result of construction equipment emissions, fugitive dust from grading and earthmoving, and emissions from vehicles driven to and from the project site by construction workers and material delivery trucks. Operational emissions would result primarily from vehicle exhaust (i.e., mobile sources).

The air quality technical report (Appendix D) was utilized to complete this section. The analysis in this report utilized a methodology for estimating construction and operational emissions for the proposed project that has been reviewed and approved by the County of San Diego. Details regarding the methodology used are described in Appendix D.

San Diego Air Pollution Control District Thresholds

As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources. The SDAPCD sets forth quantitative emission thresholds below which a stationary source would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 2.2-4, SDAPCD Air Quality Significance Thresholds, are exceeded. For California Environmental Quality Act (CEQA) purposes, these screening criteria can be used as numeric metrics to demonstrate that a project’s total emissions would not result in a significant impact to air quality (County of San Diego 2007).

The thresholds listed in Table 2.2-4 represent screening-level thresholds that can be used to evaluate whether project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds are considered to not cause a significant impact. In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS, including appropriate background levels. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 2.2-4, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

Non Criteria pollutants such as Hazardous Air Pollutants (HAPs) or TACs are also regulated by the SDAPCD. Rule 1200 (Toxic Air Contaminants - New Source Review, outlined above) requires that projects that propose to increase cancer risk to between 1 and 10 in one million need to implement T-BACT or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. At no time shall a project increase the cancer risk to over 10 in one million. At no time shall a project increase the cancer risk to over 10 in one million or a health hazard index (chronic and acute) greater than one. Projects creating cancer risks less than one in one million are not required to implement T-BACT technology.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that incorporates a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

2.2.3.1 Conformance to the Regional Air Quality Strategy

Guidelines for the Determination of Significance

For the purpose of this EIR, Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) and the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007) apply to both the direct impact analysis and the cumulative impact analysis. A significant impact would result if:

- The project would conflict with or obstruct the implementation of the RAQS and/or applicable portions of the SIP.

Analysis

As mentioned in Section 2.2.2, the SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the ambient air quality standards in the SDAB; specifically, the SIP and RAQS. The federal O_3 maintenance plan for the 1997 standard, which is part of the SIP, was adopted in 2012. The SIP includes a demonstration that current strategies and tactics will maintain acceptable air quality in the SDAB based on the NAAQS. The RAQS was initially adopted in 1991 and is updated on a triennial basis (most recently in 2009). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in unincorporated San Diego County and cities in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the County as part of the development of their general plans.

The SIP and RAQS rely on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the County as part of the development of their general plans. As such, projects that involve development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS. However, if a project involves development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality.

The existing General Plan land use designation on the project site is Rural Lands 40 (RL-40), that allows 1 dwelling unit per 40 acres. However, the project site is also designated as a Special Study Area (SSA) in the Pala Pauma Subregional Plan with an approved Plan Amendment Authorization of 2.33 dwelling units per acre. The current zoning for the site is partially Limited Agriculture (A70) and General Agriculture Uses (A72), which are meant to create and preserve areas intended primarily for agricultural crop production and raising of animals as well as for family residential uses and certain commercial activities associated with crop and animal raising. The proposed project would involve a General Plan land use designation change to Village Residential 2.9 (VR-2.9) on the southern portion of the project site and an associated Zoning Reclassification to Specific Planning Area (S88) that would allow for the development of 780 residential units on the project site, resulting in an overall density of 2.33 dwelling units per acre.

As previously stated, the SIP and RAQS rely on information from CARB and SANDAG including growth projections based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the County as part of the development of their general plans. As such, the change of the General Plan land use designation on the project site would allow for an increase in employment and housing than previously anticipated for the project site based on its General Plan land use designation. The proposed project would contribute to local population growth, employment growth, and associated vehicle miles traveled (VMT) on local roadways that were not accounted for in the SIP and RAQS. Therefore, the proposed project could conflict with or obstruct the implementation with local air quality plans and impacts would be considered **significant**, especially in light of potentially significant construction and operational emissions impacts discussed below **(Impact AQ-1)**.

2.2.3.2 Conformance to Federal and State Ambient Air Quality Standards

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007) applies to the direct impact analysis. A significant impact would result if the proposed project would:

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

Analysis

The air pollutants of greatest concern in the County are O_3, PM_{10}, and $PM_{2.5}$ because of the current nonattainment status for the NAAQS (O_3) and CAAQS (O_3, PM_{10}, and $PM_{2.5}$). O_3 is formed when VOCs and NO_x react in the presence of sunlight. VOC sources include any source that burns fuels (e.g., gasoline, natural gas, wood, oil), solvents, petroleum processing and storage, and pesticides. Sources of PM_{10} in both urban and rural areas include motor vehicles, wood-burning stoves and fireplaces, dust from construction, landfills, agriculture, wildfires, brush/waste burning, and industrial sources of windblown dust from open lands. Main contributors to $PM_{2.5}$ in the County are combustion of organic carbon, and ammonium sulfate and ammonium nitrate from combustion sources.

Construction Emissions

Construction activities would result in a temporary addition of pollutants to the local airshed caused by ground disturbance, dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials to the project site and construction worker trips. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation and, for dust, the prevailing weather conditions. Therefore, such emission levels can be approximately estimated only with a corresponding uncertainty in precise ambient air quality impacts. Fugitive dust emissions would primarily result from site preparation, grading, and road construction activities. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles.

Emissions from the construction phase of the proposed project were calculated using CalEEMod version 2013.2.2 (ENVIRON 2013), which is an air quality model that was developed by ENVIRON International Corporation for the South Coast Air Quality Management District. The construction module in CalEEMod is used to calculate the emissions associated with the construction of the project and uses methodologies presented in the US EPA AP-42 document with emphasis on Chapter 11.9. Construction emissions resulting from blasting were determined using emissions factors and calculation methodologies developed by the EPA.

Construction was conservatively modeled to commence in January 2017 and would require approximately 7 and a half years to complete, ending in July 2025. Proposed construction phases and associated durations include the following:

- Demolition (2 weeks)
- Mass grading, including blasting operations (27 months)
- Trenching (3 months)
- Fine grading (3 months)
- Paving (2 months)
- Building construction (60 months)
- Architectural coatings (58 months)

It is anticipated that rough grading of the project site would last approximately 27 months and would require blasting operations that are anticipated to occur over 6 months during grading. Following rough grading, trenching and finish grading construction activities were assumed to last for an additional 3 months each. During blasting operations, grading operations would stop and it’s expected that each blast operation would be expected to require between 10,000 and 14,000 pounds of ammonium nitrate for any given blast operation. The area of each blast is expected occur within a 20,000-square-foot or (100-foot × 200-foot) area. Blasting operations usually require a chemical material that is capable of extremely rapid combustion resulting in an explosion or detonation. These materials are usually mixtures of several ingredients but are often oxygen deficient as combustion reactions takes place which causes a formation of carbon monoxide and also to a lesser extent nitrogen oxides. For ammonium nitrate and fuel oil mixtures it is expected that carbon monoxide would be generated in quantities of 67 pounds per every ton of explosives and nitrogen oxides would be generated at 17 pounds per the same quantity (Appendix D).

The estimated construction emissions for these grading phases represent a conservative scenario that assumes all grading to occur in one phase, while the actual construction of the proposed project would be based on local demand. After all grading activities are completed paving and building construction would begin. Construction of the residential units would be phased with infrastructure improvements to support the residences and the application of architectural coatings was assumed to occur concurrently with the construction of the residential units. The equipment mix anticipated for construction activity was based on information provided by the applicant and best engineering judgment. The equipment mix is meant to represent a reasonably conservative estimate of construction activity. Detailed information of the construction schedule, including hours of operation and duration, worker trips, and construction equipment mix, is included in Appendix D.

To reduce potential criteria pollutant emissions during construction and to comply with SDAPCD standards the following design features would be incorporated into the project:

- **PDF-AQ-1:** Prior to drilling for blasting purposes, the project will remove overburden to reduce the potential of fine particulates becoming airborne.
- **PDF-AQ-2:** Water injection will be used during drilling the blasting holes in order to control drilling dust.
- **PDF-AQ-3:** Wet all blast areas prior to blasting.
- **PDF-AQ-4:** Nearby neighbors will be notified of all blasts before each occurrence.
- **PDF-AQ-5:** Utilize no more than 6 tons of ammonium nitrate daily for blasting activities.
- **PDF-AQ-6:** Comply with the County's Grading Ordinance and SDAPCD's fugitive dust rules outlines

Table 2.2-5, Construction Estimated Daily Maximum Emissions with Project Design Features, shows the estimated maximum daily construction emissions associated with construction of the proposed project with the previously listed project design features incorporated into the emissions model. For 2016 when emissions from blasting could occur, these maximum daily emissions were added to the maximum daily emissions from construction equipment activity.

As shown, daily construction emissions for the proposed project would not exceed the thresholds for VOCs, CO, SO_x, PM_{10}, or $PM_{2.5}$; however, even with implementation of the construction project design features, daily construction emissions for NO_x would exceed the daily threshold and would result in a **potentially significant impact** (**Impact AQ-2**).

Operational Emissions

Operation of the proposed project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions associated with area sources and mobile sources. Area source emissions would be generated by the consumption of natural gas for space and water heaters, the operation of landscape maintenance equipment, and from other consumer products used by occupants of the proposed project. Mobile source emissions would be generated by the motor vehicles traveling to and from the project site. The following project design feature would be incorporated into the project to reduce mobile source emissions from motor vehicles:

- **PDF-AQ-7:** The project will include 246 workforce housing units, as identified in Appendix S. This will result in a mobile emissions reduction; refer to the Vehicle Miles Traveled memo as a part of Appendix O.

Emissions from operation of the proposed project were calculated using CAlEEMod and EMFAC2011. Project-specific trip generation rates were also used to calculate mobile source emissions resulting from operation of the proposed project. Detailed information of the calculations for area source and mobile source emissions for the proposed project during operations is included in Appendix D. Additionally, it was assumed that an average of 10 percent of the structural surface area will be re-painted each year.

Table 2.2-6, Estimated Daily Maximum Operational Emissions at Full Occupancy, presents only the maximum daily emissions associated with the operation of the proposed project at full occupancy.

As shown, daily operational emissions would not exceed the thresholds for NO_x, or SO_x,; however, daily operational emissions would exceed the thresholds for NO_x, CO, SO_x, PM_{10}, $PM_{2.5}$, and VOC and would be **potentially significant** (**Impact AQ-3**).

The proposed project would be constructed in phases resulting in the potential for partial occupancy of the proposed project while construction is still occurring. The proposed project would begin building construction in 2020 and would have units ready for purchase sometime in 2020. At this time, at least some of the residential buildings would be operational concurrent to building construction of other units. Given this, there is a potential for overlap between construction and operational activities as the project is built out.

It is not directly known how many residential units would be occupied while concurrent building-construction activities are occurring. For combined construction/operation calculations, it was assumed that construction emission would be the same each year as building crews are to remain constant. Operations are expected to be variable and linear with respect to occupancy and would be a function of the worst-case operational emissions at buildout multiplied by the uniform fractional build out each year starting in 2020. It’s assumed that 20 percent would be built by the end of 2020, 35 percent in 2022, 50 percent in 2021, 65 percent in 2023, 80 percent in 2024 and full occupancy in 2025. For full combined construction and operation modelling details, refer to Appendix D

As shown in the analysis presented above, construction and operation of the proposed project would separately result in potentially significant impacts to air quality. Therefore, when construction and operation are combined (as detailed in Appendix D), the proposed project is expected to exceed daily emissions thresholds similar to that of construction and operation separately. Therefore, the combined construction and operation phases would result in a **potentially significant** impact related to violations of an air quality standard (**Impact AQ-4**).

2.2.3.3 Impacts to Sensitive Receptors

Guidelines for the Determination of Significance

A significant impact would result if:

- The project places sensitive receptors near CO hotspots or creates CO hotspots near sensitive receptors.
- Project implementation will result in exposure to TACs resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics–Best Available Control Technology (T-BACT) or a health hazard index greater than 1 would be deemed as having a potentially significant impact.

Analysis

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Air quality regulators typically define sensitive receptors as schools (preschool–12th grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purposes of CEQA analysis in the County, the definition of a sensitive receptor also includes residents. The two primary emissions of concern regarding health effects for land development projects are diesel exhaust particulate matter (DPM) during construction and CO hotspots related to traffic congestion. Additionally, due to blasting activities during construction, Crystalline Silica would also be an emission pollutant of concern for the proposed project.

Carbon Monoxide

Mobile-source impacts occur both regionally and locally. Regionally, project-related construction travel would add to regional trip generation and increase the VMT within the local airshed and the SDAB. Locally, the proposed project construction traffic would be added to the roadway system in the vicinity of the project site. If this traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SDAB is steadily decreasing.

Carbon monoxide transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors such as residents, school children, hospital patients, and the elderly. Typically, high CO concentrations are associated with urban roadways or intersections operating at an unacceptable level of service (LOS). CO hotspots have been found to occur only at signalized intersections that operate at or below level of service (LOS) E with peak-hour traffic volumes exceeding 3,000 vehicles (County of San Diego 2007). Projects contributing to adverse traffic impacts may result in the formation of CO hotspots.

Mobile source emissions during construction activities would include those from daily construction worker trips to and from the site, material deliveries, on- and off-site construction equipment, concrete trucks, water trucks, and dump trucks hauling materials. Construction traffic would be temporary and short-term in nature, and would occur intermittently throughout the various phases of construction reducing the likelihood of the formation of CO hotspots. Therefore, analysis of the health risk effects from CO hotspots focuses on long-term effects from operational traffic.

The proposed project would directly result in a change to LOS E or worse and would have a peak-hour traffic volume exceeding 3,000 vehicles on the following intersections according to Appendix M, Traffic Impact Study:

- SR 76 and East Vista Way (existing plus project and cumulative plus project scenarios)
- SR 76 and North River Road (cumulative plus project scenario)
- SR 76 and Olive Hill Road (cumulative plus project scenario)
- SR 76 and South Mission Road (cumulative plus project scenario)
- SR 76 and Gird Road (cumulative plus project scenario)
- SR 76 and Old Highway 395 (cumulative plus project scenario)
- I-15 Southbound Ramps and SR 76 (cumulative plus project scenario)
- I-15 Northbound Ramps and SR 76 (cumulative plus project scenario)

Although each of these intersections would operate at LOS E or worse and would have a peak-hour traffic volume exceeding 3,000 vehicles, the worst case intersections of SR 76 and Olive Hill Road as well as SR 76 and South Mission Road were used to model CO hotspots. For this analysis the EMFAC 2011 model was used to determine the appropriate emission factors and the CALINE4 dispersion model was run to determine the CO concentration. It was assumed that sensitive receptors would be located approximately 25 feet away from each roadway leading to these intersections. Additional details on the modeling assumptions and inputs are discussed in Appendix D.

Table 2.2-7, Estimated CO Hotspot Concentration Levels, presents the worst-case CO hotspot concentrations as a result of the proposed project.

As shown, under the worst-case scenario the proposed project would not create CO hotspot concentrations in excess of the CAAQS. Therefore, impacts would be **less than significant**.

Toxic Air Contaminants – Diesel Particulate Matter and Crystalline Silica

Project construction would result in emissions of DPM from heavy-duty construction equipment and trucks operating on the project site (e.g., water trucks). DPM is characterized as a TAC by CARB. The Office of Environmental Health Hazard Assessment (OEHHA) has identified carcinogenic and noncarcinogenic effects from short-term (acute) and long-term (chronic) exposure, but it has not established a reference acute exposure level to DPM.

Cancer risk is defined as the increase in lifetime probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased probability in 1 million. The cancer risk from inhalation of a TAC is estimated by calculating the inhalation dose in units of milligrams/kilogram body weight per day based on an ambient concentration in units of micrograms per cubic meter ($\mu g/m^3$), breathing rate, and exposure period, and multiplying the dose by the inhalation cancer potency factor, expressed as (milligrams/kilogram body weight per day)$^{-1}$. It should also be noted that construction activity would occur throughout the approximately 175 acre construction area; thus, sources of DPM emissions (e.g., heavy-duty construction equipment) would not be concentrated in any one area for the entire construction period. Additionally, the proposed project is expected to generate the maximum DPM during the grading or earthwork component of the proposed project, which is expected to be approximately 2,048 workdays.

The DPM emissions from diesel-powered construction equipment and on-site diesel-powered trucks that would be used during construction are provided in Appendix D. To estimate the ambient concentrations of DPM resulting from construction activities, a dispersion modeling analysis was performed using the SCREEN3 dispersion model and assuming no T-BACT emissions controls (e.g., diesel particulate filters and Tier III construction equipment at a minimum) were utilized on construction equipment. As shown in Appendix D, the maximum cancer risk resulting from construction of the proposed project would be 1.49 in 1 million.

According to SDAPCD Rule 1200, any project that would increase cancer risk between 1 and 10 in 1 million must implement measures to reduce that risk either through T-BACT, imposing emission limitations or utilizing emission control device/control techniques. As this risk is greater than 1 in 1 million, the proposed project is required to be compatible with T-BACT. The proposed project would reduce the cancer risk associated with DPM through the previously described project design features of utilizing construction equipment rated as Tier III at a minimum and requiring the use of diesel particulate filters on construction equipment. These project design features would be considered appropriate T-BACT technology, and would reduce cancer risk from DPM emissions during construction to below the SDAPCD threshold of 1 in 1 million. Therefore, impacts are associated with DPM cancer risk during construction would be **less than significant**.

Crystalline silica is a basic component of soil, sand, granite, and many other minerals. Quartz is the most common form of crystalline silica but other forms include cristobalite and tridymite. All three forms may become respirable size particles when workers chip, cut, drill, and blast or otherwise generate airborne dust. This dust can then be inhaled during normal human respiration. When humans are exposed to this dust for short-term or life-long periods both acute and chronic side effects can be experienced. Thresholds for both acute and chronic exposure are set by various agencies within California.

The noncancer health impact of an inhaled TAC is measured by the hazard quotient, which is the ratio of the ambient concentration of a TAC in units of $\mu g/m^3$ divided by the reference exposure level (REL), also in units of $\mu g/m^3$. The inhalation REL is the concentration at or below which no adverse health effects are anticipated. The REL is typically based on health effects to a particular target organ system, such as the respiratory system, liver, or central nervous system. Hazard quotients are then summed for each target organ system to obtain a hazard index.

As described in Appendix D, crystalline silica is typically estimated as 10 percent of PM_{10} emissions and the acute and chronic health risks associated with crystalline silica begin at 0.05 mg/m^3. Using the SCREEN3 dispersion model and then methodology described in detail in Appendix D, the proposed project would result in a Health Hazard Index of 0.04 and an annual concentration of 0.1855$\mu g/m^3$ of crystalline silica,. The project would only emit silica emissions during the grading phase of the project which is expected for 2,048 workdays or 391-24 hour days. Chronic exposure is based on long-term exposure which is defined as 12 percent of a lifetime, or about eight years for humans. Since the proposed project would not expose humans to silica or DPM emissions beyond two years normalized to 24 hour exposure days, chronic exposure is not expected. Therefore, the noncancer health impacts as a resulting from construction of the proposed project would be **less than significant**.

2.2.3.4 Odor Impacts

Odors are a form of air pollution that is most obvious to the general public. Odors can present significant problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern.

Guidelines for the Determination of Significance

Based on the County *Guidelines for Determining Significance – Air Quality*, the proposed project would have a significant impact if:

- The project, which is not an agricultural, commercial, or an industrial activity subject to SDAPCD standards, as a result of implementation, would either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons.

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 and SDAPCD Rule 51, commonly referred to as public nuisance law, prohibits emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

Section 6318 of the San Diego County Zoning Ordinance requires that all commercial and industrial uses be operated so as not to emit matter causing unpleasant odors that are perceptible by the average person at or beyond any lot line of the lot containing said uses. Section 6318 goes on to further provide specific dilution standards that must be met "at or beyond any lot line of the lot containing the uses" (County of San Diego 1979). SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative, and will focus on the existing and potential surrounding uses and location of sensitive receptors.

Analysis

Construction Impacts

Construction of proposed project would result in the emission of diesel fumes and other odors typically associated with construction activities. These compounds would be emitted in varying amounts on the site depending on where construction activities are occurring, number and types of construction activities occurring, and prevailing weather conditions, among other factors. Sensitive receptors located in the vicinity of the construction site may be affected. However, odors are highest near the source and would quickly dissipate off site. Any odors associated with construction activities would be temporary and would cease upon completion; therefore, impacts would be **less than significant**.

Operational Impacts

Land uses and industrial operations that are associated with odor complaints include large agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project would include a sewage lift station which may result in the generation of objectionable odors. All other proposed land uses, including residential, park, and the fire station, are not typically considered substantial sources of odor.

To ensure that the proposed on-site sewage lift station does not result in adverse odor impacts, the following features have been incorporated into project design:

- To prevent odors, the sewage lift station will be constructed below ground and will be covered such that odorous gases cannot escape.
- Sewage will be pumped out regularly to prevent foul odors from forming.

With the incorporation of these project design features for the sewage lift station, the project would not have potential to generate offensive or objectionable odors. Therefore, impacts would be **less than significant**.

2.2.4 Cumulative Impact Analysis

In analyzing cumulative impacts from a proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as nonattainment for the state and federal ambient air quality standards. The proposed project would have a cumulatively considerable impact if project-generated emissions would exceed thresholds for PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs. If the proposed project does not exceed thresholds and is determined to have less-than-significant project-specific impacts, it may still have a cumulatively considerable impact on air quality if the emissions from the project, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the proposed project would be considered to have a cumulative impact only if the proposed project's contribution accounts for a significant proportion of the cumulative total emissions.

Background ambient air quality, as measured at the monitoring stations maintained and operated by SDAPCD, measures the concentrations of pollutants from existing sources; therefore, past and present project impacts are included in the background ambient air quality data.

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to air quality includes the northeastern corner of the SDAB (San Diego County). However, localized cumulative effects may occur from fugitive dust, CO, and NO_x. Due to the nonattainment status of the SDAB, the primary air pollutants of concern would be NO_x and VOCs, which are ozone precursors, and PM_{10} and $PM_{2.5}$. NO_x and VOCs are primarily emitted from motor vehicles and construction equipment, while PM_{10} and $PM_{2.5}$ are emitted primarily as fugitive dust during construction. Because of the nature of ozone as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum ozone impacts generally occur downwind of the area in which the ozone precursors are released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, would tend to occur locally; thus, projects occurring in the same general area and in the same time period would tend to create cumulative air quality impacts.

Existing Cumulative Conditions

Air quality management in the geographic area for the cumulative impact assessment is the responsibility of the SDAPCD. Existing levels of development in San Diego County have led to the nonattainment status for ozone with respect to the CAAQS and NAAQS, and for PM_{10} and $PM_{2.5}$ with respect to the CAAQS. The nonattainment status is based on ambient air quality monitoring generally conducted in the urban portions of the County. No monitoring stations exist in the geographic area for the cumulative impact assessment, but air quality would generally be better than that in the urban areas in the western portion of the County due to the lack of major air pollutant sources. The air quality plans prepared by the SDAPCD reflect future growth under local development plans but are intended to reduce emissions countywide to levels that would comply with the NAAQS and CAAQS through implementation of new regulations at the local, state, and federal levels.

The separate guidelines of significance discussed below have been developed to respond to the following question from the CEQA Guidelines, Appendix G:

- Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is nonattainment under an applicable federal or state ambient air quality standard?

2.2.4.1 Cumulatively Considerable Net Increase of Criteria Pollutants (Construction)

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007) applies to the cumulative impact analysis. Cumulatively considerable net increases during the construction phase would typically occur if two or more projects near each other are simultaneously under construction. A significant impact would result if:

- A project that has a significant direct impact on air quality with regard to emissions of PM_{10}, $PM_{2.5}$, NO_x and/or VOCs, would also have a significant cumulatively considerable net increase.
- In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other proposed projects or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines.

Analysis

The SDAB is currently classified as a nonattainment area for the NAAQS and CAAQS for O_3, which is caused by contributions from O_3 precursors NO_x and VOCs. The SDAB is also classified as a nonattainment area for the CAAQS for PM_{10} and $PM_{2.5}$.

As discussed previously, the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. However, the emissions and pollutants would be primarily localized to the project site.

Construction of cumulative projects simultaneously with the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance and hauling activities, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials and worker vehicular trips. As indicated in Table 1-5 of this EIR, some of the cumulative projects in the vicinity of the project site with potential air quality issues include Pacifica Estates, Meadowood, Campus Park, and Lilac Hills Ranch. Fugitive dust (PM_{10} and $PM_{2.5}$) emissions would primarily result from site preparation activities. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles, the latter of which would generally be dispersed over a large area where the vehicles are traveling.

The proposed project would be required to comply with SDAPCD Rule 55 (Fugitive Dust) and would implement project design features to limit the amount of criteria pollutants emitted during construction, as discussed in Section 2.2.3.2. However, as the project could exceed the NO_x daily threshold of 250 pounds per day during construction, even with the incorporation of project design features, then the project could contribute to a potentially significant cumulative impact (**AQ-CUM-1**) when combined with reasonably foreseeable cumulative projects in the vicinity of the project site.

2.2.4.2 Cumulatively Considerable Net Increase of Criteria Pollutants (Operation)

Guidelines for the Determination of Significance

The following guideline from the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007) applies to the cumulative impact analysis for determining the cumulatively considerable net increases during the operational phase:

- A project that does not conform to the RAQS and/or has a significant direct impact on air quality with regard to operational emissions of PM_{10}, $PM_{2.5}$, NO_x, and/or VOCs, would also have a significant cumulatively considerable net increase.
- Projects that cause road intersections to operate at or below a level of service E (analysis only required when the addition of peak-hour trips from the proposed project and the surrounding projects exceeds 2,000) and create a CO hotspot which would result in a cumulatively considerable net increase of CO.

Analysis

With regard to cumulative impacts associated with O_3 precursors, in general, if a project is consistent with the community and general plans, it has been accounted for in the O_3 attainment demonstration contained within the RAQS. Therefore, if a project is consistent with the applicable community and general plans, it would not cause a cumulative contribution to the ambient air quality for O_3 because it does not propose growth-inducing uses that would contribute substantially to local population or employment growth and associated VMT on local roadways. As previously described in Section 2.2.3.1, the proposed project would result in a change in General Plan land use designation that would increase population and VMT that was not considered in the growth projections used in the RAQS. Additionally, the proposed project would exceed the SDAPCD threshold of significance for NO_x, CO, SOx, PM_{10}, $PM_{2.5}$, and VOC emissions after full occupancy of the proposed project and during the combined construction and operation phasing, as discussed in Section 2.2.3.2. Therefore, the proposed project would have a cumulatively considerable contribution to a cumulative air quality impact during operations and would result in a **cumulative impact (Impact AQ-CUM-2)**.

2.2.5 Significance of Impacts Prior to Mitigation

Based on the analyses above, the proposed project would have the following significant impacts prior to mitigation:

Impact AQ-1 The project has not been considered in the SIP or RAQS because it would substantially increase the density over the site over what has been planned. The project would contribute unplanned local population growth, employment growth, and associated VMT on local roadways.

Impact AQ-2 For 2016 when emissions from blasting could occur, daily construction emissions of NO_x would exceed the daily threshold of 250 pounds per day, even with the incorporation of project design features.

Impact AQ-3 Daily operational emissions would exceed the thresholds for NO_x, CO, SO_x, PM_{10}, $PM_{2.5}$, and VOC due to area sources.

Impact AQ-4 Daily combined construction and operational emissions are expected to exceed SDAPCD thresholds and violate federal and state ambient air quality standards.

Impact AQ-CUM-1 The proposed project that has a significant direct impact on air quality with regard to emissions of NO_x and therefore would also have a significant cumulatively considerable net increase.

Impact AQ-CUM-2 The proposed project operations represents a substantial increase in projected traffic over current conditions and results in a cumulatively considerable contribution to O_3 precursors, NO_x, CO, SOx, PM_{10}, and $PM_{2.5}$ emissions after full occupancy of the proposed project and during the combined construction and operation phasing. In addition, the project is inconsistent with the growth projections used in preparation of the SDAPCD RAQS and SIP.

2.2.6 Mitigation

The following mitigation would reduce **Impact-AQ-1**, but not to a level less than significant.

M-AQ-1 The County shall provide a revised housing forecast to SANDAG to ensure that any revisions to the population and employment projections used by SDAPCD in updating the RAQS and the SIP will accurately reflect anticipated growth due to the proposed project.

Implementation of the project would conflict with the existing San Diego RAQS and applicable SIP because the density proposed is not consistent with current land use plans and SANDAG housing forecasts (**Impact AQ-1**). **M-AQ-1** requires that the County provide a revised housing forecast to SANDAG to ensure that any revisions to the population and employment projects are considered. The provision of housing information would assist SANDAG in revising the housing forecast; however, until the anticipated growth is included in the emission estimates of the RAQS and the SIP, **Impact AQ-1** would remain **significant and unavoidable**.

The following mitigation would reduce **Impact-AQ-2** to a level less than significant:

M-AQ-2 Prior to the start of construction activities, the project applicant, or his designee, shall ensure the following are incorporated into construction plans:

- All heavy diesel construction equipment is classified as Tier III at a minimum. This will also satisfy health risk impacts related to diesel particulates under T-BACT guidelines.
- Equipment during building construction meet Tier IV guidelines at a minimum. This will also satisfy health risk impacts related to diesel particulates under T-BACT guidelines.
- Only low VOC paints shall be utilized (150 g/L or less).

The following mitigation would reduce **Impact-AQ-3** to a level less than significant:

M-AQ-3 Prior to the issuance of building permits, the project applicant shall ensure that project plans show the provision of only natural gas hearths.

Implementation of mitigation measures **M-AQ-2** and **M-AQ-3** would reduce **Impact-AQ-4** to a level less than significant.

Implementation of mitigation measures **M-AQ-2** would reduce **Impact-AQ-CUM-1** to a level less than significant.

Implementation of mitigation measures **M-AQ-1** and **M-AQ-3** would reduce **Impact-AQ-CUM-2**, but not to a level less than significant.

2.2.7 Conclusion

The following discussion provides the significance conclusion reached after application of the mitigation measures in each of the above impact analyses, and the level of impact that would result after implementation of the project with mitigation. Where mitigation measures do not reduce impacts to less than significant, this section focuses on the feasibility of mitigating the impacts.

Conformance with the Regional Air Quality Strategy

The proposed project site is currently designated Rural Lands 40 (RL-40) with a permitted density of 1 dwelling unit per 40 acres and would change the General Plan land use designation to a Village Residential 2.9 (VR-2.9) on the southern portion of the project site and an associated Zoning Reclassification to Specific Planning Area (S88) that would allow for the development of 780 residential units on the project site, resulting in an overall density of 2.33 dwelling units per acre. As such, the proposed project would consist of a more intense land use than what is currently allowed under the County General Plan. As the proposed project would contribute to local population growth, employment growth, and associated VMT on local roadways, the proposed project is not considered accounted for in the SIP and RAQS, and the proposed project would conflict with or obstruct the implementation with local air quality plans. The provision of housing information (**M-AQ-1**) would assist SANDAG in revising the housing forecast and therefore assist SDAPCD in revising the RAQC and SIP; however, until the anticipated growth is included in the emission estimates of the RAQS and the SIP, the direct impacts (**Impact AQ-1**) would remain **significant and unavoidable**.

Conformance to Federal and State Ambient Air Quality Standards

Construction

For 2016 when emissions from blasting could occur, daily construction emissions of NO_x would exceed the daily threshold of 250 pounds per day, even with the incorporation of project design features (**Impact AQ-2**). However, with the implementation of Tier III construction equipment (Tier IV during building construction) and using low VOC paint, as required by mitigation measure **M-AQ-2**, potentially significant construction emissions would be reduced to **less than significant**, as shown in Table 2.2-8, Construction Estimated Daily Maximum Emissions with Mitigation.

Operation

Daily operational emissions would exceed the thresholds for NOx, CO, SO_x, PM_{10}, $PM_{2.5}$, or VOC due to area sources (**Impact AQ-3**). Mitigation provided (**M-AQ-3**) would reduce daily operational emissions through the provision of only natural gas hearths within each residential unit. With implementation of mitigation, impacts during operation would be **less than significant**.

During phased buildout as construction overlaps with partial occupancy, the proposed project is expected to exceed emissions thresholds similar to that of construction and operation separately (**Impact AQ-4**). Mitigation proposed for the construction phase and full occupancy operation phase (**M-AQ-2**, **M-AQ-3,** and **M-AQ-4**) would fully mitigate this impact to **less than significant**, as shown in Table 2.2-9, Expected Daily Pollutant Generation, and Table 2.2-10, Estimated Daily Maximum Combined Construction and Operational Emissions.

Cumulatively Considerable Impacts

Construction

Because the project could exceed the NO_x daily threshold of 250 pounds per day during construction, even with the incorporation of project design features, then the project could contribute to a potentially significant cumulative impact (**Impact AQ-CUM-1**) when combined with reasonably foreseeable cumulative projects in the vicinity of the project site. However, with the implementation of Tier III construction equipment (Tier IV during building construction) and using low VOC paint, as required by mitigation measure **M-AQ-2**, potentially significant construction emissions would be reduced to less than significant, as shown in Table 2.2-8, and therefore the project would **not contribute to a cumulative considerable impact** with implementation of mitigation.

Operation

The proposed project operations represents a substantial increase in projected traffic over current conditions and results in a cumulatively considerable contribution to O_3 precursors**,** NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions after full occupancy of the proposed project and during the combined construction and operation phasing. While mitigation measure M-AQ-3 would result in a decrease in project emissions during operation, the project would still be inconsistent with the growth projections used in preparation of the SDAPCD RAQS and SIP. The provision of housing information (**M-AQ-1**) would assist SANDAG in revising the housing forecast and therefore assist SDAPCD in revising the RAQS and SIP; however, until the anticipated growth is included in the emission estimates of the RAQS and the SIP, the cumulative impacts (Impact AQ-CUM-1) would remain **significant and unavoidable**.

Table 2.2-1
SDAB Attainment Classification

Pollutant	Federal Designation[a]	State Designation[b]
O_3 (1-hour)	Attainment[1]	Nonattainment
O_3 (8-hour – 1997) (8-hour – 2008)	Attainment (Maintenance) Nonattainment (Marginal)	Nonattainment
CO	Unclassifiable/Attainment[2]	Attainment
PM_{10}	Unclassifiable[3]	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment
NO_2	Unclassifiable/Attainment	Attainment
SO_2	Attainment	Attainment
Pb	Attainment	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen Sulfide	(no federal standard)	Unclassified
Visibility	(no federal standard)	Unclassified

Sources: [a]EPA 2014; [b]CARB 2014a.

1 The federal 1-hour standard of 0.12 ppm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.

2 The western and central portions of the SDAB are designated attainment, while the eastern portion is designated unclassifiable/attainment.

3 At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Table 2.2-2
Ambient Air Quality at Escondido East Valley Parkway Monitoring Station (ppm unless otherwise stated)

Pollutant	Averaging Time	2011	2012	2013	Most Stringent Ambient Air Quality Standard
O_3	1 hour	**0.098**	0.084	0.084	0.09 ppm
	8 hour	**0.089**	**0.073**	**0.074**	0.070 ppm
PM_{10}	Annual	18.8	18.1	23.2	20 μg/m^3
	24 hour	40.0	33.0	**80.0**	50 μg/m^3
$PM_{2.5}$	Annual	10.4	10.5	10.5	12 μg/m^3
	24 hour	27.4	**70.7**	**56.3**	35 μg/m^3
NO_2	Annual	—	0.013	0.013	0.030 ppm
	1 hour	0.062	0.062	0.061	0.100 ppm
CO	8 hour	2.20	3.61	—	9.0 ppm

Sources: CARB 2014b.

Note: There was insufficient data available to determine the 8-hour concentration of CO in 2013. Exceedences of the most stringent ambient air quality standard are shown in bold.

Table 2.2-3
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]	
		Concentration[3]	*Primary*[3,4]	*Secondary*[3,5]
O_3[6]	1-hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard
	8-hour	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)	
CO	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	—
	8-hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
NO_2[7]	1-hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
SO_2[8]	1-hour	0.25 ppm (655 μg/m³)	0.75 ppm (196 μg/m³)	—
	3-hour	—	—	0.5 ppm (1300 μg/m³)
	24-hour	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[7]	
	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)[7]	—
PM_{10}[9]	24-hour	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[9]	24-hour	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[10,11]	30-day Average	1.5 μg/m³	—	—
	Calendar Quarter	—	1.5 μg/m³ (for certain areas)[10]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m³	
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m³)	—	—
Vinyl chloride[10]	24-hour	0.01 ppm (26 μg/m³)	—	—
Sulfates	24-hour	25 μg/m3	—	—
Visibility reducing particles[12]	8-hour (10:00 a.m. to 6:00 p.m. PST)	See footnote 11	—	—

ppm= parts per million by volume μg/m³ = micrograms per cubic meter mg/m³= milligrams per cubic meter

Source: Appendix D.

Notes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
6. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
7. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
8. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 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.
9. On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m3 to 12.0 µg/m3 . The existing national 24- hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m3 , as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Table 2.2-4
SDAPCD Air Quality Significance Thresholds

Construction Emissions			
Pollutant	*Total Emissions (Pounds per Day)*		
Respirable Particulate Matter (PM_{10})	100		
Fine Particulate Matter ($PM_{2.5}$)	55		
Oxides of Nitrogen (NO_x)	250		
Oxides of Sulfur (SO_x)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOC)	75*		
Operational Emissions			
Pollutant	*Total Emissions*		
	Pounds per Hour	*Pounds per Day*	*Tons per Year*
Respirable Particulate Matter (PM_{10})	—	100	15
Fine Particulate Matter ($PM_{2.5}$)	—	55	10
Oxides of Nitrogen (NO_x)	25	250	40
Sulfur Oxides (SO_x)	25	250	40
Carbon Monoxide (CO)	100	550	100

Table 2.2-4
SDAPCD Air Quality Significance Thresholds

Operational Emissions			
	Total Emissions		
Pollutant	*Pounds per Hour*	*Pounds per Day*	*Tons per Year*
Lead and Lead Compounds	—	3.2	0.6
Volatile Organic Compounds (VOC)	—	75*	13.7

Source: SDAPCD Rules 1501 and 20.2(d)(2).
* VOC threshold based on the threshold of significance for VOCs from the South Coast Air Quality Management District for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance.

Table 2.2-5
Construction Estimated Daily Maximum Emissions (lb/day) with Project Design Features

Year	VOC	NO_x	CO	PM_{10} (dust)	PM_{10} (exhaust)	PM_{10} (total)	$PM_{2.5}$ (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (total)	SO_x
2016	16.86	192.32	125.73	27.20	8.90	36.10	14.66	8.19	22.84	0.17
2017	15.87	178.80	119.19	27.20	8.23	35.43	14.66	7.58	22.23	0.17
2018	25.91	154.23	107.57	27.20	7.00	34.19	14.66	6.44	21.09	0.17
2019	25.38	32.51	48.13	5.20	1.57	6.77	1.39	1.48	2.87	0.11
2020	24.98	29.18	46.24	5.20	1.37	6.57	1.39	1.29	2.68	0.11
2021	24.63	25.96	44.65	5.20	1.18	6.38	1.39	1.11	2.51	0.11
2022	24.33	23.27	43.19	5.20	1.02	6.22	1.39	0.96	2.35	0.11
2023	24.07	21.24	41.87	5.20	0.90	6.09	1.39	0.84	2.24	0.11
Blasting Emissions		102	402		20.59		20.59			
2016 w/ Blasting (Maximum)	16.86	294.32	527.73	0.17	47.79	8.9	56.69	14.66	8.19	22.84
Significance Threshold	**75**	**250**	**550**	**250**	**—**	**—**	**100**	**—**	**—**	**55**
Threshold exceeded?	**No**	**Yes**	**No**	**No**	—	—	**No**	—	—	**No**

Source: See Appendix D.

Table 2.2-6
Estimated Daily Maximum Operational Emissions at Full Occupancy (lb/day)

Emissions Category	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_x
Summer Scenario						
Area	1,232.58	16.94	1,534.84	0.58	206.96	206.95
Energy	0.54	4.62	1.98	0.03	0.37	0.37
Mobile	21.30	42.90	231.55	0.86	59.46	16.46
Total	*1,254.42*	*64.46*	*1,768.38*	*1.47*	*266.79*	*223.78*

Table 2.2-6
Estimated Daily Maximum Operational Emissions at Full Occupancy (lb/day)

Emissions Category	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_X
Winter Scenario						
Area	1,232.58	16.94	1,534.84	206.96	206.95	0.58
Energy	0.54	4.62	1.98	0.37	0.37	0.03
Mobile	22.31	45.75	236.40	59.46	16.46	0.82
Total	*1,255.43*	*67.31*	*1,773.23*	*266.79*	*223.79*	*1.43*
Threshold of Significance	**75**	**250**	**550**	**100**	**55**	**250**
Thresholds Exceeded?	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**No**

Source: See Appendix D.

Table 2.2-7
Estimated CO Hotspot Concentration Levels

Intersection	Cumulative Plus Project Traffic Scenario				
	Vehicles Per Hour		*CO Concentration (ppm)*		
	AM	*PM*	*AM*	*PM*	*8 Hour*
SR 76 and Olive Hill Road	5,761	6,499	4.7	4.9	3.4
SR 76 and South Mission Road	5,617	8,813	4.4	4.5	3.1
CAAQS Significance Threshold			**20**	**20**	**9.0**
Exceeds Significance Threshold			**No**	**No**	**No**

Source: See Appendix D.

Table 2.2-8
Construction Estimated Daily Maximum Emissions (lb/day) with Mitigation

Year	VOC	NO_x	CO	PM_{10} (dust)	PM_{10} (exhaust)	PM_{10} (total)	$PM_{2.5}$ (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (total)	SO_x
2017	2.07	50.87	80.90	27.12	1.91	29.03	14.63	2.00	16.64	0.15
2018	2.35	54.98	83.43	27.12	2.10	29.21	14.63	2.17	16.81	0.15
2019	2.48	57.16	84.52	27.12	2.19	29.30	14.63	2.26	16.89	0.15
2020	23.02	21.21	56.07	10.35	0.85	11.20	3.81	0.85	4.66	0.12
2021	22.90	10.68	45.54	5.20	0.27	5.47	1.39	0.26	1.65	0.11
2022	22.81	9.91	44.29	5.20	0.27	5.47	1.39	0.26	1.65	0.11
2023	22.81	9.21	43.10	5.20	0.26	5.46	1.39	0.25	1.65	0.11
2024	22.70	9.09	41.98	5.20	0.26	5.46	1.39	0.25	1.65	0.11
Blasting Emissions		102	402	20.59		20.59				

Table 2.2-8
Construction Estimated Daily Maximum Emissions (lb/day) with Mitigation

Year	VOC	NO_x	CO	PM_{10} (dust)	PM_{10} (exhaust)	PM_{10} (total)	$PM_{2.5}$ (dust)	$PM_{2.5}$ (exhaust)	$PM_{2.5}$ (total)	SO_x
Construction w/ Blasting Mitigated (Maximum)	23.02	159.16	486.52	47.71	2.19	49.89	14.63	2.26	16.89	0.15
Significance Threshold	**75**	**250**	**550**	**250**	**—**	**—**	**100**	**—**	**—**	**55**
Threshold exceeded?	**No**	**No**	**No**	**No**	—	—	**No**	—	—	**No**

Source: Appendix D.

Table 2.2-9
Expected Daily Pollutant Generation (lb/day)

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area	1,232.58	16.94	1,534.81	0.58	206.96	206.95
Energy	0.54	4.62	1.98	0.03	0.37	0.37
Mobile	20.70	41.55	224.12	0.86	59.46	16.46
Total (Unmitigated)	1,253.82	63.11	1,760.92	1.47	266.79	223.79
SDAPCD Thresholds	**75**	**250**	**550**	**250**	**100**	**55**
Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**
Area	40.23	0.74	64.36	0.00	1.30	1.29
Energy	0.54	4.62	1.98	0.03	0.37	0.37
Mobile	20.70	41.55	224.12	0.86	59.46	16.46
Total (Mitigated)	61.47	46.92	290.47	0.90	61.14	18.12
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Scenario						
Area	1,232.58	16.94	1,534.81	0.58	206.96	206.95
Energy	0.54	4.62	1.98	0.03	0.37	0.37
Mobile	21.67	44.30	228.73	0.82	59.47	16.46
Total (Unmitigated)	1,254.79	65.86	1,765.52	1.43	266.80	223.79
SDAPCD Thresholds	**75**	**250**	**550**	**250**	**100**	**55**
Significant?	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**
Area	40.23	0.74	64.36	0.00	1.30	1.29
Energy	0.54	4.62	1.98	0.03	0.37	0.37
Mobile	21.67	44.30	228.73	0.82	59.47	16.46
Total (Mitigated)	62.45	49.66	295.08	0.85	61.14	18.13
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix D.
Note: Daily pollutant generation assumes trip distances within CalEEMod.

Table 2.2-10
Estimated Daily Maximum Combined Construction and Operational Emissions (lb/day)

Emissions Category	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_x
Summer Scenario						
2020 (20% occupancy)	37.28	47.74	111.63	22.58	5.48	0.30
2021 (35% occupancy)	46.14	42.38	146.32	26.60	7.52	0.43
2022 (50% occupancy)	55.06	46.73	188.42	35.77	10.08	0.56
2023 (65% occupancy)	64.03	51.74	230.68	44.94	12.68	0.70
2024 (80% occupancy)	73.05	57.63	273.06	54.11	15.30	0.83
2025 – 100 % Operational (No Combined Construction Emissions)	61.47	46.92	290.47	58.56	2.57	0.90
Winter Scenario						
2020 (20% occupancy)	37.47	48.29	112.55	22.58	5.48	0.29
20251 (35% occupancy)	46.48	43.34	147.93	26.60	7.52	0.41
2022 (50% occupancy)	55.55	48.10	190.72	35.77	10.08	0.54
2023 (65% occupancy)	64.66	53.52	233.67	44.94	12.68	0.67
2024 (80% occupancy)	73.83	59.83	276.74	54.11	15.30	0.80
2025 – 100 % Operational (No Combined Construction Emissions)	62.45	49.66	295.08	61.14	18.13	0.85
Threshold of Significance	**75**	**250**	**550**	**100**	**55**	**250**
Thresholds Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix D.
Note: Criteria pollutant emissions that exceed the SDAPCD threshold of significance are shown in bold.

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