2.3 Air Quality

This section of the environmental impact report (EIR) evaluates the air quality impacts of Otay Ranch Village 14 and Planning Areas 16/19 (Proposed Project), and presents the relevant existing and regulatory settings. In addition, this section evaluates the significance of potential impacts associated with criteria air pollutants and toxic air contaminants (TACs) generated during construction and operation, assesses potential carbon monoxide (CO) hotspot and health risk impacts, and identifies feasible mitigation measures to reduce the Proposed Project's significant air quality impacts to the extent feasible.

The analysis is based on the Air Quality Technical Report prepared for the Proposed Project (Appendix 2.3-1). The Proposed Project's criteria air pollutant emissions estimates presented in this section were primarily calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.1.[1,2]

This section tiers from the 1993 Otay Ranch Final Program EIR (Otay Ranch PEIR) (City of Chula Vista and County of San Diego 1993a) because the Proposed Project is within the boundaries of the Otay Ranch General Development Plan/Otay Subregional Plan (GDP/SRP) (City of Chula Vista and County of San Diego 1993b), and development of the Project Area was analyzed in the Otay Ranch PEIR. ~~Nonetheless, detailed consideration of the Proposed Project's air quality impacts is presented in this section.~~ Since certification of the Program EIR, the development concept for the Proposed Project has been further refined and more precise and site-specific technical analyses were performed to determine the potential impacts of the Proposed Project. Accordingly, this analysis for the Proposed Project is different than that contained within the Otay Ranch PEIR because it specifically considers the Project Area, which is a subset of Otay Ranch. As a result, this EIR's determinations regarding potential air quality impacts and mitigation requirements are specific to the Proposed Project.

1 CalEEMod is an emissions model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with multiple air districts across California.

2 CalEEMod Version 2016.3.1 was the current version of CalEEMod when the Proposed Project analysis was initiated. In October 2017, CalEEMod Version 2016.3.2 was released, followed by CalEEMod Version 2016.3.2.25 in November 2017, which fixed a Windows security update issue in Version 2016.3.2. CalEEMod Version 2016.3.2 included five upgrades and 10 bug fixes. The most notable upgrade and bug fix, respectively, is the incorporation of percent reductions in default energy consumption to reflect compliance with the 2016 Title 24, Part 6 Building Energy Efficiency Standards, and fixing the bug that overestimated annual construction PM_{10} and $PM_{2.5}$ emissions from fugitive dust in multiple year scenario runs (SCAQMD 2017). All CalEEMod Version 2016.3.2 updates were reviewed and it was determined that use of CalEEMod Version 2016.3.2 is not anticipated to result in greater criteria air pollutant emissions compared to estimated Proposed Project emissions generated using CalEEMod Version 2016.3.1. Accordingly, use of CalEEMod Version 2016.3.1 is appropriate for the Proposed Project's air quality analysis.

2.3.1 Existing Conditions

The Project Area is located within the San Diego Air Basin (SDAB) and is subject to the San Diego Air Pollution Control District's (SDAPCD) guidelines and regulations. The SDAB is one of 15 air basins that geographically divide California. The SDAB lies in the southwest corner of California, covers approximately 4,260 square miles, and comprises the entire San Diego region.

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Meteorological and topographical conditions also are important because factors such as wind speed and direction, air temperature gradients, sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of criteria air pollutants.[3] These factors are described in Sections 2.3.1.1 and 2.3.1.2, below. Criteria air pollutants and TACs are summarized in Section 2.3.1.3, and Sections 2.3.1.4 and 2.3.1.5 present the SDAB attainment designations of ambient air quality standards and ambient air quality monitored at nearby stations, respectively.

2.3.1.1 Climate and Topography

Regional Climate and Meteorological Conditions

The climate of the San Diego region, as in most of Southern California, is influenced by the strength and position of the semi-permanent high-pressure system over the Pacific Ocean, known as the Pacific High. This high-pressure ridge over the West Coast often creates a pattern of late-night and early-morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The SDAB is characterized as a Mediterranean climate with dry, warm summers and mild, occasionally wet winters. Average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the high 90s, with an average of 201 days warmer than 70°F. The SDAB experiences 9 to 13 inches of rainfall annually, with most of the region's precipitation falling from November through March, with infrequent (approximately 10%) precipitation during the summer. El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego, where San Diego receives less than normal rainfall during La Niña years.

The interaction of ocean, land, and the Pacific High maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). The winds tend to blow onshore in the day and offshore at night. Local terrain is often the dominant factor inland,

[3] The discussion of meteorological and topographical conditions of the SDAB is based on information provided in the SDAPCD *2016 Monitoring Plan* (SDAPCD 2017a), the County of San Diego *Guidelines for Determining Significance – Air Quality* (County of San Diego 2007), the County of San Diego *General Plan Update EIR* (County of San Diego 2011b), and the CARB *Recommended Area Designation for the 2010 Federal Sulfur Dioxide Standard* (CARB 2011).

and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

Topographical Conditions

Topography in the San Diego region varies greatly, from beaches in the west to mountains and desert in the east; much of the topography in between consists of mesa tops intersected by canyon areas. Along with local meteorology, topography influences the dispersal and movement of pollutants in the SDAB. Mountains to the east prohibit dispersal of pollutants in that direction and help trap pollutants in inversion layers.

The topography of the SDAB also drives pollutant levels, and the SDAB is classified as a "transport recipient," whereby pollutants are transported from the South Coast Air Basin to the north and, when the wind shifts direction, from Tijuana, Mexico, to the south.

Site-Specific Conditions

The local climate in southwestern San Diego County is characterized as semi-arid with consistently mild, warmer temperatures throughout the year. The average summertime high temperature in the region is approximately 81°F, with highs approaching 80°F in August on average, and record highs approaching 104°F in August. The average wintertime low temperature is approximately 43.7°F, although record lows have approached 32°F in January. Average precipitation in the local area is approximately 9 inches per year, with the bulk of precipitation falling between December and March (WRCC 2009).

The entire Project Area is undeveloped, with on-site elevation ranging between 525 and 1,650 feet above mean sea level. The Project Area is diverse in topography and contains a flat valley along Proctor Valley Road and rolling hills within the remainder of the Project Area. The two eastern portions of Planning Area 16 are located within portions of the Jamul Mountains and contain the highest elevations.

2.3.1.2 Air Pollution Climatology

The favorable climate of San Diego also works to create air pollution problems. Sinking, or subsiding air from the Pacific High, creates a temperature inversion known as a subsidence inversion, which acts as a "lid" to vertical dispersion of pollutants. Weak summertime pressure gradients further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic emissions combined with strong sunshine leads to photochemical reactions that result in the creation of ozone (O_3) at this surface layer. In addition, light winds during the summer further limit ventilation.

In the fall months, the SDAB is often impacted by Santa Ana winds, which are the result of a high-pressure system over the Nevada and Utah regions that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean. The Santa Ana winds are powerful and can blow the SDAB's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin and greatly increase O_3 concentrations in the San Diego area.

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 San Diego County. The transport of air pollutants from Los Angeles to San Diego can also occur within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

2.3.1.3 Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, 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), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. These pollutants are discussed below. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. A more detailed discussion of health effects of criteria air pollutants is provided in Appendix E of Appendix 2.3-1.

Ozone (O_3). O_3 is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. 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. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface (tropospheric ozone). The O_3 that the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects. Stratospheric O_3 occurs naturally in the upper

atmosphere, where it beneficially reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere.

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 (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, older adults, and young children.

Nitrogen Dioxide (NO_2). NO_2 is present in all urban atmospheres, where the major mechanism for its formation is the oxidation of nitric oxide. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016a).

Carbon Monoxide (CO). CO is formed by the incomplete combustion of hydrocarbon, or fossil fuels. Therefore, 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 nonreactive 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, which is a typical situation at dusk in urban areas November through February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide (SO_2). SO_2 is primarily from incomplete combustion of sulfur-containing fossil fuels. The 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. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter (PM). Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter 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. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and 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. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed 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 tissue. Suspended particulates also damage and discolor surfaces where they settle, and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and older adults may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead (Pb). Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between

1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

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

Volatile Organic Compounds (VOCs). Hydrocarbons, like VOCs, are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the main sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Non-Criteria Pollutants

Toxic Air Contaminants (TACs). 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. TACs are identified by federal and state agencies based on a review of available scientific evidence. Examples of TACs include diesel particulate matter (DPM), 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 on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter (DPM). DPM is part of a complex mixture that makes up diesel exhaust. More than 90% of DPM is less than 1 micrometer in diameter (approximately1/70th the

diameter of a human hair), and is a subset of $PM_{2.5}$ (CARB 2016a). DPM is typically composed of carbon particles ("soot," also called black carbon, or BC) and numerous organic compounds, including more than 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016a). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) as a TAC in August 1998 (17 CCR 93000).

DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016a). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and older adults who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and is quite subjective, since people may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. When fungal spores are present, any activity that disturbs the soil, such as digging, grading, or other earth-moving operations, can cause the spores to become airborne and thereby increase the risk of exposure. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline sandy soils.

Valley Fever is not considered highly endemic to San Diego. Per the San Diego County Health and Human Services Agency, the 10-year average (2007–2016) for Coccidioidomycosis cases in

San Diego County is 4.4 cases per 100,000 people per year (Nelson 2017). For the three zip codes in the Project Area (91914, 91935, and 91978), the incidence of Coccidioidomycosis is either less than the average County rate or had too few cases to be reliably used to calculate a rate (Nelson 2017).[4] Statewide incidences in 2016 were 13.7 per 100,000 people (CDPH 2016).

Even if present at a site, earth-moving activities may not result in increased incidence of Valley Fever. Propagation of *Coccidioides immitis* is dependent on climatic conditions, with the potential for growth and surface exposure highest following early seasonal rains and long dry spells. *Coccidioides immitis* spores can be released when filaments are disturbed by earth-moving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing Valley Fever. Moreover, exposure to *Coccidioides immitis* does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection (USGS 2000).

2.3.1.4 San Diego Air Basin Attainment Designation

Pursuant to the federal Clean Air Act (discussed in Section 2.3.2.1), the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the National Ambient Air Quality Standards (NAAQS) have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on California Ambient Air Quality Standards (CAAQS) rather than the NAAQS.

Table 2.3-1, SDAB Attainment Classification, summarizes the SDAB's federal and state attainment designations for each of the criteria pollutants. In summary, the SDAB is designated as a nonattainment area for the 2008 8-hour O_3 NAAQS and O_3, PM_{10}, and $PM_{2.5}$ CAAQS. The portion of the SDAB where the Proposed Project is located is designated as attainment or unclassifiable/unclassified for all other criteria pollutants under the NAAQS and CAAQS.

[4] Per the County of San Diego Health & Human Services Agency, Coccidioidomycosis incidence counts for a single year and a single zip code are too small to work with; therefore, incidence counts reflect 10 years of aggregated data (2007–2016) (Nelson 2017). For zip code 91914, the number of cases was 7, reflecting a rate of 4.3 cases per 100,000 people. For zip codes 91935 and 91978, the number of cases was 3 for both, and rates were not calculated for counts less than 5 cases.

2.3.1.5 Local Ambient Air Quality

The SDAPCD operates a network of 11 ambient air monitoring stations throughout San Diego County that measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and NAAQS. Due to its proximity to the Project Area and similar geographic and climactic characteristics, the Otay Mesa-Donovan – Richard J Donovan Correctional Facility monitoring station concentrations for all pollutants measured at that location are considered most representative of the Project Area. The El Cajon monitoring station at Floyd Smith Drive is the nearest stations to the Project Area where CO and SO_2 concentrations are monitored, and the Chula Vista 80 East J Street monitoring station is the nearest station to the Project Area where $PM_{2.5}$ concentrations are monitored. Ambient concentrations of pollutants from 2014 through 2016 are presented in Table 2.3-2, Local Ambient Air Quality Data. The number of days exceeding the NAAQS and CAAQS are also shown in Table 2.3-2.

2.3.2 Regulatory Setting

Set forth below are short descriptions of the various federal, state, and local regulations that generally apply to the resource or impact category analyzed in this section of the EIR. This information helps to place the impact analysis within its proper regulatory context. Note, however, that compliance with all applicable regulations is required. For this reason, the EIR does not specifically assess the Proposed Project's ability to comply with such regulations, except in those instances where a regulatory standard is being used as the threshold for determining impact significance.

2.3.2.1 Federal

Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting the National Ambient Air Quality Standards (NAAQS) for major air pollutants, setting hazardous air pollutant standards, approving state attainment plans, setting motor vehicle emissions standards, setting stationary source emissions standards and approving permits, providing acid rain control measures, implementing stratospheric O_3 protection, and providing enforcement provisions.

NAAQS are established by the EPA for "criteria pollutants"—O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead—under the Clean Air Act. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The Clean Air Act 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. A more detailed discussion of the NAAQS, as well as the CAAQS (discussed below), is provided in Appendix E of Appendix 2.3-1.

Hazardous Air Pollutants

The federal Clean Air Act requires the EPA to identify national emission standards for hazardous air pollutants to protect public health and welfare. Hazardous air pollutants include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard based on scientific studies of exposure to humans and other mammals. The EPA has identified approximately 187 substances and chemical families as hazardous air pollutants.

2.3.2.2 State

Criteria Air Pollutants

The federal Clean Air Act 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 and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB established the CAAQS, which are generally more restrictive than the NAAQS. As stated previously, an ambient air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, 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 air districts have based their thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an ambient air quality standard is based on maximum pollutant levels in outdoor air that would not harm the public's health, and air district thresholds pertain to attainment of the ambient air quality standard, this means that the thresholds established by air districts are also protective of human health.

The NAAQS and CAAQS are presented in Table 2.3-3, Ambient Air Quality Standards.

Toxic Air Contaminants

A TAC is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health. Federal laws use the term hazardous air pollutants to refer to the same types of compounds that are referred to as TACs under state law. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill (AB) 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588).

AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. Pursuant to AB 2588, existing facilities that emit air pollutants above specified level were required to prepare a TAC emission inventory plan and report; prepare a risk assessment if TAC emissions were significant; notify the public of significant risk levels; and, if health impacts were above specified levels, prepare and implement risk reduction measures. A full list of regulatory measures pertaining to the reduction of DPM and criteria pollutant emissions from off-road equipment and diesel-fueled vehicles are included in Appendix 2.3-1.

California Health and Safety Code Section 41700

Section 41700 of the California Health and Safety Code states that a person cannot discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.3.2.3 Local

San Diego Air Pollution Control District

CARB is responsible for the regulation of mobile emissions sources within the state, and local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. As discussed in Section 2.3.1, the Project Area is located within the SDAB and is subject to the guidelines and regulations of the SDAPCD.

The SDAPCD and San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The Regional Air Quality Strategy (RAQS) for the SDAB

was initially adopted in 1991, and is updated on a triennial basis (most recently in 2016; SDAPCD 2016a). 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 to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB's mobile source emission projections and SANDAG's growth projections are based on population, vehicle trends, and land use plans developed by the County of 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 2018 (SDAPCD 2016b). In this plan, the 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 pollutants. 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.

The SDAPCD's Measures to Reduce Particulate Matter in San Diego County report addresses 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, the SDAPCD evaluated 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 the construction and operation of the Proposed Project:

- **SDAPCD Regulation II: Permits; Rule 20.2: New Source Review Non-Major Stationary Sources**. Requires new or modified stationary source units (that are not major stationary sources) with the potential to emit 10 pounds per day or more of VOC, NOx, SOx, or PM_{10} to be equipped with best available control technology (BACT). For those units with a potential to emit above Air Quality Impact Assessments Trigger Levels, the units must demonstrate that such emissions would not violate or interfere with the attainment of any national air quality standard (SDAPCD 2016c).

The Proposed Project does not propose specific stationary sources. If stationary sources were to be included as part of the Proposed Project, or at a later date, those sources would be subject to Rule 20.2 and would require appropriate operating permits from the SDAPCD. Because the SDAPCD has not adopted specific criteria air pollutant thresholds for analyses under the California Environmental Quality Act (CEQA), the thresholds identified in Rule 20.2 are used in this analysis as screening-level thresholds to evaluate project-level impacts, as discussed in Section 2.3.3.

- **SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions**. Prohibits discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes that is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of such opacity as to obscure an observer's view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart (SDAPCD 1997).

  Construction of the Proposed Project may result in visible emissions, primarily during earth-disturbing activities, which would be subject to SDAPCD Rule 50. Although visible emissions are less likely to occur during operation of the Proposed Project, compliance with SDAPCD Rule 50 would be required during both construction and operation.

- **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).

  Any criteria air pollutant emissions, TAC emissions, or odors that would be generated during construction or operation of the Proposed Project would be subject to SDAPCD Rule 51. Violations can be reported to SDAPCD in the form of an air quality complaint by telephone, email, or online form. Complaints are investigated by SDAPCD as soon as possible.

- **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 track-out and carry-out onto paved roads beyond a project site (SDAPCD 2009).

  Construction of the Proposed Project, primarily during earth-disturbing activities, may result in fugitive dust emissions that would be subject to SDAPCD Rule 55. Implementation of PDF-AQ-1 would limit fugitive dust emissions through a fugitive dust control plan, as outlined in Rule 55. Fugitive dust emissions are not anticipated during operation of the Proposed Project.

- **SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: 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 2015a).

  Construction and operation of the Proposed Project would include application of architectural coatings (e.g., paint and other finishes), that are subject to SDAPCD Rule 67.0.1. Implementation of PDF-AQ-2 would limit the VOC content for interior and exterior coatings during construction of the Proposed Project's residential and non-residential land uses, and is more restrictive than the VOC content limits identified in SDAPCD Rule 67.0.1. Architectural coatings used in the reapplication of coatings during operation of the Proposed Project would be subject to the VOC content limits identified in SDAPCD Rule 67.0.1 which applies to coatings manufactured, sold, or distributed within San Diego County.[5]

- **SDAPCD Regulation XII: Toxic Air Contaminants; Rule 1200: Toxic Air Contaminants – New Source Review**. Requires new or modified stationary source units with the potential to emit TACs above rule threshold levels to either demonstrate that they will not increase the maximum incremental cancer risk above 1 in 1 million at every receptor location, or demonstrate that toxics best available control technology (T-BACT) will be employed if maximum incremental cancer risk is equal to or less than 10 in 1 million, or demonstrate compliance with the SDAPCD's protocol for those sources with an increase in maximum incremental cancer risk at any receptor location of greater than 10 in 1 million but less than 100 in 1 million (SDAPCD 2017b).

  The Proposed Project does not propose specific stationary sources that would generate TACs that are not commonly associated with residential development projects. If stationary sources with the potential to emit TACs were to be included as part of the Proposed Project, or at a later date, those sources would be subject to SDAPCD Rule 1200, and would be subject to New Source Review requirements.

- **SDAPCD Regulation XII: Toxic Air Contaminants; Rule 1210: Toxic Air Contaminant Public Health Risks – Public Notification and Risk Reduction**. Requires each stationary source that is required to prepare a public risk assessment to provide written public notice of risks at or above the following levels: maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute noncancer health hazard index equal to or greater than 1.0, or total chronic noncancer health hazard index equal to or greater than 1.0 (SDAPCD 2017c).

[5] Specific assumptions included in CalEEMod in compliance with Rule 67.0.1are included in Table 2.3-7, below.

The Proposed Project does not propose stationary sources that would generate TACs. If stationary sources with the potential to emit TACs were to be included as part of the Proposed Project, or at a later date, those sources would be subject to SDAPCD Rule 1210, and would be subject to Public Notification and Risk Reduction requirements. The thresholds identified in Rule 1210 were used in this analysis as thresholds for the health risk assessment (HRA), as described in Section 2.3.3, which is consistent with the SDAPCD HRA Guidelines (SDAPCD 2015b).

San Diego Association of Governments

SANDAG is the regional planning agency for San Diego County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SANDAG serves as the federally designated metropolitan planning organization for San Diego County. With respect to air quality planning and other regional issues, SANDAG prepared its San Diego Forward: The Regional Plan (Regional Plan) for the San Diego region (SANDAG 2015). The Regional Plan combines the big-picture vision for how the region will grow over the next 35 years, with an implementation program to help make that vision a reality. The Regional Plan, including its Sustainable Communities Strategy, is built on an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system so that it meets the diverse needs of the San Diego region through 2050.

The Regional Plan sets the policy context for how SANDAG participates in and responds to the SDAPCD's air quality plans, and builds off the SDAPCD's air quality plan processes that are designed to meet health-based criteria pollutant standards (SANDAG 2015). It complements air quality plans by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in air quality plans. Also, the Regional Plan emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution (SANDAG 2015).

San Diego County

County Code Section 87.428, Dust Control Measures. As part of the San Diego County Grading, Clearing, and Watercourses Ordinance, County Code Section 87.428 requires all clearing and grading to be carried out with dust control measures adequate to prevent creation of a nuisance to people or public or private property. Clearing, grading, or improvement plans require that measures be undertaken to achieve this result, including: watering, application of

surfactants,[6] shrouding, control of vehicle speeds, paving access areas, or implementing other operational or technological measures to reduce dispersion of dust. These measures are to be incorporated into all earth-disturbing activities to minimize the amount of particulate matter emissions from construction (County of San Diego 2004).

County Zoning Ordinance Section 6318. 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).

2.3.3 Analysis of Project Effects and Determination as to Significance

CEQA Guidelines

Guidelines to address the significance of air quality impacts are contained in Appendix G of the CEQA Guidelines. Based on those guidelines, a project would have a significant environmental impact if it would:

1. Conflict with or obstruct the implementation of the applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O_3 precursors);
4. Expose sensitive receptors to substantial pollutant concentrations; or
5. Create objectionable odors affecting a substantial number of people.

County Guidelines for Determining Significance

The County developed its own guidelines for determining significance for air quality. The following significance thresholds for air quality are based on criteria provided in the County's Guidelines for Determining Significance – Air Quality (County of San Diego 2007) and are analyzed in the following sections. The County's guidelines were adapted from Appendix G of the CEQA Guidelines listed above.

A significant impact would result if any of the following would occur:

[6] Surfactants are compounds that lower surface tension between liquids or between a solid and a liquid, such as a detergent.

- The project would conflict with or obstruct the implementation of the SDAPCD's RAQS and/or applicable portions of the SIP.
- The project would result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation:
    - The project would result in emissions that exceed 250 pounds per day of NO_x or 75 pounds per day of VOCs;
    - The project would result in emissions of CO that, when totaled with the ambient concentration, would exceed a 1-hour concentration of 20 parts per million (ppm) or an 8-hour average of 9 ppm;
    - The project would result in emissions of $PM_{2.5}$ that exceed 55 pounds per day;
    - The project would result in emissions of PM_{10} that exceed 100 pounds per day and increase the ambient PM_{10} concentrations by 5 micrograms per cubic meter ($\mu g/m^3$) or greater at the maximum exposed individual.
- The project would result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is in nonattainment under an applicable federal or state Ambient Air Quality Standard.
    - The following guidelines for determining significance must be used for determining whether the net increase during the construction phase is cumulatively considerable:
        - A project that has a significant direct impact on air quality with regard to construction-related 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 construction-related 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, including the SDAPCD's screening-level thresholds.
    - The following guidelines for determining significance must be used for determining whether the net increase during the operational phase is cumulatively considerable:
        - A project that does not conform to the SDPACD's RAQS and/or has a significant direct impact on air quality with regard to operational-related 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 level of service E (analysis required only when the addition of peak-hour trips from the proposed project and the surrounding projects exceeds 2,000) and create a CO hotspot create a cumulatively considerable net increase of CO.
  - 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 operational-related emissions of concern from a 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, including the SDAPCD's screening-level thresholds.
- The project would expose sensitive receptors to substantial pollutant concentrations.
- The project places sensitive receptors near CO hotspots or creates CO hotspots near sensitive receptors.
- Project implementation would result in exposure to TACs resulting in a:
  - Maximum incremental cancer risk equal to or greater than 10 in 1 million, or
  - Cancer burden equal to or greater than 1.0, or
  - Total acute non-cancer health hazard index equal to or greater than 1.0, or
  - Total chronic non-cancer health hazard index equal to or greater than 1.0.
- 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 or the public.

San Diego Air Pollution Control District

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. Air quality impacts estimated in this environmental analysis for the Proposed Project would be considered significant if any of the applicable significance thresholds presented in Table 2.3-4, SDAPCD Air Quality Significance Thresholds, are exceeded.

For CEQA purposes, the thresholds listed in Table 2.3-4 represent screening-level thresholds that can be used to evaluate whether emissions related to the Proposed Project could cause a significant impact on air quality. Emissions below the screening-level thresholds would not

cause a significant impact. The emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "O_3 significance threshold" (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly (see the discussion of O_3 and its sources in Section 2.3.1.3, Pollutants and Effects), and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 2.3-4, the Proposed 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.

With respect to health risk, SDAPCD Rule 1210 implements the public notification and risk reduction requirements of state law, and requires stationary source facilities with a high potential to adversely impact public health to prepare HRAs and reduce health risks below specified significant risk levels. Additionally, SDAPCD's Supplemental Guidelines for Submission of Air Toxics 'Hot Spots' Program Health Risk Assessments addresses the modeling and methodological parameters of HRAs, noting a level of significance for public notification of 10 in 1 million for excess/incremental cancer risk, and an index of 1.0 for noncancer-related acute and chronic health impacts from TACs corresponding to Rule 1210 (SDAPCD 2015b).

The County's health risk guidance is derived from SDAPCD Rule 1200, which states that permits to operate may not be issued when TAC emissions result in an incremental cancer risk greater than 1 in 1 million without application of T-BACT, or an incremental cancer risk greater than 10 in 1 million with application of T-BACT. Per the County's guidance, T-BACT is determined on a case-by-case basis; however, an example of T-BACT includes diesel particulate filters. The Proposed Project would use construction equipment that meets Tier 4 Interim standards as required by mitigation measure M-AQ-4. To meet stringent Tier 4 Interim particulate matter emissions standards, equipment manufacturers typically use diesel particulate filters, selective catalytic reduction system that employ diesel particulate filters or combination diesel particulate filters and diesel oxidation catalysts, or other equivalent device to remove DPM from the exhaust of a diesel engine. As such, T-BACT is reasonably expected to be achieved by the Proposed Project's construction equipment fleet. In addition, other T-BACT and CARB regulations would be applicable to the Proposed Project, including Idling of Commercial Heavy Duty Truck (13 CCR Section 2485), In-Use Off-Road Diesel-Fueled Fleets (13 CCR Section 2449 et seq.), and In-Use On-Road Diesel-Fueled Vehicles (13 CCR Section 2025), as described in Section 2.3.2, Regulatory Setting (State). Because T-BACT is incorporated, the construction HRA for the Proposed Project applies the maximum incremental cancer risk equal to or greater than 10 in 1 million threshold to evaluate the significance of health risk impacts.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) prohibits emissions of any material that causes nuisance to a considerable number of people 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.

2.3.3.1 Conformance to the Regional Air Quality Strategy

Guideline for the Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County's Guidelines for Determining Significance – Air Quality (County of San Diego 2007), the Proposed Project would have a significant impact if it would:

- Conflict with or obstruct the implementation of the RAQS and/or applicable portions of the SIP. (County)

Analysis

As previously discussed in Section 2.3.2.3, 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.[7] The federal O_3 attainment plan, which is part of the SIP, was adopted in 2016. 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 typically updated on a triennial basis (most recently in 2016). The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3.

As mentioned above, the SIP and RAQS rely on SANDAG's growth projections, which are based on population, vehicle trends, and land use plans developed by the cities and by the County as part of 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/or SANDAG's growth projections, that project might be in conflict with the SIP and RAQS, and may contribute to a potentially significant cumulative impact on air quality.

The Proposed Project is consistent with the County's General Plan land use designations and the County's existing zoning designations. More specifically, the Otay Ranch GDP/SRP allows for a

[7] For the purpose of this discussion, the relevant federal air quality plan is the Ozone Attainment Plan (SDAPCD 2016b). The RAQS is the applicable plan for purposes of state air quality planning. Both plans reflect growth projections in the SDAB.

total of 2,133 homes.[8] The Proposed Project would include a maximum of 1,119 units, which is consistent with Otay Ranch GDP/SRP (City of Chula Vista and County of San Diego 1993a). The Otay Ranch GDP/SRP is an implantation document of the County General Plan, and is therefore consistent with the General Plan, County Zoning Code, and associated regional growth assumptions. Therefore, the Proposed Project would not result in population growth that is greater than that expected in the County's General Plan or the Otay Ranch GDP/SRP, and is anticipated to result in less emissions than anticipated in the 2016 RAQS. As such, the impact related to conflict with or obstructing implementation of the RAQS and/or applicable portions of the SIP would be **less than significant**.

2.3.3.2 Conformance to Federal and State 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 impact analysis. A significant impact would result if the ~~a~~ Proposed ~~p~~Project would:

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

Analysis

Regulatory Compliance Measures and Project Design Features that Reduce Air Quality Emissions

The Proposed Project would be required to comply with numerous regulations that reduce criteria air pollutant emissions. Tables 2.3-5 and 2.3-6 outline the required construction and operational regulatory compliance measures, respectively, that would apply to the Proposed Project, and identify those measures that have been quantitatively incorporated into the emissions estimates.

The Proposed Project also includes project design features (PDFs) that would reduce criteria air pollutant emissions through the design of the Project Area's uses, including the transportation network. Tables 2.3-7 and 2.3-8 identify Proposed Project's construction and operational PDFs, respectively, and emissions reduction quantification details, where applicable.

[8] The Otay Ranch GDP/SRP includes land owned by California for conservation purposes. The parcels that are owned by California are not expected to be developed; however, if the additional 1,014 units were to be built, population growth would still remain in compliance with the County's General Plan and SDAPCD 2016 RAQS.

Because the reduction benefits of regulatory compliance measures and PDFs are not always readily quantifiable, the emissions inventory estimates presented in this section provide a conservative representation of Proposed Project emissions.

Construction Emissions

Construction of the Proposed Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, rock crushing, blasting, soil disturbance, VOC off-gassing from architectural coatings and asphalt pavement application, and internal haul trucks) and off-site sources (e.g., vendor trucks and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, internal haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions. 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 only be approximately estimated with a corresponding uncertainty for ambient air quality impacts.

Emissions from the construction phase of the Proposed Project were estimated using CalEEMod version 2016.3.1 and the EPA's Compilation of Air Pollutant Emission Factors (AP-42). Detailed information regarding the methodology used to estimate the Proposed Project's construction-related emissions is provided in Section 3.2 (Construction Emissions Methodology) of Appendix 2.3-1; a brief summary of the methodology is provided below.

Proposed Project construction activities are anticipated to commence in 2019 and would last approximately 9 years, ending in 2027. Please see Section 3.2.1 (Overall Schedule) of Appendix 2.3-1 for additional information regarding the phasing assumptions used when estimating Proposed Project construction emissions. The equipment mix anticipated for construction was based on information provided by the applicant's representatives and best engineering judgment. The equipment mix is meant to represent a reasonably conservative estimate of construction activity. General construction equipment modeling assumptions are provided in Section 3.2.3 (Residential Development Phasing and Equipment) and Section 3.2.4 (Non-Residential Development Phasing and Equipment) of Appendix 2.3-1. Cut-and-fill quantities would be balanced on site (within the Project Area), and no external soil export would be required. South Proctor Valley Road would include transport of 240,000 cubic yards from South Village 14, with 50% of the import hauled by 100-ton trucks, as explained below. All other balancing activities are anticipated to be performed primarily through the use of off-road construction equipment

(e.g., excavators, graders, dozers, and scrapers). However, to provide a degree of conservatism in the analysis, 2% of soil was assumed to be transported by a 12-cubic-yard haul truck within the Project Area at an average hauling distance of 0.5 miles.

To construct South Proctor Valley Road, approximately 240,000 cubic yards of fill would be transported from South Village 14 to South Proctor Valley Road. For purposes of this analysis, 120,000 cubic yards (50%) of that total are assumed to be transported using 100-ton rock trucks, which are categorized as off-highway trucks in CalEEMod. These off-highway trucks would transport fill from South Village 14 to the farthest reaches of Proctor Valley Road. Off-road construction equipment, such as graders and scrapers, would move the remaining 120,000 cubic yards (50%) of that total from South Village 14 to the closest portions of Proctor Valley Road. Four off-highway trucks operating at 8 hours per day was assumed to be required to transport 120,000 cubic yards over 19 days was assumed. See Section 3.2.2 (Mass Project Area Grading) of Appendix 2.3-1 for additional information regarding the South Proctor Valley Road construction.

It is anticipated that blasting operations would occur during the Proposed Project's grading phase. An average of 8.25 tons of ammonium nitrate, fuel oil would be applied per blast (Revey Associates Inc. 2015). All blasting activity would comply with Section 96.1.5601.2 of the County's 2017 Consolidated Fire Code.

Following the collection of blasted materials, rock-crushing equipment would be used to prepare the materials for subsequent use. The rock-crushing equipment would consist of a crusher, screen, and conveyor, and the crushed rock would be stockpiled for future use. A single, primary crusher and screen may be all that is required, but use of a secondary crusher and additional screen would expedite this process. Therefore, to generate a conservative emissions estimate, the analysis presented in this EIR assumed that a feed hopper, primary and secondary crushers, two screens, and several conveyors for transfers would be used. All rock crushing and haul of crushed material would be within the Project Area. No external crushing or haul outside of the Project Area would be required.

It is expected that the rock-crushing equipment would be powered by a diesel engine generator rated at 750 kilowatts, or approximately 1,000 horsepower. The diesel engine generator would operate up to 8 hours per day. VOC, NOx, CO, SOx, PM_{10}, and $PM_{2.5}$ emissions from the diesel engine generator were estimated using the off-road-engine load factor and emission factors from CalEEMod for a typical generator operating in 2019 (the first year of construction). To be conservative, it was assumed that the same rock-crushing equipment would be used for each phase; the CalEEMod emissions factors for later years, which would generally be lower, were not applied.

Blasting and rock-crushing emissions calculations are provided in Appendix B of Appendix 2.3-1. Worker, vendor, and haul trucks associated with blasting and rock crushing were included in the estimates of general construction activities in South Village 14 and Central Village 14.

As presented in Table 2.3-7, PDF-AQ-1 (Fugitive Dust Control) and PDF-AQ-2 (Architectural Coating Limits) were quantitatively included in the Proposed Project's estimated construction emissions. Table 2.3-9, Estimated Maximum Daily Construction Emissions, shows the estimated maximum daily construction emissions associated with the construction phase of the Proposed Project. As shown in Table 2.3-9, daily construction emissions for SO_x would not exceed the County's significance thresholds. However, construction emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ from the Proposed-Project would exceed the County's emission thresholds[9] and would result in a **potentially significant impact (Impact-AQ-1)**.

As explained in Chapter 1, Project Description, of this EIR, the Proposed Project includes an option for additional bike lanes to be constructed on Proctor Valley Road North if selected by the San Diego County Board of Supervisors. Construction of these bike lanes would require approximately 20,000 cubic yards of grading, 65,000 square feet of paving, and associated architectural coating for striping and bike lane signage. If constructed, it is expected that the additional grading, paving, and architectural coating associated with the bike lane option would use the same construction equipment used for off-site improvements, and would result in a maximum of 9 additional days of construction. The additional construction activities were modeled separately in CalEEMod to estimate potential additional emissions resulting from equipment operation, worker trips, fugitive dust, and VOC off-gassing. No additional haul truck trips would be required for the Proctor Valley Road North Option.

Construction of the Proctor Valley Road North Option in 2022 would result in a maximum of 9.26 pounds per day of VOC, 20.99 pounds per day of NO_x, 17.40 pounds per day of CO, 0.03 pounds per day of SO_x, 3.72 pounds per day of PM_{10}, and 2.22 pounds per day of $PM_{2.5}$. It is not anticipated that the Proctor Valley Road North Option construction in 2022 would result in an increase in maximum daily criteria air pollutants, since bike lane construction would not require additional equipment or additional equipment operation hours during off-site improvement construction, but would extend the length of construction time for Proctor Valley Road by 9 working days: 2 days for grading, 5 days for paving, and 2 days for architectural coating (striping and signage).

[9] Proposed Project construction would exceed the VOC threshold of 75 pounds per day in 2022, 2023, and 2024; the NO_x threshold of 250 pounds per day in 2019, 2020, 2021, 2022, and 2023; the CO threshold of 550 pounds per day in 2019, 2020, 2021, and 2022; the PM_{10} threshold of 100 pounds per day in 2020, and 2021, and the $PM_{2.5}$ threshold of 55 pounds per day in 2020, 2021, and 2022.

The Perimeter Trail Option, if selected by the San Diego County Board of Supervisors, would provide for an improved trail around the Project Area. Because the Perimeter Trail Option would be graded during the Development Footprint mass-grading phase, no additional grading is anticipated for this option, and no additional criteria air pollutant emissions are anticipated to occur. The Preserve Trail Option would not result in any construction; thus, no emissions or criteria air pollutants would occur.

Operational Emissions

Operation of the Proposed Project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from area sources, energy sources, and mobile sources, which are discussed below.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment.[10] Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and non-residential buildings, and the default factor of pounds of VOC per building square foot per day. Architectural coating VOC emissions represent an operational emissions source as a result of reapplication of paint (long-term building maintenance). The CalEEMod default assumption that all land use buildings would be repainted at a rate of 10% of area per year (i.e., reapplication rate of 10%) was used. To reflect compliance with SDAPCD Rule 67.0.1, it was conservatively assumed that all residential and non-residential (interior and exterior) architectural coating would be 150 grams per liter VOC.[11] Emissions associated with landscape equipment[12] use were estimated based on CalEEMod default values (grams per residential dwelling unit per day and grams per square foot of non-residential building space per day), and number days when landscape maintenance would generally be performed.

[10] Based on information provided by the applicant, each single-family home was assumed to have a natural gas fireplace, courtyard homes were assumed to have no fireplaces, and no woodstoves would be installed. The natural gas consumption associated with the fireplaces was assumed to be included in the heating demand estimate used in the Building Analysis (ConSol 2017), which is evaluated in the energy module in CalEEMod. Fireplaces were not included separately in the CalEEMod area source calculations to avoid double counting.

[11] SDAPCD Rule 67.0.1 identifies VOC limits for various specialty coatings that exceed 150 grams per liter (g/L) VOC, but the Proposed Project's primarily residential development is not anticipated to require a substantial amount of specialty coatings. In addition, many of the specialty coating categories have limits under 150 g/L, including driveway sealers (50 g/L VOC); floor coatings (100 g/L VOC); and primers, sealers, and undercoaters (100 g/L VOC).

[12] Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for greenhouse gases in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

For residential land uses, specific energy use data for the Proposed Project was used in place of CalEEMod default values, since the Proposed Project would achieve Zero Net Energy residential design standards per PDF-AQ/GHG-2. To calculate the total residential building energy input for the Proposed Project (i.e., natural gas use from the residential development's regulated and unregulated loads), specific energy use data prepared by ConSol for the Proposed Project (ConSol 2017), which were calculated using the California Energy Commission's public-domain compliance software known as CBECC-Res, was used in CalEEMod.

Further, in accordance with PDF-AQ/GHG-3, non-residential uses would have 10% greater building energy efficiency than required by the 2016 state energy efficiency standards in Title 24. CalEEMod default values assume compliance with the 2013 Title 24 standards, which became effective on July 1, 2014.[13] For non-residential uses, the 2016 Title 24 standards result in approximately 5% less energy use than those built to the 2013 standards (CEC 2015a). Accordingly, the CalEEMod default values for Title 24–regulated energy, natural gas, and lighting were assumed to be 5% more efficient, then were improved another 10% from the 2016 estimated values to reflect demand after implementation of PDF-AQ/GHG-3.

Mobile Sources

Mobile sources for the Proposed Project would primarily be motor vehicles (automobiles and light-duty trucks) traveling to and from the proposed land uses, and would primarily include future residents. CalEEMod was used to calculate the emissions resulting from on-road mobile sources associated with residents, as well as workers, customers, and delivery vehicles, traveling to and from the proposed land uses. Emissions associated with on-road mobile sources include

[13] CalEEMod Version 2016.3.1 was the current version of CalEEMod when the Proposed Project analysis was initiated. In October 2017, CalEEMod Version 2016.3.2 was released. The most notable upgrade is the incorporation of percent reductions in default energy consumption to reflect compliance with the 2016 Title 24, Part 6 Building Energy Efficiency Standards. Proposed Project energy use data was used for the residential buildings to reflect zero net energy (ZNE), but because Proposed Project data was not available for the non-residential structures, CalEEMod defaults reflecting the 2013 Title 24 standards were used. CalEEMod default values were assumed to be improved 5% to meet 2016 standards, and then improved by 10% to reflect the implementation of PDF-AQ/GHG-3.

running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads.

The calculation of vehicle emissions generated by the Proposed Project was based on multiple variables, including trip rate, trip length, trip purpose, and trip type, which are all factors in estimating vehicle miles traveled (VMT). The Proposed Project's anticipated trip generation, including the trip rates and total trips, is based on the Proposed Project's Transportation Impact Study prepared by Chen Ryan (Appendix 2.9-1), and Proposed Project VMT was based on the Proposed Project's Transportation Demand Management (TDM) program evaluation (Appendix 2.9-1). Implementation of PDF-TR-1 would reduce Proposed Project VMT, as presented in Table 2.3-8, by 4.3%. Default trip generation rates and trip lengths included in CalEEMod for each analyzed Proposed Project land use in the build-out scenario were adjusted to match the average weekday trip rates and total weekday VMT data (107,130 daily VMT) (Appendix 2.9-1).

Estimated Emissions

As presented in Table 2.3-8, PDF-AQ/GHG-2 (Zero Net Energy Development), PDF-AQ/GHG-4 (Energy Star Appliances), and PDF-TR-1 (TDM Program) were quantitatively included in the Proposed Project's estimated operational emissions. Table 2.3-10, Estimated Daily Maximum Operational Emissions, presents the maximum daily emissions associated with operation of the Proposed Project in 2028 at build-out. The values shown are the maximum summer and winter daily emissions results from CalEEMod. Complete details of the emissions calculations are provided in Appendix 2.3-1 of this EIR (Section 3.3 (Operational Emissions Methodology) and Section 4.2.2 (Operational Impacts)).

As shown in Table 2.3-10, maximum daily operational emissions of NO_x, CO, SO_x, and $PM_{2.5}$ generated by the Proposed Project would not exceed the County's significance thresholds. However, the Proposed Project would generate VOC and PM_{10} emissions during operation that would exceed the County's significance thresholds, and would, therefore, result in a **potentially significant impact** (**Impact AQ-2**).

In summary, prior to mitigation, the Proposed Project would result in emissions that would exceed the County's thresholds for VOC, NOx, CO, PM10, and PM2.5 during construction, as well as VOC and PM10 exceedances during operations. As discussed in Section 2.3.7 below, implementation of feasible mitigation would reduce the Project's construction-related PM10 and PM2.5 impacts to a level below significant. However, the Project's construction-related VOC, NOx and CO emissions and operations-related VOC and PM10 emissions would still exceed the County's thresholds following implementation of all feasible mitigation. Notably, since the emission-based thresholds used in this analysis were established to provide project-level estimates of criteria air pollutant quantities that the SDAB can accommodate without affecting

the attainment dates for the ambient air quality standards, and since the EPA and CARB have established the ambient air quality standards at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety, elevated levels of criteria air pollutants above adopted thresholds as a result of the Proposed Project's construction and operation could cause adverse health effects associated with these pollutants. (The effects typically associated with unhealthy levels of criteria air pollutant exposure are described in Section 2.3.1.3, Pollutants and Effects, above.) However, as detailed in the Appendix E of Appendix 2.3-1, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and there are currently no modeling tools that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects.

2.3.3.3 Impacts to Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Air quality regulators typically define sensitive receptors as schools (preschool–12th grade), hospitals, resident care facilities, daycare centers, and other facilities that may house individuals who have health conditions that would be adversely impacted by changes in air quality. For the purposes of CEQA analysis in the County, the definition of a sensitive receptor also includes residents.

The nearest existing off-site residential receptors consist of single-family residences immediately north of Planning Areas 16/19. Since the Proposed Project includes residential development that could be occupied in the initial phase while the remaining phases of construction are ongoing, on-site residential receptors were also analyzed. The two primary emissions of concern regarding health effects for land development projects are DPM during construction and CO hotspots related to traffic congestion; however, emissions of other criteria air pollutants also result in health effects.

Guidelines for the Determination of Significance

Construction

A significant construction impact would result if:

- The project would result in CO emissions that when totaled with the ambient concentrations will exceed a 1-hour concentration of 20 ppm or an 8-hour average of 9 ppm. Projects that cause road intersections to operate at or below a level of service (LOS) E and the addition of peak-hour trips from the project and the surrounding projects exceeds 3,000 have the potential to create CO concentrations exceeding the CAAQS. (County)

- Project implementation would result in exposure to TACs resulting in a maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute non-cancer health hazard index equal to or greater than 1.0, or total chronic non-cancer health hazard index equal to or greater than 1.0 would be deemed as having a potentially significant impact. (SDAPCD)

Operation

A significant operational impact would result if:

- The project places sensitive receptors near CO hotspots or creates CO hotspots near sensitive receptors. (County)
- Project implementation would result in exposure to TACs resulting in a maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute non-cancer health hazard index equal to or greater than 1.0, or total chronic non-cancer health hazard index equal to or greater than 1.0 would be deemed as having a potentially significant impact. (SDAPCD)

Analysis

Construction

Carbon Monoxide (CO) Hotspot

Proposed Project trip generation and distribution for workers and delivery trucks would vary depending on the phase of construction. Notably, earthwork associated with construction of the Proposed Project would be balanced on site (in the Project Area); therefore, no offsite import or export of soil and associated haul trucks would occur. Further, neither construction material transport activities nor construction workers would generate traffic during the peak commute hours (both AM and PM), since deliveries and pick-ups would be planned to occur during off-peak hours, and construction workers would be scheduled to arrive before 7 a.m. and leave by 3:30 p.m. Therefore, no intersection peak-hour analysis is necessary for assessing potential construction-related traffic impacts (Appendix 2.9-1). Additionally, the area surrounding the Project Area is primarily rural, the population is low, and local roads are typically traversed by local residents. For these reasons, construction-related traffic is not expected to impact local intersections or cause an exceedance of the CO CAAQS; therefore, impacts would be **less than significant**.

Toxic Air Contaminants – Diesel Particulate Matter

The greatest potential for TAC emissions during construction would be diesel particulate matter emissions from heavy equipment operations and heavy-duty diesel trucks. The closest off-site residential receptors to the Project Area include single-family residences, approximately 40 meters (130 feet) north of the northwestern land parcel of Planning Areas 16/19. Since the Proposed Project also includes residential development that could be occupied in the initial phase while the remaining phases of construction are ongoing, it was assumed that the nearest on-site residence was located immediately inbound from the maximum exposed individual resident, toward the Proposed Project fence line at a distance of 24 meters (79 feet) from Proposed Project construction.[14] The closest off-site worker receptors would be at the Hollywood Casino in the Jamul Indian Village off State Route 94, near Peaceful Valley Ranch Road. The closest off-site school receptor is The Academy of Exploration in Jamul.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends an incremental cancer risk threshold of 10 in 1 million with the application of T-BACT. Typically, population-wide cancer risks are based on a lifetime (70 years) of continuous exposure, and an individual resident cancer risk is based on a 30-year exposure duration; however, for the purposes of this analysis, a 5-year exposure scenario corresponding to the worse-case construction area for the Proposed Project was assumed by evaluation of the emissions from Planning Areas 16/19 for the 5-year construction duration. All other Proposed Project construction areas are located much farther[15] than 1,000 feet from the nearest refined discrete receptors that were chosen to evaluate locations of maximum cancer risk and non-cancer health effects.

A HRA was performed to estimate the maximum individual cancer risk and the chronic hazard index for on- and off-site residential receptors and off-site worker and school receptors as a result of Proposed Project construction (refer to Appendix D of Appendix 2.3-1). Results of the

[14] If the school is developed instead of the assumed 97 residential units within the Central Village 14, it is anticipated that construction of the school would be completed in 2026 and operation of the school would not occur until all construction in Central Village 14 is complete. Proposed Project construction that would occur while the school would be in operation would be limited to construction activities within Planning Areas 16/19. The distance between the closest portion of Planning Areas 16/19 and the school site is approximately 7,300 feet, which is outside of the 1,000-foot radial distance for sensitive receptors assumed in the HRA. Accordingly, the school is not included as a sensitive receptor land use in the HRA.

[15] Per the County's guidance, T-BACT will be determined on a case-by-case basis; however, an example of T-BACT includes diesel particulate filters. The project will use construction equipment that meets Tier 4 Interim standards as required by M-AQ-4 (refer to Section 2.3.2). To meet stringent Tier 4 Interim particulate matter emissions standards, equipment manufacturers typically use diesel particulate filters or other equivalent device to remove DPM from the exhaust of a diesel engine. As such, T-BACT is reasonably expected to be achieved by the Proposed Project's construction equipment fleet.

construction HRA are presented in Tables 2.3-11 and 2.3-13, which present cancer risk and chronic hazard index assessment results, respectively.

As shown in Table 2.3-11, construction emissions would result in maximum individual cancer risks for on-site and off-site residences and worker locations that are below the significance threshold of 10 in 1 million. Construction emissions would result in cancer risk at the Academy of Exploration below significance thresholds of 10 in 1 million. As shown in Table 2.3-13, construction emissions would result in chronic hazard indices for on-site and off-site residences and worker locations that are below the significance threshold of 1.0. Construction emissions would result in a chronic hazard index at the Academy of Exploration below the significance threshold of 1.0. Therefore, impacts related to calculated cancer risk and non-cancer chronic hazard risk would be **less than significant**.

Operation

Carbon Monoxide Hotspot

To verify that the Proposed Project would not cause or contribute to a violation of CO standards, a screening evaluation of the potential for CO hotspots was conducted. The County recommends that a local CO hotspot analysis be conducted if the intersection meets one of the following criteria: the intersection is at LOS E or worse and a project operates at peak-hour trips exceeding 3,000 trips, or the intersection operates at LOS E or worse and under cumulative conditions exceeds 2,000 peak trips per hour. If the screening criteria are exceeded, additional site-specific analyses are performed to determine whether a project would result in a significant impact. The screening evaluation is included as Appendix C of Appendix 2.3-1.

A Transportation Impact Study (Appendix 2.9-1) was prepared for the Proposed Project and evaluated whether there would be a worsening of LOS (e.g., congestion) at the intersections affected by the Proposed Project. The Proposed Project's traffic impact analysis evaluated 41 intersections based on existing traffic volumes and current street geometry. As shown in Appendix C of Appendix 2.3-1, 10 of the key study intersections operate at an LOS E or worse. Of those 10 intersections, nine operate at greater than 2,000 peak-hour trips in the cumulative scenario.

According to the California Department of Transportation (Caltrans) and the U.C. Davis Institute of Transportation Studies' *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) (Caltrans 2010), there is a cap on the number of intersections that need to be analyzed for any one project. For a single project with multiple intersections, only the three intersections representing the worst LOS ratings of a project, and, to the extent they are different intersections, the three intersections representing the highest traffic volumes, need be analyzed. For each intersection failing the test described in the CO Protocol, an additional intersection should be

analyzed (Caltrans 2010). Four intersections were analyzed for the Proposed Project, consistent with the CO Protocol, as discussed below.

Based on the CO hotspot screening evaluation (Appendix D of Appendix 2.3-1), the intersection of State Route 94 and Lyons Valley Road was determined to be a unique intersection, therefore prompting a more detailed analysis. Similarly, the Proctor Valley Road and Project Driveway No. 2 intersection had a unique geometry and was selected for a detailed analysis. The Proctor Valley Road and Project Driveways No. 1, 3, and 4 are all roundabouts with similar geometries. Therefore, Driveway No. 1 was modelled, since it would have the highest volumes and would represent the worst-case scenario. The remaining four intersections would have similar geometry, so the Paseo Ranchero and East H Street intersection was selected, since it would have the highest volume and would represent the highest emissions. The potential impact of the Proposed Project on local CO levels was assessed at these intersections using the Caltrans CL4 interface based on the California LINE Source Dispersion Model (CALINE4), which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections (Caltrans 1998a). Information regarding the emissions factors, background CO concentrations, traffic volumes, and receptor locations at each modeled intersection is available in Appendix D of Appendix 2.3-1.

As shown in Table 2.3-15, the maximum CO concentration predicted for the 1-hour averaging period at the studied intersections would be 2.6 parts per million (ppm), which is below the 1-hour CO CAAQS of 20 ppm (CARB 2016c). The maximum predicted 8-hour CO concentration of 1.67 ppm at the studied intersections would be below the 8-hour CO CAAQS of 9 ppm (CARB 2016c). Neither the 1-hour nor 8-hour CAAQS would be equaled or exceeded at any of the intersections studied; therefore, impacts would **be less than significant**.

Toxic Air Contaminants

No residual TAC emissions or corresponding cancer risk are anticipated after construction, nor are any long-term sources of TAC emissions anticipated during operation of the Proposed Project, because the Proposed Project would include residential units, commercial land uses, a school, parks, and Otay Ranch Resource Management Plan/County of San Diego Multiple Species Conservation Program Preserve land, and would not include potentially hazardous land uses such as heavy industrial activities. As such, impacts from the exposure of Proposed Project TAC emissions to sensitive receptors would be **less than significant**.

Additionally, implementation of the Proposed Project would not generate any major operational sources of TAC or DPM, nor would the Proposed Project be located next to a major stationary TAC source or high-volume roadway. As such, the Proposed Project would not result in substantial TAC emissions that may affect nearby receptors, nor would the Proposed Project be exposed to nearby sources of TACs; therefore, the impact would be **less than significant**.

2.3.3.4 Odor Impacts

Odors are a form of air pollution that 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's Guidelines for Determining Significance – Air Quality, the Proposed Project would have a significant impact if (County of San Diego 2007):

- 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. (County)

Analysis

Construction

Construction of Proposed Project components 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 Project Area depending on where construction activities are occurring. Sensitive receptors located in the vicinity of the construction site may be affected; however, odors are highest near the source and would quickly dissipate. Although odor impacts are unlikely, the Proposed Project would be required to comply with the County of San Diego's odor policies enforced by the SDAPCD, including Rule 51 and County Zoning Code Section 6318, which prohibit nuisance odors and identify enforcement measures to reduce odor impacts to nearby receptors.

Any odors associated with construction activities would be temporary and would cease upon completion; therefore, odor impacts would be **less than significant**.

Operational

The Proposed Project would not include land uses that would generate objectionable odors, and Proposed Project land uses would not attract people to an area where there would be a potential for exposure to objectionable odors.

The Proposed Project would operate on-site sewer lift stations that could potentially generate odors. However, these lift stations would be subject to odor control during operation and maintenance. As discussed above, odor is regulated as a public nuisance, and the control of odor

is enforced through complaints made to the SDAPCD. Odor complaints are investigated by the SDAPCD, which coordinates with the entity related to the odor source if it is determined that there is a violation of California Health and Safety Code Section 41700 and there is a need to rectify the situation. For the Proposed Project, each pump station would be outfitted with an odor-control slab during construction of the initial lift station. Theses slabs include power and a conduit for odor control chemicals so that an odor control tank can easily be added in the future if odors become an issue (Nielson 2017). If a tank is added as a result of a confirmed violation of California Health and Safety Code Section 41700 through the SDPACD process, the odor control tank uses controlled chemicals that are slowly dropped into the wet well to prevent the formation of odors. Because odor-control requirements would be incorporated into the design, operation, and maintenance of the sewer lift stations, the stations would not subject nearby sensitive receptors to substantial odor emissions.

As during construction, the Proposed Project would be required to comply with the County odor policies enforced by the SDAPCD, including SDAPCD Rule 51 and County Zoning Code Section 6318, which prohibit nuisance odors and identify enforcement measures to reduce odor impacts to nearby receptors; therefore, impacts would be **less than significant**.

2.3.4 Cumulative Impact Analysis

In analyzing cumulative impacts from a project, the analysis must 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. Therefore, the Proposed Project would have a cumulatively considerable impact if emissions from the Proposed Project would exceed thresholds for VOC, NO_x, PM_{10}, and/or $PM_{2.5}$. If the Proposed Project does not exceed thresholds and is determined to have less-than-significant specific impacts, it may still have a cumulatively considerable impact on air quality if the emissions from the Proposed 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 emissions.

Geographic Extent

The geographic extent for the analysis of cumulative impacts related to air quality is the south-central portion of the SDAB (San Diego County). Due to the nonattainment status of the SDAB, the primary air pollutants of concern are VOC and NO_x, which are O_3 precursors, and PM_{10} and $PM_{2.5}$. Because of the nature of O_3 as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum O_3 impacts generally occur downwind of the area where the O_3 precursors are

released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, 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 the County have led to the nonattainment status for O_3 with respect to the CAAQS and NAAQS, and for PM_{10} and $PM_{2.5}$ with respect to the CAAQS. The air quality plans prepared by the SDAPCD reflect future growth under local development plans and 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:

- The project would 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.

2.3.4.1 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 construction 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. (County)
- 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 identified in Table 2.3-4. (County)

Analysis

As discussed in Section 2.3.1.4, the SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. As discussed in Section 2.3.3.2, the Proposed Project would result in a temporary addition of pollutants to the local airshed caused by off-road construction equipment, soil disturbance, architectural coating and asphalt pavement VOC off-gassing, on-road haul trucks, vendor trucks, and worker vehicle trips. However, the emissions and pollutants would be primarily localized to the Project Area. As shown in Table 2.3-9, maximum daily Proposed Project construction emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ would exceed thresholds in one or more years of construction.

Should other projects occur in the vicinity of the Proposed Project, significant effects related to VOC, NO_x, CO, PM_{10} and/or $PM_{2.5}$ emissions could be further intensified due to active operations at multiple sites with potential earth-moving activities associated with site preparation and grading (resulting in increased PM_{10} and $PM_{2.5}$ emissions), and exhaust emissions from construction equipment, worker vehicles, and truck trips (resulting in increased VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ emissions) associated with material deliveries and on-site hauling activities. When combined with other reasonably foreseeable future projects, significant off-site VOC emissions could result during Proposed Project construction primarily due to overlapping application of architectural coatings during construction. Due to the likelihood of a large number of off-site worker vehicle and truck trips required during construction of combined future projects in the cumulative study area, no feasible mitigation would be available to reduce cumulative effects for these criteria pollutants. Therefore, the Proposed Project's temporary cumulative construction impacts relative to VOC, NO_x, CO, PM_{10} and $PM_{2.5}$ emissions would be **potentially significant (Impact AQ-CUM-1)**.

2.3.4.2 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. (County)
- Projects that cause road intersections to operate at or below an LOS E (analysis only required when the addition of peak-hour trips from a 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. (County)

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. As such, it would not cause a cumulatively significant impact on the ambient air quality for O_3.

The Proposed Project would not adjust land use or zoning designations, nor would it permit a higher density of housing than permitted by the County General Plan. The Proposed Project also is consistent with the current zoning designations and would not include any other amendments to the County Zoning Ordinance aside from minor mapping corrections.

Since the Proposed Project would not contribute to local population or employment growth (and associated VMT) in excess of that anticipated for the Project Area by the County General Plan, the Proposed Project is considered accounted for in the RAQS, and the Proposed Project would not result in cumulatively considerable impacts. However, as shown in Table 2.3-7, the Proposed Project would exceed operational criteria pollutant emission thresholds, resulting in direct impacts related to VOC and PM_{10} emissions; therefore, combined with potential future projects, **operational cumulative impacts would be potentially significant** (**Impact AQ-CUM-2)**.

2.3.5 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 Maximum daily construction emissions would exceed the construction thresholds for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$ during one or more years of construction.

Impact AQ-2 Maximum daily operational emissions would exceed the thresholds for VOC and PM_{10}.

Impact AQ-CUM-1 The Proposed Project would have a significant direct impact on air quality with regard to construction-related emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$, and, therefore, would also result in a significant cumulatively considerable net increase in those emissions.

Impact AQ-CUM-2 The Proposed Project would have a significant direct impact on air quality with regard to operational-related emissions of VOC and PM_{10}, and,

therefore, would also result in a significant cumulatively considerable net increase in those emissions.

2.3.6 Mitigation

The 1993 Otay Ranch PEIR and Mitigation Monitoring Program (MMP) identified mitigation measures to reduce the significant air quality impacts of the Otay Ranch GDP/SRP. This EIR conducted an analysis of the Proposed Project's specific impacts on air quality, taking into account for changes in conditions, both environmental and regulatory, that have occurred since 1993 when the Otay Ranch PEIR was certified. Based on this current, project-specific analysis, the air quality mitigation measures identified in the Otay Ranch PEIR are either (i) not applicable; (ii) satisfied; or (iii) replaced with project-specific mitigation measures or regulatory compliance requirements, as determined by the qualified preparers of this EIR. Attached as Appendix 2-1 is a matrix, entitled "1993 GDP/SRP PEIR Mitigation Measure Compliance." Mitigation measures M-AQ-1 through M-AQ-8 are provided to reduce Proposed Project ~~construction~~ emissions to the extent feasible:

M-AQ-1 **Tier 4 Final Rock Crushing Equipment**. Diesel-powered generators (engines greater than 750 horsepower) used for rock-crushing operations shall be equipped with Tier 4 Final engines.

M-AQ-2 **Blasting and Rock-Crushing Notification**. Prior to construction activities, the applicant or its designee shall employ a construction relations officer who shall address community concerns regarding on-site construction activity. The applicant shall provide public notification in the form of a visible sign containing the contact information of the construction relations officer, who shall document complaints and concerns regarding on-site construction activity. The sign shall be placed in easily accessible locations along Proctor Valley Road and noted on grading and improvement plans.

M-AQ-3 **Blasting and Rock-Crushing Dust Controls.** The following provisions shall be implemented to reduce emissions associated with blasting and rock-crushing activities:

a. During blasting activities, the construction contractor shall implement all feasible engineering controls to control fugitive dust including exhaust ventilation, blasting cabinets and enclosures, vacuum blasters, drapes, water curtains, or wet blasting. Watering methods, such as water sprays and water applications, also shall be implemented during blasting, rock crushing,

cutting, chipping, sawing, or any activity that would release dust particles to reduce fugitive dust emissions.

b. During rock-crushing transfer and conveyance activities, material shall be watered prior to entering the crusher. Crushing activities shall not exceed an opacity limit of 20% (or Number 1 on the Ringelmann Chart) as averaged over 3 minutes in any period of 60 consecutive minutes, in accordance with San Diego Air Pollution Control District (SDAPCD) Rule 50, Visible Emissions. A qualified opacity observer shall monitor opacity from crushing activities once every 30 days while crushers are employed on site to ensure compliance with SDAPCD Rule 50. Water sprayers, conveyor belt enclosures, or other mechanisms shall be employed to reduce fugitive dust generated during transfer and conveyance of crush material.

M-AQ-4 **Tier 4 Interim Construction Equipment**. Prior to the commencement of any construction activities, the applicant or its designee shall provide evidence to the County of San Diego (County) that, for off-road equipment with engines rated at 75 horsepower or greater, no construction equipment shall be used that is less than Tier 4 Interim. An exemption from these requirements may be granted by the County in the event that the applicant documents that equipment with the required tier is not reasonably available and corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment.[16] Before an exemption may be considered by the County, the applicant shall be required to demonstrate that three construction fleet owners/operators in the San Diego Region were contacted and that those owners/operators confirmed Tier 4 equipment could not be located within the San Diego region.

M-AQ-5 **Construction Equipment Maintenance**. The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained in accordance with manufacturer's specifications before and for the duration of on-site operation.

M-AQ-6 **Use of Electrical-Powered Equipment**. Electrical hookups shall be provided on site for hand tools such as saws, drills, and compressors used for building construction to reduce the need for electric generators and other fuel-powered

[16] For example, if a Tier 4 Interim piece of equipment is not reasonably available at the time of construction and a lower tier equipment is used instead (e.g., Tier 3), another piece of equipment could be upgraded from a Tier 4 Interim to a higher tier (i.e., Tier 4 Final) or replaced with an alternative-fueled (not diesel-fueled) equipment to offset the emissions associated with using a piece of equipment that does not meet Tier 4 Interim standards.

equipment. The use of electrical construction equipment shall be employed, where feasible.

M-AQ-7 **Best Available Control Technology**. Construction equipment shall be outfitted with best available control technology (BACT) devices certified by the California Air Resources Board. A copy of each unit's BACT documentation shall be provided to the County of San Diego at the time of mobilization of each applicable unit of equipment.

M-AQ-8 **Haul Trucks.** Haul truck staging areas shall be provided for loading and unloading soil and materials, and shall be located away from sensitive receptors at the furthest feasible distance.

M-AQ-9 through M-AQ-10 are provided to reduce operational emissions to the extent feasible.

M-AQ-9 **Facilitate Use of Electrical Lawn and Garden Equipment**. Prior to the issuance of residential building permits, the applicant or its designee shall provide evidence to the County of San Diego that building design plans require that residential structures be equipped with outdoor/exterior electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment.

M-AQ-10 **Low-VOC/Green Cleaning Product Educational Program.** Prior to the occupancy of any on-site development, the applicant or its designee shall provide evidence to the County of San Diego that the applicant/phase developer has developed a Green Cleaning Product and Paint education program to be made available at rental offices, leasing spaces, and/or websites.

2.3.7 Conclusion

The following discussion provides a synopsis of the conclusions reached in each of the above impact analyses, and the level of impact that would occur after mitigation measures are implemented, where applicable.

Conformance with the Regional Air Quality Strategy

The Proposed Project is considered accounted for in the RAQS. As such, the Proposed Project would not conflict with or obstruct implementation of local air quality plans. Impacts would be **less than significant**.

Conformance to Federal and State Ambient Air Quality Standards

Construction

Maximum daily construction emissions would exceed the construction thresholds for VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$; the threshold for SO_x would not be exceeded during construction of the Proposed Project. PDF-AQ-1 would limit PM_{10} and $PM_{2.5}$ emissions through a fugitive dust control plan, and PDF-AQ-2 would limit the VOC content of paint and other finishes used during the architectural coating phase of the Proposed Project. M-AQ-1 through M-AQ-8 would reduce NO_x, PM_{10}, and $PM_{2.5}$ emissions to the extent feasible. With implementation of mitigation, construction impacts related to PM_{10} and $PM_{2.5}$ emissions would be reduced to **less than significant**. As presented in Table 2.3-16, after implementation of PDFs and mitigation measures, the Proposed Project's construction emissions would still exceed thresholds for VOC, NO_x, and CO~~, and PM_{10}~~. Although implementation of M-AQ-1 through M-AQ-8 would effectively reduce construction emissions, not all reductions associated with these mitigation measures are readily quantifiable. Accordingly, mitigated Proposed Project construction emissions shown in Table 2.3-16 represent a conservative estimation of emissions, and Project-generated emissions are expected to be further reduced on a daily basis with incorporation of mitigation, but not to a level below significance for VOC, NO_x, and CO~~, and PM_{10}~~. As such, construction emissions of VOC, NO_x, and CO~~, and PM_{10}~~ generated by the Proposed Project would result in a **significant and unavoidable impact**.

Operation

Maximum daily Proposed Project operational emissions would exceed the operational thresholds for VOC and PM_{10}; emission thresholds for NO_x, CO, SO_x, and $PM_{2.5}$ would not be exceeded during Proposed Project operation.

The primary source of VOC emissions is use of consumer products, which are subject to CARB regulations and could not be mitigated further by PDFs, although M-AQ-10 (Low-VOC/Green Cleaning Product Educational Program) would encourage use of low-VOC cleaning products. M-AQ-9, which facilitates use of electrical lawn and garden equipment, would reduce criteria air pollutant emissions, including VOC and PM_{10}, associated with fossil fuel consumption.

The primary source of PM_{10} emissions is mobile sources (e.g., passenger vehicles). The engine and fuel efficiencies of vehicles are regulated by the EPA and CARB, and the Proposed Project includes PDFs designed to reduce emissions associated with fossil fuel consumption (i.e., PDF-AQ/GHG-10~~6~~ (Electric Vehicle Charging Stations) and PDF-TR-1 (Transportation Demand Management)). No additional feasible mitigation measures are available to further reduce PM_{10} emissions.

Daily operational emissions for VOC and PM_{10} would still exceed the County's significance thresholds after mitigation. Therefore, the Proposed Project would have a **significant and unavoidable impact** during operation.

Impacts to Sensitive Receptors

Construction

Carbon Monoxide (CO) Hotspot

Construction traffic in 2024, which represents the highest level of construction-related traffic, would not result in traffic volumes that would cause a CO hotspot; therefore, impacts related to CO near sensitive receptors during construction would be **less than significant**.

Toxic Air Contaminants

Impacts related to cancer risk and chronic hazard from DPM, which is a TAC, would be below the County's thresholds during construction activities; therefore, impacts would be **less than significant**.

Operation

Carbon Monoxide (CO) Hotspot

Operation of the Proposed Project would not expose sensitive receptors to localized high concentrations of CO or contribute traffic volumes to intersections that would cause a CO hotspot. As neither the 1-hour nor the 8-hour CO CAAQS would be equaled or exceeded at any of the studied intersections, potential operational CO hotspot impacts would be **less than significant**.

Toxic Air Contaminants

No long-term sources of TAC emissions are anticipated during operation of the Proposed Project, which would consist of residential units, commercial land uses, a school, parks, and the Otay Ranch Resource Management Plan Preserve. The Proposed Project would not include heavy industrial uses or other land uses typically associated with stationary sources and TACs. Additionally, the Proposed Project would not be located next to a major source of TAC or high-volume roadway. As such, the Proposed Project would not result in substantial TAC emissions that may affect nearby receptors, nor would the Proposed Project be exposed to nearby sources of TACs. Impact would be **less than significant**.

Odor Impacts

Construction

Construction odor impacts would be **less than significant**.

Operation

Operational odor impacts would be **less than significant**.

Cumulative Impacts

Construction

Due to the large scale and phasing of the Proposed Project and off-road construction equipment operations required during construction, no feasible mitigation is available to reduce significant cumulatively considerable increases in VOC, NO_x, CO, and PM_{10} emissions (**AQ-CUM-1**) to below a level of significance. PM_{10} would be reduced below the project level significance thresholds, however, remains near the maximum daily thresholds, and therefore due to the uncertain nature of additional potential projects in the region, cumulative emissions were determined to have a potentially significant cumulative impact. M-AQ-1 through M-AQ-8, as described in Section 2.3.6, are required for the Proposed Project to reduce Project-generated construction emissions. Cumulative construction impacts related to $PM_{2.5}$ emissions would be reduced to less than significant with implementation of mitigation. No additional mitigation measures are available to reduce VOC, NO_x, CO, and PM_{10} emissions. As such, impacts resulting from VOC, NO_x, CO, and PM_{10} emissions would be **cumulatively considerable and unavoidable** during the short-term construction period.

Operation

Similar to construction, due to the large scale of the Proposed Project, which includes development and operation of a maximum of 1,119 homes and the related consumer product use, no feasible mitigation is available to reduce significant cumulatively considerable increases in VOC. M-AQ-9 and M-AQ-10 are provided to reduce operational VOC emissions; however, reductions associated with these measures are not readily quantifiable. In addition, implementation of PDF-TR-1 and PDF-AQ/GHG-10~~6~~ would reduce VMT and associated vehicle-related criteria air pollutants, including PM_{10}, generated by the Proposed-Project. Nonetheless, due to the large number of residential units, no feasible mitigation is available to reduce significant cumulatively considerable increases in VOC and PM_{10}. Therefore, impacts would be **cumulatively considerable and unavoidable** during the operational period.

Table 2.3-1
San Diego Air Basin Attainment Classification

Pollutant	Federal Designation	State Designation
O_3 (1-hour)	Attainment [a]	**Nonattainment**
O_3 (8-hour – 1997) (8-hour – 2008)	Attainment (Maintenance) **Nonattainment (Moderate)**	**Nonattainment**
NO_2	Unclassifiable/Attainment	Attainment
CO	Attainment (Maintenance)	Attainment
SO_2	Unclassifiable/Attainment	Attainment
PM_{10}	Unclassifiable/Attainment	**Nonattainment**
$PM_{2.5}$	Unclassifiable/Attainment	**Nonattainment**
Lead	Unclassifiable/Attainment	Attainment
Sulfates	No federal standard	Attainment
Hydrogen Sulfide	No federal standard	Unclassified
Visibility-Reducing Particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Sources: EPA 2016b (federal); CARB 2016b (state).
Notes:
Attainment = meets the standards; Attainment/Maintenance = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or Unclassifiable = insufficient data to classify; Unclassifiable/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

[a] 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.

Table 2.3-2
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Ozone (O_3)										
Otay Mesa-Donovan – Richard J Donovan Correctional Facility	ppm	Maximum 1-hour concentration	State	0.09	0.082	0.087	0.092	0	0	0
	ppm	Maximum 8-hour concentration	State	0.070	0.075	0.071	0.075	1	1	4
			Federal	0.070	0.075	0.071	0.075	1	1	4
Nitrogen Dioxide (NO_2)										
Otay Mesa-Donovan – Richard J Donovan Correctional Facility	ppm	Maximum 1-hour concentration	State	0.18	0.064	0.061	0.067	0	0	0
			Federal	0.100	0.064	0.061	0.067	0	0	0
	ppm	Annual concentration	State	0.030	—	0.008	0.008	0	0	0
			Federal	0.053	—	0.008	0.008	0	0	0

Table 2.3-2
Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2014	*2015*	*2016*	*2014*	*2015*	*2016*
Carbon Monoxide (CO)										
El Cajon – Floyd Smith Drive (2014, 2015)	ppm	Maximum 1-hour concentration	State	20	1.5	1.4	1.6	0	0	0
			Federal	35	1.5	1.4	1.6	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	1.1	1.1	1.0	0	0	0
			Federal	9	1.1	1.1	1.0	0	0	0
Sulfur Dioxide (SO_2)										
El Cajon – Floyd Smith Drive (2014, 2015)	ppm	Maximum 1-hour concentration	Federal	0.075	0.012	0.012	0.018	0	0	0
	ppm	Maximum 24-hour concentration	Federal	0.140	0.05	0.04	0.02	0	0	0
	ppm	Annual concentration	Federal	0.030	—	—	—	—	—	—
Coarse Particulate Matter (PM_{10})[a]										
Otay Mesa-Donovan – Richard J Donovan Correctional Facility	µg/m³	Maximum 24-hour concentration	State	50	58.0	136.0	79.0	[a]	61.0	54.1
			Federal	150	59.0	136.0	79.0	0	0	0
	µg/m³	Annual concentration	State	20	—	—	—	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]										
Chula Vista – 80 E. 'J' Street	µg/m³	Maximum 24-hour concentration	Federal	35	26.5	33.5	23.9	0	0	0
	µg/m³	Annual concentration	State	12	9.3	8.4	8.7	0	0	0
			Federal	12.0	9.2	8.3	8.7	0	0	0

Sources: CARB 2016c; EPA 2016c.

Notes: — = not available or applicable; µg/m³ = micrograms per cubic meter; ppm = parts per million

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

Otay Mesa-Donovan – Richard J Donovan Correctional Facility monitoring station is located at 480 Alta Road, San Diego, California.

Chula Vista – 80 E. 'J' Street monitoring station is located at 80 East J Street, Chula Vista, California

El Cajon – Redwood Avenue monitoring station is located at 1155 Redwood Avenue, El Cajon, California.

El Cajon – Floyd Smith Drive monitoring station is located at 10537 Floyd Smith Drive, El Cajon, California.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored.

Table 2.3-3
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary[c,d]*	*Secondary[c,e]*
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	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)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[j,k]	30-day Average	1.5 μg/m³	—	—
	Calendar Quarter	—	1.5 μg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m³)	—	—
Sulfates	24- hours	25 μg/m³	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016b.

Notes: μg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter; ppm = parts per million by volume; O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended 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. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 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/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on 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.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

g To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of 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.

h 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 national 1-hour 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 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

i On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

j CARB has identified lead and vinyl chloride as TACs 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.

k The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 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.

Table 2.3-4
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[a]		
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
Lead and Lead Compounds	—	3.2	0.6
Volatile Organic Compounds (VOC)	—	75[a]	13.7

Sources: SDAPCD Rules 1501 (SDAPCD 1995) and 20.2(d)(2) (SDAPCD 2016c).

a VOC threshold based on the threshold of significance for VOC from the South Coast Air Quality Management District for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance (County of San Diego 2007).

Table 2.3-5
Regulatory Compliance Measures that
Reduce Construction-Related Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
Particulate Matter/Fugitive Dust Control			
REG-AQ-1	County Grading Dust Control (County Ordinance 87.428)	Per County of San Diego (County) Ordinance 87.428, all clearing and grading shall be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. County Ordinance 87.428 identifies the following measures that could be employed to control dust: • Watering • Application of surfactants • Shrouding • Control of vehicle speeds • Paving of access areas • Other operational or technological measures to reduce dispersion of dust	County Ordinance 87.428 does not require specific measures; rather, it requires that adequate dust control measures be employed. Compliance with REG-AQ-1 (County Ordinance 87.428) for the Proposed Project would occur through implementation of PDF-AQ-1, which includes fugitive dust control strategies. The following was assumed in CalEEMod: • Watering of actively disturbed surfaces at least three times daily was assumed in CalEEMod, representing a 61% reduction in PM_{10} and $PM_{2.5}$ emissions. • Applying nontoxic soil stabilizers or other SDACPD-approved measure to minimize fugitive dust on unpaved roads was assumed in CalEEMod, representing a 30% reduction in unpaved road PM_{10} and $PM_{2.5}$ emissions (SCAQMD 1993). • A speed limit of 15 miles per hour on all unpaved surfaces was assumed in CalEEMod.
REG-AQ-2	Fugitive Dust Control (SDAPCD Rule 55)	SDAPCD Rule 55 identifies two main standards relating to Airborne Dust Beyond the Property Line, and Dust Control Track-Out/Carry-Out. Regarding airborne dust beyond the property line, Rule 55 requires that no person engage in construction or demolition activity in a manner that discharges visible dust emissions into the	Compliance with REG-AQ-1 (SDAPCD Rule 55) is demonstrated through implementation of PDF-AQ-1, which includes specific fugitive dust control strategies. See REG-AQ-1 for related assumptions incorporated into CalEEMod.

Table 2.3-5
Regulatory Compliance Measures that
Reduce Construction-Related Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
		atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60-minute period. Regarding track-out/carry-out[a], Rule 55 requires that visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out be minimized and provides the following potential control measures: • Track-out grates or gravel beds at each egress point; • Wheel-washing at each egress during muddy conditions; • Use of soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; • Water or treat transported material in outbound transport trucks Rule 55 also requires that track-out/carry-out be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations.	
Volatile Organic Compounds (VOC)			
REG-AQ-3	Architectural Coating VOC limits (SDAPCD Rule 67.0.1)	Per SDAPCD Rule 67.0.1, the applicant shall use regulated low-VOC coatings for all architectural coating activities.	Compliance with REG-AQ-3 (SDAPCD Rule 67.0.1) is demonstrated through implementation of PDF-AQ-2, which includes specific VOC coating limits for residential and non-residential land uses: 50 grams per liter VOC for interior surfaces and 100 grams per liter VOC for exterior coatings.
Oxides of Nitrogen (NO_x), Carbon Monoxide (CO)			
REG-AQ-4	Reduce Idling Time (CARB's ATCM)	Per CARB's ATCM 13 (CCR Chapter 10 Section 2485), the applicant shall not allow idling time to exceed 5 minutes unless more time is required per engine manufacturers' specifications or for safety reasons.	Not quantified.

[a] "Track-Out/Carry-Out" means any bulk materials that adhere to and agglomerate on the exterior surfaces of motor vehicles and/or equipment (including tires), or are inadvertently carried out, and that fall onto a paved road, creating visible roadway dust (SDAPCD Rule 55) (SDAPCD 2009).

Table 2.3-6
Regulatory Compliance Measures that
Reduce Operational-Related Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
Area			
REG-AQ-5	Architectural Coating VOC Limits	Per SDAPCD Rule 67.0.1, the applicant shall use regulated low-VOC coatings for all architectural coating activities. VOC content limits for the three general coating categories identified in Rule 67.0.1 are as follows: Flat coatings: 50 grams per liter (g/L) Non-flat coatings: 100 g/L Non-flat high-gloss coatings: 150 g/L	It was conservatively assumed in CalEEMod that reapplication of architectural coating for interior and exterior residential and non-residential building surfaces would be 150 g/L VOC to demonstrate compliance with SDAPCD Rule 67.0.1 VOC content limits.
Energy			
REG-AQ-6	Compliance with Title 24 Building Energy Efficiency Standards	Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2016 standards, became effective on January 1, 2017. CalEEMod version 2016.3.1 assumes compliance with 2013 Title 24 Standards. In general, single-family homes built to the 2016 standards are anticipated to use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and non-residential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a).	Per PDF-AQ/GHG-2, the Proposed Project residential land uses would be Zero Net Energy (ZNE), which exceeds the energy efficiency requirements of the 2016 Title 24 standards. Accordingly, no emission reduction associated with compliance with 2016 Title 24 building energy efficiency standards was assumed for residential land uses. For the Proposed Project's non-residential land uses, CalEEMod default energy values were conservatively assumed, which reflect compliance with 2013 Title 24 standards. The CalEEMod default values for Title 24-regulated energy, natural gas, and lighting were assumed to be 5% more efficient, then improved another 10% from the 2016 estimated values to reflect demand after implementation of PDF-AQ/GHG-3.
REG-AQ-7	Solar-Ready Units	Per the California Energy Commission's *2016 Residential Compliance Manual* (CEC 2015b), all single-family homes constructed as part of the Proposed Project would be designed with pre-plumbing for solar water heaters and solar and/or wind renewable energy systems.	No reduction assumed.

Table 2.3-6
Regulatory Compliance Measures that
Reduce Operational-Related Criteria Air Pollutant Emissions

Regulation Number	Regulatory Compliance Measure	Description	Quantification Details
Mobile			
REG-AQ-8	State and Federal Mobile Source Reduction Strategies	• Advanced Clean Cars (for model years 2016 and beyond) • Truck and Bus Rule (2014 Amendment) • Heavy-Duty Greenhouse Gas Phase 1 (2013), which includes the 2013 Tractor-Trailer Greenhouse Gas Regulation Amendments and Federal Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles[a] • Pavley I federal standard for model years 2012 through 2016	Accounted for in EMFAC 2014 vehicle emission factors as part of CalEEMod version 2016.3.1.

[a] While the Heavy-Duty Greenhouse Gas Phase 1 and Tractor-Trailer Greenhouse Gas Regulation Amendments are focused on reducing greenhouse gas emissions, implementation would result in co-benefits to reducing mobile source criteria air pollutant emissions.

Table 2.3-7
Project Design Features that
Reduce Construction-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
Particulate Matter/Fugitive Dust Control			
PDF-AQ-1	Fugitive Dust Control	The Proposed Project shall implement the following measures to minimize fugitive dust (PM_{10} and $PM_{2.5}$), comply with County Code Section 87.428 (Grading Ordinance), and comply with SDAPCD Rule 55 (Fugitive Dust Control): a. Water or another SDAPCD-approved dust control non-toxic agent shall be used on the grading areas at least three times daily. b. All main roadways shall be constructed and paved as early as possible in the construction process. c. Building pads shall be finalized as soon as possible following site preparation and grading activities; d. Grading areas shall be stabilized as quickly as possible. e. Chemical stabilizer shall be applied, a gravel pad shall be installed, or the last	The following fugitive dust control strategies identified in PDF-AQ-1 were quantitatively assumed in CalEEMod: • Watering of actively disturbed surfaces at least three times daily was assumed in CalEEMod, representing a 61% reduction in PM_{10} and $PM_{2.5}$ emissions. • Applying nontoxic soil stabilizers or other SDACPD-approved measure to minimize fugitive dust on unpaved roads was assumed in CalEEMod, representing a 30% reduction in unpaved

Table 2.3-7
Project Design Features that
Reduce Construction-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
		100 feet of internal travel path within the construction site shall be paved prior to public road entry, and for all haul roads. f. Wheel washers shall be installed adjacent to the apron indicated in (c) for tire inspection and washing prior to vehicle entry on public roads. g. Visible track-out into traveled public streets shall be removed with the use of sweepers, water trucks, or similar method within 30 minutes of occurrence. h. Sufficient perimeter erosion control shall be provided to prevent washout of silty material onto public roads. i. Unpaved construction site egress points shall be graveled to prevent track-out. j. Construction access points shall be wet-washed at the end of the workday if any vehicle travel on unpaved surfaces has occurred. k. Transported material in haul trucks shall be watered or treated. l. All soil disturbance and travel on unpaved surfaces shall be suspended if winds exceed 25 miles per hour. m. On-site stockpiles of excavated material shall be covered. n. A 15 mile per hour speed limit on unpaved surfaces shall be enforced. o. Haul truck staging areas shall be provided for loading and unloading of soil and materials and shall be located away from sensitive receptors at the farthest feasible distance. p. Construction Traffic Control Plans shall route delivery and haul trucks required during construction away from sensitive receptor locations and congested intersections to the extent feasible. Construction Traffic Control plans shall be finalized and approved prior to issuance of grading permits.	road PM_{10} and $PM_{2.5}$ emissions (SCAQMD 1993). • A traffic speed limit on unpaved roads of 15 miles per hour was assumed in CalEEMod. The emissions reduction benefits of REG-AQ-1 and PDF-AQ-1 were not double-counted, but rather accounted for in CalEEMod on a one-time basis.

Table 2.3-7
Project Design Features that
Reduce Construction-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
Volatile Organic Compounds (VOC)			
PDF-AQ-2	Construction Architectural Coating Limits	The Proposed Project shall comply with the SDAPCD volatile organic compound (VOC) content limits for architectural coatings during construction.	PDF-AQ-2 includes specific VOC coating limits for residential and non-residential land uses: 50 grams per liter VOC for interior surfaces and 100 grams per liter VOC for exterior coatings. The emissions reduction benefits of REG-AQ-3 and PDF-AQ-2 were not double-counted, but rather accounted for in CalEEMod on a one-time basis.

Table 2.3-8
Project Design Features that
Reduce Operational-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
Area			
PDF-AQ/GHG-1	Wood-Burning Stoves and Fireplaces	Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that no wood-burning stoves or fireplaces would be constructed.	The number of wood burning stoves and fireplaces was set to zero in CalEEMod. Natural gas fireplace use was included in the natural gas consumption estimates in the energy module of CalEEMod.
Energy			
PDF-AQ/GHG-2	Zero Net Energy (ZNE) Residences	Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating compliance with the ZNE design standards defined by the California Energy Commission.	Proposed-Project electricity and natural gas assumptions were incorporated into CalEEMod for the residential land uses based on the Proposed Project's Building Analysis (ConSol 2017).

Table 2.3-8
Project Design Features that
Reduce Operational-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
PDF-AQ/GHG-3	Non-Residential Energy Improvement Standards	Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that the Proposed Project's non-residential land uses shall achieve a 10% greater building energy efficiency than required by the 2016 State energy efficiency standards in Title 24, Part 6 of the California Code of Regulations.	CalEEMod default energy rates reflect 2013 standards. Accordingly, title 24 energy use was adjusted to reflect the estimated 5% increase in efficiency for non-residential buildings (CEC 2015), and then adjusted to reflect an additional 10% increase on the calculated 2016 energy demand factors.
PDF-AQ/GHG-4	Energy Star Appliances	All appliances (washer/dryers, refrigerators, and dishwashers) that will be installed by builders in residences and commercial businesses shall be Energy Star rated or equivalent.	The following percent improvement in energy efficiency was assumed in CalEEMod based on default values: Clothes washers: 30% Dishwashers: 15% Fan: 50% Refrigerator: 15%
PDF-AQ/GHG-5	Solar Water Heating	Prior to the issuance of private recreation center building permits, the Proposed Project applicant or its designee shall submit swimming pool heating design plans to the County of San Diego for review and approval. The design plans shall demonstrate that all swimming pools located at private recreation centers in the Project Area are designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency.	Swimming pool heating needs are assumed to be met with solar heating; therefore, no criteria air pollutant emissions associated with pool heating were included in Proposed Project emissions estimates.
PDF-AQ/GHG-6	Efficient Outdoor Lighting	Prior to the issuance of building permits, the Proposed Project applicant or its designee shall submit building plans that demonstrate that all outdoor lighting shall be LED (light emitting diodes) or use other high efficiency lightbulbs	Conservatively, no credit was taken for efficient outdoor lighting.
PDF-AQ/GHG-7	New Resident Information Packet	Prior to the issuance of Certificates of Occupancy for new residences, the Proposed Project applicant or its designee shall submit certification that it has provided information on energy efficiency, energy efficient lighting and lighting control systems, energy management, and existing energy incentive programs to new homebuyers.	Conservatively, no credit was taken for distribution of New Resident Distribution Packets.

Table 2.3-8
Project Design Features that
Reduce Operational-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
PDF-AQ/GHG-8	Cool Roofs	Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that residential structures shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year solar reflectance index (SRI) of 64 for a low-sloped roof and an SRI of 32 for a high- sloped roof. Prior to the issuance of non-residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating non-residential structures shall meet the U.S. Green Building Council standards for cool roofs. This is defined as achieving a three-year SRI of 64 for a low-sloped roof and 32 for a high- sloped roof.	Conservatively, no credit was taken for implementation of cool roofs.
PDF-AQ/GHG-9	Cool Pavement	Prior to the issuance of building permits, the Proposed Project applicant or its designee shall submit building plans illustrating that outdoor pavement, such as walkways and patios shall use paving materials with three-year SRI of 0.28 or initial SRI of 0.33.	Conservatively, no credit was taken for implementation of cool pavement.
Mobile			
PDF-AQ/GHG-~~6~~10	Electric Vehicle Charging Stations	Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit plans for the installation of a dedicated 208/240 dedicated branch circuit in each garage of every residential unit and one Level 2 electric vehicle (EV) charging station of the garage in half of all residential units to the County of San Diego for review and approval. Prior to the issuance of non-residential building permits, the applicant or its designee shall submit plans for the installation of 10 Level 2 EV charging stations in parking spaces located in the Village Core's commercial development area and P1 through P4 park areas to the County of San Diego for review and approval.	Conservatively, no credit was taken for implementation for EV charging equipment.

Table 2.3-8
Project Design Features that
Reduce Operational-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
PDF-TR-1	Bus Pull-Ins	Bus pull-ins will be constructed in Village 14 and Planning Areas 16/19.	Conservatively, no credit was taken for implementation of bus pull-ins.
	Improve Design of Development	The Proposed Project will include improved design elements to enhance walkability and connectivity. Improved street network characteristics within a neighborhood include street accessibility, usually measured in terms of average block size, proportion of four-way intersections, or number of intersections per square mile. Design is also measured in terms of sidewalk coverage, building setbacks, street widths, pedestrian crossings, presence of street trees, and a host of other physical variables that differentiate pedestrian-oriented environments from auto-oriented environments.	Conservatively, no credit was taken for implementation of improvement of design.
	Locate Project Near Bike Path/Bike Lane	The Proposed Project will be located within 1/2 mile of an existing Class I path or Class II bike lane. The Proposed Project design should include a comparable network that connects the Proposed Project uses to the existing off-site facilities.	A 0.63% reduction in VMT from Village 14 was assumed based on the Proposed Project's TDM program evaluation (Appendix 2.9-1).
	Provide Pedestrian Network Improvements	The Proposed Project will provide a pedestrian access network that internally links all uses and connects to all existing or planned external streets and pedestrian facilities contiguous with the Project Area. The Proposed Project will minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, landscaping, and slopes that impede pedestrian circulation will be eliminated.	A 2% reduction in VMT from Village 14 was assumed based on the Proposed Project's TDM program evaluation (Appendix 2.9-1).
	Provide Traffic Calming Measures	Proposed Project design will include pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways will be designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features. Traffic calming features may include marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.	A 0.63% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM program evaluation (Appendix 2.9-1).

Table 2.3-8
Project Design Features that
Reduce Operational-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
	Dedicate Land for Bike Trails	Larger projects may be required to provide for, contribute to, or dedicate land for the provision of off-site bicycle trails linking the Proposed Project to designated bicycle commuting routes in accordance with an adopted citywide or Countywide bikeway plan.	A 0.10% reduction in VMT from Village 14 was assumed based on the Proposed Project's TDM program evaluation (Appendix 2.9-1).
	Provide Ride-Sharing Programs	The Proposed Project would include a ride-sharing program and a permanent transportation management association membership and funding requirement. Funding may be provided by Community Facilities, District, or County Service Area, or other non-revocable funding mechanism. The Proposed Project will promote ride-sharing programs through a multi-faceted approach s: • Designating a certain percentage of parking spaces for ride sharing vehicles • Designating adequate passenger loading/unloading and waiting areas for ride-sharing vehicles • Providing a website or message board for coordinating rides	A 0.75% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM program evaluation (Appendix 2.9-1)
	Implement Commute Trip Reduction Marketing	The Proposed Project will implement marketing strategies to reduce commute trips. Information sharing and marketing are important components to successful commute trip reduction strategies. Implementing commute trip reduction strategies without a complementary marketing strategy will result in lower VMT reductions. Marketing strategies may include the following: • New employee orientation of trip reduction and alternative mode options • Event promotions • Publications	A 0.40% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM program evaluation (Appendix 2.9-1).

Table 2.3-8
Project Design Features that
Reduce Operational-Related Criteria Air Pollutant Emissions

PDF Number	Strategy to Reduce Emissions	Description	Quantification Details
	Implement a School Pool Program	This Proposed Project will create a ridesharing program for school children. Most school districts provide bussing services to public schools only. School Pool helps match parents to transport students to private schools, or to schools where students cannot walk or bike but do not meet the requirements for bussing.	A 0.24% reduction in VMT from Village 14 and Planning Areas 16/19 was assumed based on the Proposed Project's TDM program evaluation (Appendix 2.9-1).
	Required Project Contributions to Transportation Infrastructure Improvement Projects	The Proposed Project should contribute to traffic-flow improvements or other multi-modal infrastructure projects that reduce emissions and are not considered as substantially growth inducing. The local transportation agency should be consulted for specific needs.	Conservatively, no credit was taken for Proposed Project contributions to transportation infrastructure improvements.
	TDM Program Coordinator	To ensure that the TDM Program strategies are implemented and effective, a transportation coordinator (likely as part of a homeowner's association (HOA)) would be designated to monitor the TDM Program, and would be responsible for developing, marketing, implementing, and evaluating the TDM Program.	No credit was taken, as this measure is an enforcement mechanism for those listed above.

Table 2.3-9
Estimated Maximum Daily Construction Emissions – Unmitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2019						
Construction Activities[a]	9.73	111.21	68.37	0.13	33.93	12.83
Blasting (Phase 1)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 1)[b]	12.26	236.87	71.98	0.33	34.02	8.74
Maximum Daily Emissions	*21.99*	*488.33*	*693.1*	*16.96*	*68.3*	*21.59*
2020						
Construction Activities[a]	59.41	160.13	101.05	0.19	376.94	55.08
Blasting (Phase 1)[b]	—	140.25	552.75	16.50	0.35	0.02

Table 2.3-9
Estimated Maximum Daily Construction Emissions – Unmitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Rock Crushing (Phase 1)[b]	4.91	94.75	28.79	0.13	45.71	7.77
Maximum Daily Emissions	*64.32*	*488.33*	*693.1*	*16.96*	*423.00*	*62.87*
2021						
Construction Activities[a]	50.03	211.43	140.22	0.26	103.30	40.80
Blasting (Phase 2)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)[b]	4.91	94.75	28.79	0.13	45.71	7.77
Maximum Daily Emissions	*54.94*	*446.43*	*721.76*	*16.89*	*149.36*	*78.77*
2022						
Construction Activities[a]	79.96	254.49	194.82	0.39	177.48	56.21
Blasting (Phase 2)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)[b]	4.91	94.75	28.79	0.13	16.52	3.88
Maximum Daily Emissions	*84.87*	*489.49*	*776.36*	*17.02*	*134.35*	*60.11*
2023						
Construction Activities[a]	196.16	224.32	197.56	0.40	74.84	41.07
Rock Crushing (Phase 2)[b]	1.30	25.07	7.62	0.03	29.70	4.40
Maximum Daily Emissions	*197.46*	*249.39*	*205.18*	*0.43*	104.54	45.47
2024						
Construction Activities[a]	161.41	153.92	175.73	0.34	68.26	19.24
2025						
Construction Activities[a]	74.92	137.82	172.69	0.34	41.13	15.21
2026						
Construction Activities[a]	66.49	98.88	118.07	0.22	34.63	10.15
2027						
Construction Activities[a]	19.54	12.69	20.40	0.03	5.17	0.97

Table 2.3-9
Estimated Maximum Daily Construction Emissions – Unmitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Maximum Daily Emissions						
Maximum Daily Emissions During Any Construction Year	**197.46**	**489.49**	**776.36**	**17.02**	***423.00***	***62.87***
Pollutant Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
See Appendices A and B of Appendix 2.3-1.
Estimated emissions include implementation of REG-AQ-1, REG-AQ-3, PDF-AQ/GHG-1, and PDF-AQ/GHG-2.
Construction of the Proctor Valley Road North Option in 2022 would result in a maximum of 9.26 pounds per day of VOC, 20.99 pounds per day of NO_x, 17.40 pounds per day of CO, 0.03 pounds per day of SO_x, 3.72 pounds per day of PM_{10}, and 2.22 pounds per day of $PM_{2.5}$. It is not anticipated that the Proctor Valley Road North Option construction in 2022 would result in an increase in maximum daily criteria air pollutants, since bike lane construction would not require additional equipment or additional equipment operation hours during off-site improvement construction, but would extend the length of construction time for Proctor Valley Road by 9 working days:
[a] Emissions represent maximum daily construction activities from overlapping construction phases at any one point for a given year.
[b] Appendix B of Appendix 2.3-1.

Table 2.3-10
Estimated Maximum Daily Operational Emissions - Unmitigated

Emission Source	VOC	NO_x	CO	SO_X	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
Area	96.34	1.06	92.30	0.00	0.51	0.51
Energy	0.88	7.59	3.62	0.05	0.61	0.61
Mobile	27.71	105.13	250.31	0.92	92.55	25.17
Total	**124.93**	**113.77**	**346.23**	**0.97**	**93.68**	**26.29**
Winter						
Area	96.34	1.06	92.30	0.00	0.51	0.51
Energy	0.88	7.59	3.62	0.05	0.61	0.61
Mobile	26.64	106.29	254.13	0.87	92.56	25.17
Total	**123.86**	**114.94**	**350.05**	**0.93**	**93.68**	**26.29**
Maximum Daily Emissions						
Maximum Daily Emissions	**124.93**	**114.94**	**350.05**	**0.97**	**93.68**	**26.29**
Pollutant Threshold	75	250	550	250	100	55
Threshold Exceeded?	**Yes**	No	No	No	**Yes**	No

Notes:
VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

Emissions reflect operational year 2028.
See Appendix A of Appendix 2.3.1 for complete results.
Estimated emissions include compliance with regulatory measures (REG-AQ-5) and implementation of PDFs (PDF-AQ/GHG-2, PDF-AQ/GHG-3, PDF-AQ/GHG-4, and PDF-TR-1).

Table 2.3-11
Construction Cancer Risk Assessment Results – Unmitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk—On-Site Residential	Per Million	1.23	10	Less than Significant
Maximum Individual Cancer Risk—Off-Site Residential	Per Million	1.06	10	Less than Significant
Maximum Individual Cancer Risk—Worker	Per Million	0.11	10	Less than Significant
Maximum Individual Cancer Risk—Academy of Exploration	Per Million	3.23	10	Less than Significant

Source: SDAPCD 2015.
Notes: See Appendix D of Appendix 2.3.1 for complete results.
The estimated cancer risk (unmitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Off-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Worker: 101.68 pounds per year exhaust PM_{10}
- Academy of Exploration: 127.1 pounds per year exhaust PM_{10}

Table 2.3-12
Construction Cancer Risk Assessment Results – Mitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk—On-Site Residential	Per Million	1.06	10	Less than Significant
Maximum Individual Cancer Risk—Off-Site Residential	Per Million	0.913	10	Less than Significant
Maximum Individual Cancer Risk—Worker	Per Million	0.096	10	Less than Significant
Maximum Individual Cancer Risk—Academy of Exploration	Per Million	2.23	10	Less than Significant

Source: SDAPCD 2015.
Notes: See Appendix D of Appendix 2.3.1 for complete results.
The estimated cancer risk (mitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Off-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Worker: 87.9 pounds per year exhaust PM_{10}
- Academy of Exploration: 87.9 pounds per year exhaust PM_{10}

Table 2.3-13
Construction Chronic Hazard Index Assessment Results – Unmitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Chronic Hazard Index—On-Site Residential	Index Value	0.0005	1.0	Less than Significant

Table 2.3-13
Construction Chronic Hazard Index Assessment Results – Unmitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Chronic Hazard Index—Off-Site Residential	Index Value	0.0005	1.0	Less than Significant
Chronic Hazard Index—Worker	Index Value	0.002	1.0	Less than Significant
Chronic Hazard Index — Academy of Exploration	Index Value	0.001	1.0	Less than Significant

Source: SDAPCD 2015.
Notes: See Appendix D of Appendix 2.3-1 for complete results.
The estimated chronic hazard index (unmitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Off-Site Residential: 244.032 pounds per year exhaust PM_{10}
- Worker: 101.68 pounds per year exhaust PM_{10}
- Academy of Exploration: 127.1 pounds per year exhaust PM_{10}

Table 2.3-14
Construction Chronic Hazard Index Results – Mitigated Emissions

Impact Parameter	Units	Proposed Project Impact	CEQA Threshold	Level of Significance
Chronic Hazard Index—On-Site Residential	Index Value	0.0005	1.0	Less than Significant
Chronic Hazard Index—Off-Site Residential	Index Value	0.0004	1.0	Less than Significant
Chronic Hazard Index—Worker	Index Value	0.001	1.0	Less than Significant
Chronic Hazard Index —Academy of Exploration	Index Value	0.001	1.0	Less than Significant

Source: SDAPCD 2015.
Notes: See Appendix D of Appendix 2.3-1 for complete results.
The estimated chronic hazard index risk (mitigated emissions) assumes the following annual exhaust PM_{10} emissions:

- On-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Off-Site Residential: 210.96 pounds per year exhaust PM_{10}
- Worker: 87.9 pounds per year exhaust PM_{10}
- Academy of Exploration: 87.9 pounds per year exhaust PM_{10}

Table 2.3-15
CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Impact for Year 2040 Cumulative Plus Project (ppm)	
	1-hour	*8-hour*[a]
State Route 94 and Lyons Valley Road (PM peak hour)	2.4	1.67
Paseo Ranchero and East H Street (PM peak hour)	2.6	1.81
Proctor Valley Road and Project Driveway No. 2 (PM peak hour)	2.4	1.67
Proctor Valley Road and Project Driveway No. 1 (PM peak hour)	2.4	1.67

Source: Caltrans 1998a (CALINE4).
Notes:
CO = carbon monoxide; ppm = parts per million.
See Appendix C of Appendix 2.3-1 for complete results.
[a] 8-hour concentrations were obtained by multiplying the 1-hour concentration by a persistence factor of 0.7 (SCAQMD 1993).

Table 2.3-16
Estimated Maximum Daily Construction Emissions – Mitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2019						
Construction Activities[a]	2.25	41.10	75.05	0.13	29.39	8.35
Blasting (Phase 1)[a]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 1)[b]	2.82	138.57	169.66	0.33	30.07	4.79
Maximum Daily Emissions	*5.07*	*319.92*	*797.46*	*16.96*	*59.81*	*13.16*
2020						
Construction Activities[a]	51.15~~52.13~~	138.31~~96.49~~	152.83~~107.26~~	0.26~~0.19~~	49.32~~283.77~~	27.48~~44.65~~
Blasting (Phase 1)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 1)[b]	1.13	55.43	67.87	0.13	44.14	6.20
Maximum Daily Emissions	*52.28~~53.26~~*	*333.99~~292.17~~*	*773.45~~727.88~~*	*16.89~~16.82~~*	*93.81~~328.26~~*	*33.7~~50.87~~*
2021						
Construction Activities[a]	39.13~~38.41~~	124.58~~109.72~~	157.78~~128.62~~	0.26~~0.23~~	48.17~~96.03~~	22.92~~34.13~~
Blasting (Phase 2)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)[b]	1.13	55.43	67.87	0.13	44.14	6.20
Maximum Daily Emissions	*40.26~~39.54~~*	*320.26~~305.4~~*	*778.4~~749.24~~*	*16.89~~16.86~~*	*92.66~~140.52~~*	*29.14~~40.35~~*
2022						
Construction Activities[a]	69.75~~66.39~~	195.26~~114.11~~	244.02~~182.08~~	0.42~~0.31~~	77.47~~100.56~~	36.77~~43.22~~
Blasting (Phase 2)[b]	—	140.25	552.75	16.50	0.35	0.02
Rock Crushing (Phase 2)[b]	1.13	55.43	67.87	0.13	14.95	2.31
Maximum Daily Emissions	*70.88~~67.52~~*	*390.94~~309.79~~*	*864.64~~802.7~~*	*17.05~~16.94~~*	*92.77~~115.86~~*	*39.14~~5.55~~*
2023						
Construction Activities[a]	106.36~~186.76~~	165.18~~145.44~~	263.97~~240.26~~	0.45~~0.418~~	68.53~~72.56~~	30.53~~27.62~~
Rock Crushing (Phase 2)[b]	0.30	14.66	17.95	0.03	29.28	3.98
Maximum Daily Emissions	*106.66~~187.06~~*	*179.84~~160.10~~*	*281.92~~258.21~~*	*0.48~~0.45~~*	*97.81~~101.84~~*	*34.51~~31.60~~*

Table 2.3-16
Estimated Maximum Daily Construction Emissions – Mitigated

Activity	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2024						
Construction Activities[a]	155.55~~154.75~~	135.72~~123.87~~	223.99~~210.19~~	0.36~~0.34~~	47.27~~62.64~~	12.96~~14.12~~
2025						
Construction Activities[a]	71.55	124.26	210.55	0.34	36.47	10.77
2026						
Construction Activities[a]	61.90	83.52	138.57	0.22	31.52	7.01
2027						
Construction Activities[a]	19.22	14.75	23.52	0.03	4.79	0.63
Maximum Daily Emissions						
Maximum Daily Emissions During Any Construction Year	**155.55~~191.67~~**	**390.94~~319.92~~**	**864.64~~802.7~~**	**17.05~~16.96~~**	**97.81~~328.26~~**	**39.10~~51.74~~~~50.87~~**
Pollutant Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**Yes**	No	~~Yes~~No	No

Notes:
See Appendices A and B of Appendix 2.3-1.
Estimated emissions include compliance with regulatory measures and mitigation measure M-AQ-1.
[a] Emissions represent maximum daily construction activities from overlapping construction phases at any one point for a given year.
[b] Appendix B of Appendix 2.3-1.

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