2.2 Air Quality

This section summarizes potential air quality impacts resulting from implementation of the proposed Project. This air quality analysis includes a description of existing air quality conditions, an evaluation of potential air quality impacts associated with Project construction and operation, identification of feasible mitigation measures, and discussion of the potential air-quality-related cumulative impacts of the proposed Project. The analysis presented in this section is based on the Otay Ranch Resort Village Air Quality Impact Report (Air Quality Report, SRA/AECOM 2014), provided as **Appendix C-1** to this EIR.

The Otay Ranch PEIR, adopted in 1993, provided a program-level analysis of the existing conditions and potential impacts related to air quality for the entire Otay Ranch area, including the Project site. The PEIR concluded that implementation of the Otay Ranch Project would result in significant air quality impacts associated with the implementation of SIP regulations and emissions of nitrogen oxide (NO_X), reactive organic gas (ROG), carbon monoxide (CO), and respirable particulate matter (PM_{10}) from vehicular and stationary sources. Impacts associated with construction of the Otay Ranch Project would be reduced to a level less than significant with implementation of Project design features and the mitigation measures found in the PEIR. The Otay Ranch PEIR is incorporated by reference in this EIR.

2.2.1 Existing Conditions

2.2.1.1 Climate and Meteorology

Air quality is affected by the rate and location of pollutant emissions and by meteorological conditions, which influence the movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and air quality.

Regional Climate

The proposed development is located in the San Diego Air Basin (SDAB), which is contiguous with San Diego County. The climate of San Diego County is characterized by warm, dry summers and mild winters. One of the main determinants of the climatology is a semi-permanent high-pressure area (the Pacific High) in the eastern Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of California. This high-pressure cell maintains clear skies for much of the year. When the Pacific High moves southward during the winter, this pattern changes, and low-pressure storms are brought into the region, causing widespread precipitation. In San Diego County, the months of heaviest precipitation are November through April, averaging about 9 to 14 inches annually. The mean temperature is 62.2 degrees Fahrenheit (°F), and the mean maximum and mean minimum temperatures are 75.7°F and 48.5°F.

A common atmospheric condition known as a temperature inversion affects air quality in San Diego. During an inversion, air temperatures get warmer rather than cooler with increasing height. Subsidence inversions occur during the warmer months (May through October) as descending air

associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the layers of air represents a temperature inversion, which is located approximately 2,000 feet AMSL during the months of May through October and approximately 3,000 feet AMSL during the winter months (November through April). Inversion layers are important determinants of local air quality because they inhibit the dispersion of pollutants, thus resulting in a temporary degradation of air quality.

Local Microclimate

Average high temperatures at the nearest operating climate monitoring station, which is located in Chula Vista, California, approximately 7.6 miles west of the Project site range from 74.2°F in July to 64.2°F in January. Average low temperatures average 43.8°F in January to 64.2°F in July. Annual precipitation is approximately 9.73 inches, which occurs mostly between November and April (WRCC 2014).

2.2.1.2 Regulatory Setting

Federal and State Air Quality Standards

The Federal Clean Air Act (CAA) requires the adoption of National Ambient Air Quality Standards (NAAQS) to protect the public health, safety, and welfare from the known or anticipated effects of air pollution. The NAAQS are revised when scientific evidence indicates a need. Current standards are set for sulfur dioxide (SO_2), CO, nitrogen dioxide (NO_2), ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb). These pollutants are collectively referred to as criteria pollutants. The California Air Resources Board (ARB) also established standards for these criteria pollutants (California Ambient Air Quality Standards [CAAQS]). The ARB standards are generally more restrictive than the NAAQS. The ARB also established standards for additional pollutants. Federal and state standards are shown in **Table 2.2-1**.

Regional Air Quality Standards

In San Diego County, the San Diego Air Pollution Control District (SDAPCD) is the agency responsible for protecting the public health and welfare through the administration of federal and state air quality laws and policies. SDAPCD is responsible for monitoring air pollution, preparing the San Diego County portion of the SIP, and publicize rules and regulations. The SIP includes strategies and tactics to attain and maintain acceptable air quality in the County. SDAPCD's RAQS addresses State requirements for attainment while the San Diego portion of the California SIP includes strategies to achieve attainment of federal standards. The rules and regulations include procedures and requirements to control the emission of pollutants and prevent significant adverse impacts. The SDAPCD rules and regulations that are applicable to the proposed Project are:

- Rule 10 (Permits Required)
- Rule 50 (Visible Emissions)
- Rule 51 (Nuisance)
- Rule 52 (Particulate Matter)

- Rule 54 (Dust and Fumes)
- Rule 55 (Fugitive Dust Control)
- Rule 66.1 (Miscellaneous Surface Coating Operations and Other Processes Emitting VOCs)
- Rule 67.0.1 (Architectural Coatings)
- Rule 67.7 (Cutback and Emulsified Asphalts)
- Rule 69.5 (Natural Gas Fired Water Heaters)

2.2.1.3 Existing Air Quality Conditions

Specific geographic areas are classified as either "attainment" or "nonattainment" areas for each pollutant based on the comparison of measured data with federal and state standards. If an area is redesignated from nonattainment to attainment, the CAA requires a revision to the SIP, called a maintenance plan, to demonstrate how the air quality standard will be maintained for at least 10 years.

The SDAB currently meets the NAAQS for all criteria air pollutants except O_3, and meets the CAAQS for all criteria air pollutants except O_3, PM_{10}, and $PM_{2.5}$. For the 8-hour O_3 standard, the SDAB is currently designated as a marginal nonattainment area for the NAAQS. The SDAB is currently an unclassifiable/attainment area for CO. The SDAB is currently classified as a state "serious" O_3 nonattainment area and a state nonattainment area for PM_{10} and $PM_{2.5}$.The SDAB currently falls under a federal "maintenance plan" for CO, following a 1998 redesignation as a CO attainment area.

Ambient air pollutant concentrations in the SDAB are measured at 10 air quality monitoring stations operated by SDAPCD. The closest SDAPCD air quality monitoring station to the Project site is the Chula Vista monitoring station, located at 80 East J Street, approximately 7.6 miles west of the Project site. The Chula Vista station is in an urbanized area and, therefore, may not completely represent the existing conditions at the Project site, especially for CO, PM_{10}, and $PM_{2.5}$, which are pollutants attributable to local emission sources. Levels of SO_2 are not a regional concern; data for this pollutant have not been recorded at the Chula Vista station since before 2005.

Table 2.2-2 presents the most recent available data from the Chula Vista monitoring station as summaries of the exceedances of standards and the highest pollutant levels recorded for years 2010 through 2013. As shown, ambient air concentrations of CO and NO_2 at the Chula Vista monitoring station have not exceeded the CAAQS in the past 4 years. The PM_{10} and $PM_{2.5}$ concentrations have not exceeded the federal standards for the past 4 years. Concentrations of O_3 registered at the monitoring station exceeded the 1-hour CAAQS once, in 2010, and the 8-hour NAAQS twice in 2010 and once in 2012

2.2.1.4 Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant public health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and reduce exposure of these contaminants to protect the public health (AB 1807; Health and Safety Code Sections 39650–39674). Particulate exhaust emissions from diesel-fueled engines

(diesel PM) were identified as a TAC by ARB in 1998. Sources of diesel PM emissions include off-road diesel-powered construction equipment for site grading and earthmoving, trenching, asphalt paving, and other construction activities; and from area sources such as industrial parks, warehousing districts, and shipping terminals where there are heavy volumes of diesel-powered trucks on local roads.

2.2.2 Analysis of Project Effects and Determination as to Significance

The Guidelines for the Determination of Significance presented in this section are based on the Final Thresholds of Significance and Analysis Methods document prepared specifically for the proposed Project by the County and subsequent modifications to that document. In the County, a project would be considered to have a significant adverse effect on air quality if any of the following would occur as a result of a project-related component:

- Conflict with or obstruct the implementation of the RAQS and/or applicable portions of the SIP; or
- Result in emissions that would violate any federal or state ambient air quality standards or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable increase of emissions of any criteria pollutant for which the project region is in nonattainment under applicable federal or state ambient air quality standards; or
- Expose sensitive receptors, including, but not limited to, schools, hospitals, residential care facilities, or day care centers, to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

SDAPCD has not established screening level thresholds of significance for regional pollutant emissions from development projects. To provide guidance for project analysis under CEQA, the County has established screening level thresholds (SLT) of significance as shown in **Table 2.2-3** (County of San Diego 2007c), which are based on the thresholds for requiring an Air Quality Impact Analysis for stationary source permitting. A project with emission rates below these thresholds is considered to have a less-than-significant effect on regional and local air quality throughout the SDAB.

In the event that project emissions exceed these SLTs, specific modeling is required for NO_2, SO_2, CO, and Pb to demonstrate that the project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS. For ozone precursors (volatile organic compounds [VOC] and NO_X), PM_{10} and $PM_{2.5}$, exceedance of the applicable SLT results in a significant impact due to the nonattainment status of the SDAB for these pollutants. The pounds per day standards apply to the proposed Project since daily SLTs are most applicable for construction and operational emissions (County of San Diego 2007c).

2.2.2.1 Project Conformity with the San Diego Regional Air Quality Strategy

Guidelines for the Determination of Significance

A significant air quality impact would occur if implementation of the Project would do the following:

- Conflict with or obstructs implementation of the San Diego Regional Air Quality Strategy (RAQS) and/or applicable portions of the SIP, which would lead to increases in the frequency or severity of existing air quality violations.

Rationale for Selection of Guideline

The RAQS outlines SDAPCD's plans and control measures designed to attain state air quality standards for ozone. In addition, SDAPCD relies on the SIP, which includes SDAPCD's plans and control measures for attaining the ozone NAAQS. The RAQS relies on information from ARB and SANDAG, including projected growth in the County and all other source emissions, to project future emissions and identify the strategies necessary for the reduction of stationary source emissions through regulatory controls. ARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County. As such, projects that propose development that is consistent with the growth anticipated by general plans would be consistent with the RAQS.

Analysis

The RAQS was developed pursuant to California Clean Air Act requirements, and identifies feasible emission control measures to provide expeditious progress in San Diego County toward attaining the state O_3 standard. The pollutants addressed are VOCs and NO_X, precursors to the photochemical formation of O_3, the primary component of smog. The RAQS does not address emissions of CO or particulate matters (SDAPCD 2009); however, the 2007 SIP includes a CO maintenance plan for the region. The RAQS control measures focus on emission sources under the authority of SDAPCD, specifically, stationary emission sources and some areawide sources. The RAQS indicates that areawide sources mostly derive from residences, including from water heaters, furnaces, architectural coatings, and consumer products, but not including fireplaces. Assumptions for land use development used in the RAQS are taken from local and regional planning documents, including general plan land use designations and zoning.

Consistency with the RAQS is determined by analyzing a project with the assumptions in the RAQS. Thus, the emphasis of this criterion is to evaluate if a proposed project's land uses would be consistent with or less than the emission forecasts for the project site contained in the RAQS. Forecasts used in the RAQS are developed by SANDAG and are based on local general plans and other related documents that are used to develop population projections and traffic projections.

As discussed above, the County General Plan includes the Otay SRP, which encompasses the Project and allows for the development of up to 2,066 residences (including the Birch Family Estate parcel), hotel uses with up to 800 rooms, shops, restaurants, and conference facilities. The

proposed Project would require a GPA to refine the types of uses planned for the Project site. The proposed Project would develop 1,938 residences, a 200-room resort, and commercial uses, all of which are anticipated uses under the existing General Plan. Therefore, although the proposed Project would require a GPA, the amendments would not increase or intensify the land uses that have been previously planned for in the RAQS. Therefore, the emissions associated with implementation of the proposed Project have been accounted for in the emissions modeling for the current RAQS and will be accounted for in the future RAQS. Accordingly, implementation of the proposed Project would not exceed the assumptions used to develop the current RAQS and SIP and would not obstruct or conflict with SDAPCD's attainment plans; this impact would be ***less than significant***.

2.2.2.2 Conformance to Federal and State Ambient Air Quality Standards

Guidelines for the Determination of Significance

A significant air quality impact would occur if a proposed project exceeds the screening-level thresholds established by the County of San Diego.

Rationale for Selection of Guideline

The County of San Diego Planning and Development Services Department (PDS) has established quantitative CEQA screening-level significance thresholds to evaluate the potential significance of air quality impacts. Table 2.2-3 presents the quantitative thresholds for air emissions For CEQA purposes, these trigger levels can be used to demonstrate that a project's construction and operational emissions would not result in a significant impact to air quality.

Analysis

Construction Impacts

Construction emissions associated with development of the proposed Project were quantified using the CalEEMod Model, Version 2013~~2~~.2.2. Construction emissions were modeled using Project-specific construction information when available. Where Project-specific information was not available, default assumptions contained in CalEEMod were used to estimate construction emissions (see **Appendix C-1** for details). ~~Daily construction vehicle trip generation was estimated in the Project's Traffic Impact Study and the Project's Construction Related Traffic Analysis provided as **Appendix C-12** to this EIR.~~

Blasting operations would also be required for site preparation. It is anticipated that blasting operations would occur during the grading phase; however, actual blasting operations would occur independently from grading activities. The applicants provided information for blasting operations, listed ~~below~~in Appendix C-24 of this EIR, regarding the types of explosives used, total pounds of explosives used, number of blasts per day, and total number of blasts for the entire construction period. It is estimated that a maximum daily blast amount of 48,000 lbs of explosives would be used, for a total of 114 to 125 days of blasting. In addition to blasting emissions, emissions associated with rock crushing were quantified in a separate calculation, as the

CalEEMod Model does not account for rock crushing. It was determined that the Project will require approximately 225,000 tons of rock crushing and will result in approximately 130 days of crushing. Portable crushers can process up to 4,000 tons of rock per day (Vulcan Materials 2015). Emissions were calculated ~~based on estimated amounts of rock generated from blasting (4,784,960 pounds the Project's estimated requirement of 225,000 tons of rock crushing and approximately 130 of crushing~~, assuming tertiary crushing with water spray for control of fugitive dust. It was also assumed that the rock crusher would be powered by an on-site diesel-fueled generator. Emissions associated with the rock crushing operation were included in the analysis.

Detailed assumptions and model input and output data for the construction emissions analysis are included in **Appendix C-1**.

As discussed above, construction activities would be subject to several control measures per the requirements of the County, SDAPCD rules, and the ARB air toxic control measures (ATCM). The following required control measures were incorporated into the modeling for the unmitigated construction emissions.

- Per the County's Grading, Clearing, and Watercourses Ordinance, Section 87.428, the applicants shall implement one or more of the following measures during all grading activities:
    - Water actively disturbed surfaces at least twice daily.
    - Water sprayers shall be installed on the rock crushing equipment to control particulate emissions during crushing operations.
    - Apply non-toxic soil stabilizers to inactive, exposed surfaces when not in use for more than 3 days. Non-toxic soil stabilizers shall also be applied to any exposed surfaces immediately (i.e., less than 24 hours) following completion of grading activities if the areas will not be in use for more than 3 days following completion of grading.
    - Remove soil track-out from paved surfaces daily, or more frequently as necessary.
    - Minimize the track-out of soil onto paved surfaces by installation of wheel washers.
- Per SDAPCD Rule 67.0.1, the applicants shall use regulated low-VOC coatings for all architectural coating activities.
- Per ARB's ACTM 13 (CCR Chapter 10 Section 2485), the applicants shall not allow idling time to exceed 5 minutes unless more time is required per engine manufacturers' specifications or for safety reasons.

The required dust control measure cited above would include the control of particulate matter emissions from the proposed rock crusher, during transport of crushed rock on conveyor belts, and during loading of haul trucks.

Unmitigated emissions from construction equipment were quantified and the results are presented in **Table 2.2-4**. As shown in **Table 2.2-4**, construction-related emissions of VOCs, NOx, CO,

PM_{10}, and $PM_{2.5}$ would exceed the County's SLTs. The project therefore has the potential to result in air quality violations. The number of future daily exceedances of the CAAQS or NAAQS attributable to emissions from any singular project are difficult, if not impossible, to predict at this time because of the many variables influencing air pollutant concentrations (e.g., background concentrations, meteorology and weather patterns, effectiveness of regulatory programs, and availability of predictive computer models). Therefore, construction emissions would be considered a ***significant direct impact*** to regional air quality (**Impact AQ-1**).

Operational Impacts

The operation of the proposed Project would result in emissions from mobile and area sources. The assumptions used to estimate the operational emissions are presented below.

Regional pollutant emissions were quantified using the CalEEMod Model, Version 2013.2.2. Daily vehicle trip generation of 27,191 ADT was estimated for the proposed Project's buildout development in the 20154 Traffic Impact Study (**Appendix C-12**).

CalEEMod defaults were used for vehicle fleet mix and trip lengths. Area sources associated with the proposed Project would include natural gas for heating, hot water, and other uses in the new buildings; periodic repainting of the new buildings; and gasoline-powered equipment used for landscape maintenance. CalEEMod estimates these emissions based on the types and amounts of land uses entered by the user. Land-use types and amounts were obtained from the Project description.

From these assumptions, area- and mobile-source emissions were estimated using CalEEMod. Daily operational emissions associated with the proposed Project buildout development were estimated using trip generation rates provided in the traffic study and land-use types and amounts provided in the Project description. **Table 2.2-5** presents the maximum daily operational emissions associated with buildout development. As shown, the proposed Project's full buildout development would exceed the County's SLT for VOC, CO, and PM_{10}. The project therefore has the potential to result in air quality violations. The number of future daily exceedances of the CAAQS or NAAQS attributable to emissions from any singular project are difficult, if not impossible, to predict at this time because of the many variables influencing air pollutant concentrations (e.g., background concentrations, meteorology and weather patterns, effectiveness of regulatory programs, and availability of predictive computer models). Operational emissions would result in a ***significant direct impact*** to regional air quality (**Impact AQ-2**).

This section provides pollutant-specific information regarding O_3, NO_2, PM_{10} and $PM_{2.5}$, including information regarding the attainment status of the San Diego Air Basin, likely health effects, and other relevant scientific data.

Ozone. The San Diego Air Basin is currently classified as a marginal nonattainment area for the O_3 NAAQS, which means that the area experiences some exceedances of the NAAQS. The San Diego Air Basin is also considered a nonattainment area for the CAAQS. O_3 is considered a photochemical oxidant, which is a chemical that is formed when VOCs and NO_x react in the presence of ultraviolet light. O_3 is formed through a complex set of reactions within the lower

atmosphere in the presence of sunlight. Meteorology and terrain are major factors in the formation of O_3 in the atmosphere; the highest O_3 concentrations are typically measured in summer and early autumn when there is more sunlight. O_3 concentrations are also higher in inland areas of the San Diego Air Basin due to trapping of pollutants by the mountains in the eastern portion of the County. For these reasons, O_3 is considered a regional pollutant with basin-wide effects, rather than localized effects.

Because O_3 is formed based on conditions within the air basin, the interaction of pollutants in the atmosphere, and the presence of sunlight, it is not possible to predict the impact of a single project on O_3 concentrations within the San Diego Air Basin. O_3 modeling requires a basin-wide analysis that takes into account all sources within the San Diego Air Basin. For this reason, neither the USEPA nor the SDACPD require single sources to conduct modeling to determine their potential impact on O_3 levels in the atmosphere.

O_3 is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma, and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to ozone. Health effects of O_3 include difficulty breathing; shortness of breath; coughing and sore or scratchy throat; inflammation and damage to the airways; aggravation of lung diseases such as asthma, emphysema, and chronic bronchitis; increased frequency of asthma attacks; increased susceptibility of the lungs to infection; and continued damage to the lungs even when the symptoms have disappeared (USEPA 2015a).

Nitrogen dioxide. The San Diego Air Basin is classified as attainment/unclassified for both the NAAQS and CAAQS for NO_2.

NO_2 is a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of NO with oxygen.

Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO_2 concentrations, and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma.

Particulate Matter. The San Diego Air Basin is currently classified by the USEPA as an attainment area for both the PM_{10} and $PM_{2.5}$ NAAQS. However, the San Diego Air Basin is classified as a nonattainment area by CARB for the PM_{10} and $PM_{2.5}$ CAAQS.

Short-term and long-term exposure to PM_{10} and $PM_{2.5}$ may result in adverse health effects. These effects include premature death in people with heart or lung disease; nonfatal heart attacks; irregular heartbeat; aggravated asthma; decreased lung functions; and increase respiratory symptoms, such as irritation of airways, coughing, or difficulty breathing (USEPA 2015b).

Evaluation of Project Contributions

Ozone. As discussed above, because O_3 is formed based on conditions within the air basin, the interaction of pollutants in the atmosphere, and the presence of sunlight, it is not possible to predict the impact of a single project on O_3 concentrations within the San Diego Air Basin.

When developing the State Implementation Plan, which is the San Diego region's plan for attaining and maintaining the O_3 standards, the SDAPCD conducts modeling to evaluate the impacts of emission sources on air quality within the San Diego Air Basin. Within the basin-wide emissions inventory, construction emissions are modeled based on the overall anticipated growth within the region based on SANDAG's Regional Growth Forecasts. Emissions from vehicles also are projected based on anticipated growth within the region based on SANDAG's Regional Growth Forecasts. As discussed in Section 1.8, the proposed Project's population, housing, and employment projections are included in SANDAG's Regional Growth Forecasts. Because the Project is included within the forecasts that were used to develop the State Implementation Plan, the Project's emissions already are accounted for in future forecasts, and the Project would not result in additional exceedances of the O_3 standard and, therefore, would not result in any additional health impacts.

Nevertheless, to evaluate the Project's contribution to regional O_3 concentrations, Table 1 presents the Project's construction and operational emissions, in tons per day, in comparison with the regional emissions projected by CARB for 2020, 2025, and 2030. Emissions from construction were evaluated for 2020 and 2025. Emissions from operation were evaluated for 2025 (project buildout) and 2030. Table 1 also presents background O_3 concentrations for the period from 2010 through 2013 as reported in the Draft EIR[12]. To estimate the Project's contribution to regional O_3 concentrations, it was conservatively estimated that the contribution to O_3 concentrations in the San Diego Air Basin would be proportional to the fraction of emissions attributable to the Project versus the basin-wide emissions.

As shown in Table 2.2-8, even if the emissions from construction and operation were not included in the SANDAG Regional Growth Forecasts that form the basis of the State Implementation Plan, the Project's contribution to overall ambient O_3 levels would not result in a substantial contribution to O_3 concentrations within the San Diego Air Basin. For most days which do not exceed the CAAQS or NAAQS for O_3, no exceedances of these standards would likely occur due to the small increase due to Project emissions. Accordingly, the proposed Project's NO_x and VOC emissions are not expected to cause any increase in related regional health effects for O_3.

Nitrogen Dioxide. The Project's NO_2 emissions are mainly associated with construction-related equipment and vehicles, and with vehicles operated at build-out. Accordingly, emissions from these sources would not be localized in a single area. Rather, the emissions from on-road vehicles, which are the main contributor to operational emissions, would be distributed on roadways within the San Diego Air Basin. The San Diego Air Basin is an attainment area for the NO_2 standard, and no exceedances have been recorded at the Chula Vista monitoring station.

[12] Draft EIR Section 2.2, Table 2.2-2~~, Page 2.2-22~~.

The potential contribution of sources of NOx to NO_2 concentrations is also dependent on a number of factors, including the distribution of the sources (on-road vehicles), and the conversion of NOx to NO_2 in the atmosphere. However, for conservative purposes, it was assumed that all of the emissions from construction and from operation could contribute to ambient NO_2 concentrations, and that all of the NOx emitted from the Project would be converted to NO_2. Table 2.2-9 presents an analysis of the potential contribution of NO_2 emissions to NO_2 concentrations in the Project area.

As shown in Table 2.2-9, the Project's contribution of NOx emissions to NO_2 concentrations in the San Diego Air Basin is not expected to cause an exceedance of the ambient air quality standards for NO_2. Therefore, the proposed Project's NOx emissions are not expected to cause any increase in related regional health effects for NO_2.

Particulate Matter. PM emissions associated with the proposed Project include fugitive dust emissions from construction activities and emissions from off- and on-road equipment associated with construction; and emissions from operational activities. The main source of operational PM emissions is motor vehicles, and the main contributors are fugitive emissions associated with road dust, brake wear, and tire wear. Accordingly, similar to operational NOx emissions, PM_{10} and $PM_{2.5}$ would be distributed on roadways within the San Diego Air Basin.

Table 2.2-10 presents an analysis of the potential contribution of PM_{10} emissions to PM_{10} concentrations in the Project area.

As shown in Table 2.2-10, the Project's contribution of PM_{10} emissions to PM_{10} concentrations in the San Diego Air Basin is not expected to cause an exceedance of the ambient air quality standards for PM_{10}. Therefore, the proposed Project's PM_{10} emissions are not expected to cause any increase in related regional health effects for PM_{10}.

Table 2.2-11 presents an analysis of the potential contribution of $PM_{2.5}$ emissions to $PM_{2.5}$ concentrations in the Project area.

As shown in Table 2.2-11, the Project's contribution of $PM_{2.5}$ emissions to $PM_{2.5}$ concentrations in the San Diego Air Basin is not expected to cause an exceedance of the ambient air quality standard for $PM_{2.5}$. Therefore, the proposed Project's $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for $PM_{2.5}$.

In closing, emissions associated with construction and operation of the proposed Project were evaluated based on the federal and state ambient air quality standards. Based on this evaluation, it is not likely that significant adverse health effects would result from Project emissions. Nevertheless, the EIR concludes that emissions of criteria pollutants are significant in light of the Project's exceedances of the County of San Diego's thresholds.

2.2.2.3 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

Guidelines for the Determination of Significance

A significant air quality impact would occur if implementation of a proposed project would do the following:

- Projects that would site sensitive receptors near potential CO hotspots (i.e., exceedance of CO CAAQS or NAAQS) or would contribute vehicle traffic to local intersections where a CO hotspot could occur would be considered as having a potentially significant impact; or
- Projects that would result in exposure to TAC resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics Best Available Control Technology or a health hazard index greater than 1 would be considered as having a potentially significant impact.

Rationale for Selection of Guideline

Air quality regulators typically define sensitive receptors as schools (preschool to 12th grade), hospitals, residential care facilities, day care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purposes of CEQA analysis for County projects, the definition of a sensitive receptor also includes residents. The two primary emissions of concern regarding health effects for land development projects are diesel particulate matter (diesel PM) and carbon monoxide.

SDAPCD Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs. Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of Toxics-BACT (T-BACT), or an incremental cancer risk greater than 10 in 1 million with application of T-BACT, or a health hazard index (chronic and acute) greater than one. The County uses these risk limits to assess human health risk impacts under CEQA.

Analysis

Construction Impacts

Carbon Monoxide

Sensitive air quality receptors are land uses with persons who are especially sensitive to elevated pollutant concentrations, such as older adults, the young, and the sick. Thus, sensitive land uses include residences, schools, hospitals, resident health care facilities, and day care centers. The closest sensitive receptor to the project site is a residence located approximately 518 meters (1,700 feet) northwest of the project site. However, the proposed Project includes a school site and the development of one or more day care centers is permitted by the Specific Plan Development Regulations. Both of these facilities are considered sensitive land uses.

Roadway segments and intersections are rated by a level of service (LOS) standard ranging from LOS A to F depending on the amount of typical traffic flow measured in average daily trips (ADT). Currently, intersections and roadway segments that would be affected by the proposed Project operate at LOS D or better, which is the generally accepted region-wide goal. Construction traffic is not anticipated to significantly impact the LOS rating due to the intermittent and temporary nature of construction traffic. The construction vehicle trips correspond to approximately 135 daily vehicle trips at peak hour. When compared to maximum peak hour traffic volumes (i.e., 2,000 to 5,000 peak hour trips at various intersections on Otay Lakes Road and Heritage Road/Olympic Parkway), it can be inferred that the construction-related contribution to local CO concentrations is minimal and transitory. The proposed Project would be developed in phases, which would limit the daily volume of construction workers on local roads associated with the proposed Project. Thus, construction-related traffic is not expected to impact local intersections and cause an exceedance of the CO CAAQS. This impact would be ***less than significant***.

Toxic Air Contaminants – Diesel Particulate Matter

Construction of the proposed Project would result in short-term diesel exhaust emissions from on-site heavy-duty equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a TAC by ARB in 1998. Project construction would result in the generation of diesel PM emissions from the use of off-road diesel-powered construction equipment for site grading and earthmoving, trenching, asphalt paving, and other construction activities. Other construction-related sources of diesel PM include material delivery trucks and construction worker vehicles; however, these sources are minimal relative to construction equipment.

Generation of diesel PM from construction projects typically occur in a single area for a short period. The dose (of TAC) to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure a person has with the substance; a longer exposure period to a fixed amount of emissions would result in a higher health risks for the Maximally Exposed Individual (MEI). According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments (HRA) used to determine the exposure of sensitive receptors to TAC emissions should be based on a 70-year exposure period; however, such assessments should also be limited to the period/duration of activities associated with the proposed Project. Although construction activities are anticipated to last approximately 11 years, the longest period that construction activities would occur at a distance reasonably considered to have an effect on a sensitive receptor would be approximately 1 year. It is anticipated that as construction phases are complete, construction activities and emissions would occur at increasingly further distances from existing sensitive receptors. New receptors associated with the proposed Project could then potentially be exposed for approximately one year before construction activities continue to move further away. Nevertheless, a worst-case scenario was developed assuming an 11-year exposure period. The methodology of the health risk assessment is described further below.

The following best management practices shall be implemented to reduce diesel PM emissions during construction:

- All Project construction equipment, diesel trucks, and diesel-fueled generators shall be equipped with Toxics Best Available Control Technology (T-BACT) for emission reductions of diesel PM; and
- All Project construction equipment shall meet ARB's most recent certification for off-road heavy-duty diesel engines.

This potential exposure assumes a worst-case scenario where each construction phase after residential occupancy of an earlier phase occurs in the portion of the proposed Project site closest to on-site existing sensitive receptors. It should be noted that the construction phasing for the Project is proposed to be non-sequential. In other words, the portion of the Project site closest to existing on-site residential receptors could be constructed as the second phase, the last phase, or anytime during the 11-year construction period. Construction activities would not necessarily occur from a west-to-east linear pattern. The purpose of this conservative assumption is to disclose the health risk impacts on existing residential receptors using the highest level of construction emission rates (i.e., the earlier the construction year, the higher the rates of TAC emissions would occur due to less turnover in older construction equipment equipped with older emissions control technology and a longer exposure period).

The OEHHA Guidance Manual for Preparation of Health Risk Assessments (HRA Guidance) allows a 9-year exposure period to represent the first 9 years of a child's life, which physiologically and behaviorally result in higher exposure levels. However, the HRA Guidance does not support an HRA for exposures less than 9 years. For cases where exposure would last less than 9 years, OEHHA suggests assuming a minimum exposure of 9 years.

As described above, construction activities would occur for approximately 11 years. Therefore, the HRA assumed that the nearest exposures of sensitive receptors to construction emissions would be those who occupy their homes during year one of the 11-year construction period, and which would be located less than 518 meters (1,700 feet) from the nearest source of construction emissions. The first potential residents, which would be considered the MEIs of the proposed Project, could be exposed to a maximum of 10 years of construction emissions. However, as mentioned above, the duration of construction activities in close enough proximity to affect sensitive receptors would not be anticipated to last more than 1 year, based on the location of the activities to the receptors. In addition, grading operations, which are the construction activities that would require the most diesel-fueled construction equipment, would be completed for a large area before the first phase of home sales begin. Therefore, the year of construction emissions that the MEI would be exposed to would likely occur from building construction, asphalt paving, and/or architectural coatings, which would emit a much lower level of diesel PM than grading activities. However, to ensure that the potential impact is not underestimated, the analysis assumed that the nearest exposures of sensitive receptors to construction emissions would occur over the full 11-year construction period and has used emission factors from the first year of grading, which had the highest equipment emission rates.

Following completion of adjacent construction, it is anticipated that future construction activities would occur at increasingly farther distances from the MEI. In addition, these distances would reach a point where construction emissions would not be reasonably expected to affect the MEI due to the dispersive properties of diesel PM (Zhu et al. 2002). Therefore, the MEI could be exposed to one year of emissions from adjacent construction activities, but a majority of the

remaining 10 years would involve construction activities far enough away to minimize any TAC exposure. Taking this into consideration, an 11-year HRA using the one year of adjacent construction emissions would grossly overestimate health risks.

As described in the Otay Ranch Air Quality Impact Report, it was determined that the excess cancer risk at the nearest sensitive receptor would be 4.97 in one million, which would not exceed the County's significance threshold of 10 in a million excess cancer risk with implementation of T-BACT. In addition to the potential cancer risk, diesel PM has chronic (i.e., long-term) non-cancer health impacts. As described in the Otay Ranch Air Quality Impact Report, the chronic hazard index for the nearest sensitive receptor would be 0.020, which is less than the County's significance threshold of 1 for non-cancer health impacts; thus, the proposed Project would not exceed the hazard index threshold. Based on the conservative nature of the risk analysis, the actual risks are anticipated to be lower and, therefore, TAC impacts would be ***less than significant***.

Operational Impacts

Carbon Monoxide

Following construction of the proposed Project, Project-related traffic would contribute vehicle trips at existing and future intersections. The addition of these trips could degrade the LOS of intersections to a level where a CO "hotspot" could occur. The County's Air Quality Guidelines state that intersections that are likely to result in a CO hotspot would operate at LOS E or worse and would include peak-hour trips exceeding 3,000 vehicle trips. All intersections would operate at LOS D or better during year 2030 conditions with the proposed Project, except for the intersection of Wueste Road and Otay Lakes Road, which would decline to LOS F without additional improvements. However, the intersection would experience only 2,533 vehicle trips during the PM peak hour, which are fewer than the 3,000 vehicles per hour screening level recommended by the County. In addition, the project includes mitigation for this intersection, which would result in LOS A.

CO "hot spots" modeling was conducted using the CALINE4 model for the Otay Lakes Road/Wueste Road intersection. The modeling was conducted in accordance with the U.S. Environmental Protection Agency-approved *Transportation Project-Level Carbon Monoxide Protocol* (University of California Davis 1997), which is the standard method for project-level CO analysis used by the California Department of Transportation. The modeling conservatively used worst-case meteorology (0.5 meters per second wind speed, wind direction toward receptors).

Based on this analysis, the traffic at the Otay Lakes Road/Wueste Road intersection would result in a maximum 1-hour increase in CO concentration of 0.9 parts per million (ppm) in the a.m. peak hour, and 1.1 ppm in the p.m. peak hour. When added to the maximum 1-hour concentration of CO (2.1 ppm) measured at the Chula Vista monitoring station in 2010 (the most recent year for which data are available at the Chula Vista monitoring station), the resultant concentration of 3.2 ppm would be approximately 6 times lower than the 1-hour CAAQS for CO of 20 ppm, and would be 11 times lower than the 1-hour NAAQS for CO of 35 ppm.

The 8-hour CO concentration can be estimated by multiplying the 1-hour concentration by a scaling factor of 0.7. Based on this analysis, the traffic at the Otay Lakes Road/Wueste Road

intersection would result in a maximum 8-hour increase in CO concentration of 0.63 ppm in the a.m. peak hour, and 0.77 ppm in the p.m. peak hour. When added to the maximum 8-hour concentration of CO (1.56 ppm) measured at the Chula Vista monitoring station in 2010, the resultant concentration of 2.33 ppm would be approximately 4 times lower than the 8-hour CAAQS and NAAQS for CO of 9 ppm.

The SDAPCD has ceased monitoring CO at most of the monitoring stations within San Diego County as it does not consider the region to have a substantial problem with CO concentrations. Furthermore, vehicle CO emissions are anticipated to decrease in future years due to continuing vehicle fleet turnover and more stringent vehicle emissions control standards coming into effect.

Therefore, the operation of the proposed Project would not expose sensitive receptors to substantially high concentrations of CO or contribute traffic volumes to intersections that would exceed the CO CAAQS; this impact would be ***less than significant***.

Toxic Air Contaminants – Diesel Particulate Matter and other TACs

The proposed Project would primarily consist of residential and resort development and would not include industrial uses or other potential sources of diesel particulate matter and TACs (such as loading docks, distribution centers, and commercial grills). Therefore, the operational impact would be ***less than significant***.

2.2.2.4 Odors

Guidelines for the Determination of Significance

A significant air quality impact would occur if implementation of a proposed project would do the following:

- Either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons or the public.

Rationale for Selection of Guideline

SDAPCD Rule 51 (Public Nuisance) and California Health & Safety Code Section 41700 prohibit the emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of the public. Projects required to obtain permits from SDAPCD, typically industrial and some commercial projects, are evaluated by SDAPCD staff for potential odor to prevent occurrence of a public nuisance. Odor issues are subjective since, by the nature of odors themselves, their measurements are difficult to quantify. As a result, this guideline is qualitative and evaluation of impact would focus on the existing and potential surrounding uses and locations of sensitive receptors.

Analysis

Construction Impacts

During Project construction, diesel equipment operating at the site may generate some nuisance odors; however, as explained in Section 2.2.2.3 of the EIR, construction emissions in proximity to particular sensitive receptors would only occur for about 1 year. As discussed in Section 2.2.2.3, construction of the proposed Project would occur in a nonsequential phasing pattern. For example, construction activities could occur adjacent to sensitive receptors for 1 year and then not occur adjacent to sensitive receptors for a year or more. Therefore, odor emissions from construction activities affecting sensitive receptors would occur intermittently due to the phasing and location of construction activities. In addition, construction activities are inherently intermittent as heavy-duty construction equipment is used on and off depending on the activities for each day. Furthermore, the use of a large portion of construction equipment, and diesel PM and odor emission generation, occurs during the site grading phase, which is one phase of overall construction activities.

The grading phases are described above in Section 2.2.2.3. However, for the purposes of this analysis, it was conservatively assumed that construction activities would occur at a location closest to the nearest existing sensitive receptors to determine health impacts. Building construction activities could generate odor emissions associated with VOCs from architectural coatings. However, compliance with local VOC content limits would minimize any impact from architectural coating activities. In addition, architectural coatings, similar to site grading, are only one phase of total construction and, therefore, VOC odor emissions would not occur throughout construction activities. Therefore, even when construction activities are in proximity to sensitive receptors, odor emissions would occur intermittently and not with regularity like other odor-causing sources such as landfills, wastewater treatment plants, or manufacturing plants. Therefore, diesel and VOC odors associated with Project construction would be ***less than significant***.

Operational Impacts

The proposed Project would not include the operation of any odor sources with the exception of three on-site sewer lift stations (see Figure 3.7-2) that could potentially generate objectionable odors. However, these lift stations would be permitted by SDAPCD and operated and maintained by the County DPW and would, therefore, be subject to odor control during operation and maintenance consistent with the County's Zoning Ordinance. Because odor control would be incorporated into the Project design, operation and maintenance of the sewer lift stations would not subject nearby sensitive receptors to odor emissions. Therefore, odor impacts to nearby sensitive receptors from the operation of sewer lift stations would be ***less than significant***.

2.2.3 Cumulative Impact Analysis

2.2.3.1 Cumulatively Considerable Net Increase of Criteria Pollutants

Guidelines for the Determination of Significance

- 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, CO, SO_2, and/or VOC would also have a significant cumulatively considerable net increase.

Rationale for Selection of Guideline

In analyzing cumulative impacts from a proposed project, the analysis must specifically look at the project's contribution to the cumulative increase in pollutants for which the SDAB is listed as "non-attainment" for the NAAQS and CAAQS. Of the seven federal criteria pollutants, only ozone occurs in concentrations high enough to violate federal standards in San Diego County. Of the seven criteria pollutants for California that have a federal counterpart, ozone, PM_{10}, and $PM_{2.5}$ occur in concentrations high enough to violate state standards in the County.

Analysis

Construction Impacts

As shown in **Table 2.2-4**, construction-related emissions of NO_X, PM_{10} and $PM_{2.5}$ would exceed the County's SLT for construction. The health effects attributed to criteria air pollutants emitted by any singular project cannot be accurately predicted at this time because of the numerous variables that influence public health (e.g., background air pollutant concentrations, meteorology and weather patterns, diet, preexisting conditions, genetic predispositions, and personal habits such as smoking). Nonetheless according to the County's Air Quality Guidelines, the proposed Project's construction emissions would be considered a ***significant cumulatively considerable net increase in emissions*** (**Impact AQ-3**).

Operational Impacts

Although the proposed Project is considered consistent with the current RAQS, area-source and mobile-source emissions from buildout of the proposed Project would exceed the County's SLT for PM_{10}, CO, and VOC as shown in **Table 2.2-5**. Therefore, the proposed Project would cause a significant direct impact on air quality with respect to operational emissions. The health effects attributed to criteria air pollutants emitted by any singular project cannot be accurately predicted at this time because of the numerous variables that influence public health (e.g., background air pollutant concentrations, meteorology and weather patterns, diet, preexisting conditions, genetic predispositions, and personal habits such as smoking). Nonetheless, because the proposed Project would cause a significant direct impact on air quality with respect to emissions of PM_{10}, CO, and VOC, it would be considered to have a ***significant cumulatively considerable net increase in emissions*** (**Impact AQ-4**).

2.2.3.2 Cumulative Impacts of Local Pollutants (CO and TACs) and Odors on Sensitive Receptors

Localized pollutant impacts (i.e., CO and TAC emissions) and odors are described in Sections 2.2.2.3 and 2.2.2.4. Because there is no local CO and TAC guidance within the RAQS, guidance from ARB and the Bay Area Air Quality Management District (BAAQMD) was used to develop buffer zone distances between CO, TAC, and odor sources and sensitive receptors.

Analysis

Carbon Monoxide

The cumulative impacts of all construction and operational activities (related to the proposed Project and other projects in the Project area) on traffic volumes and LOS in the Project area at buildout (2030) are described in Sections 2.2.2.2 and 2.2.2.3. As identified in Chapter 2.9 of the EIR, construction and operation of the Project, when considered with construction and operation of all other anticipated projects within the Project area, would cause only the intersection of Otay Lakes Road and Wueste Road to operate at LOS F (PM peak hour). Mitigation Measure M-TR-9 requires the Project to install a traffic signal or roundabout at Otay Lakes Road and Wueste Road, which would improve PM peak hour operations at this intersection to LOS A (see Table 2.9-66). With implementation of Mitigation Measure M-TR-9, the Project would not result in localized CO violations (hotspots) from vehicles idling at intersections operating at LOS E or F. Therefore, the cumulative impact of construction and operation of the proposed Project would not expose sensitive receptors to substantially high concentrations of CO or contribute traffic volumes to intersections that would exceed the CO ambient air quality standards (NAAQS or CAAQS); and this impact would be ***less than significant***.

TACs

Construction Impacts

Construction of the proposed Project would result in less than significant TAC exposures from operation of heavy earth-moving equipment for grading of subsequent Project development phases following occupancy of earlier phases. Due to the size of the Project and the lack of other construction projects in the immediate vicinity of the Project, it is unlikely that combined emissions would result in an impact from TACs that would exceed 10 in a million excess cancer risk. In the case that construction-related TAC emissions from earth-moving could impact sensitive receptors within the Project site, the BAAQMD has identified that a buffer zone of at least 900 meters would be needed for development of 1,000 to 2,000 dwelling units to be considered a less than significant non-cancer and cancer risk (BAAQMD 2010). It is not feasible to implement a buffer zone because of the need to construct the Project in phases and the design of the Project; however, due to the requirement to implement T-BACT (Tier 2 and Tier 3 equipment) and the transient nature of construction, impacts to residences within the development would not be expected to exceed the impacts predicted for the nearest off-site receptor based on the analysis in the Air Quality Technical Report (SRA 2014). Therefore, this impact would be a ***less than cumulatively considerable impact***.

Operational Impacts

Operation of the proposed Project would result in less than significant TAC emissions or exposure from off-site sources. Most of the surrounding properties are intended to remain as open space or recreational use and no land uses exist or are planned that would generate high levels of TAC emissions, such as would occur from distribution centers or roadways with high proportions of diesel vehicles. Therefore, TAC exposure to on- and off-site sensitive receptors would be a ***less than cumulatively considerable impact***.

Odors

Construction Impacts

As discussed in the project-level analysis, it is not anticipated that the proposed Project's construction operations would cause significant direct odor impacts. Construction emissions would cease following completion of the proposed Project and therefore would not be long-term and contribute to the local long-term odor profile. In addition, there are no large odor sources in proximity of the proposed Project that in combination with construction odor emissions would cause a cumulative odor impact. Therefore, the Project would result in a ***less than cumulatively considerable significant impact*** from odors during construction.

Operational Impacts

As discussed above in Section 2.2.2.4 of the EIR, the three proposed sewage lift stations would be permitted by SDAPCD and operated and maintained by the County DPW and would, therefore, be subject to odor control during operation and maintenance consistent with the County's Zoning Ordinance. No other significant odor-generated land uses such as landfills, wastewater treatment plants, agricultural or confined animal feeding operations, rendering plants, or commercial grills or smokers are known to exist or be proposed in the nearby Project area. Therefore, Project residents ***would not be subject to significant operational impacts*** from odor emissions.

2.2.4 Significance of Impacts Prior to Mitigation

The following significant impacts were identified in the analysis of the Project's effect on air quality:

Impact Number	Description of Project's Effect	Significance of Impact
AQ-1	VOC, NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions during Project construction	Potentially significant direct impact
AQ-2	Operational emissions of VOC, CO, and PM_{10}	Potentially significant direct impact
AQ-3	VOC, NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions during Project construction	Potentially significant, cumulative impact

Impact Number	Description of Project's Effect	Significance of Impact
AQ-4	Cumulative operational emissions of PM_{10}, CO, and VOC	Potentially significant~~,~~ cumulative impact

2.2.5 Mitigation

The following mitigation measures would be incorporated into implementation of the proposed Project to reduce the air quality impacts to the maximum extent feasible.

2.2.5.1 Construction Emissions

M-AQ-1a The applicants shall implement all of the following measures during construction of the proposed Project:

- Water actively disturbed surfaces at least three time daily;
- On-site dirt piles or other stockpiled particulate matter shall be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. The use of approved nontoxic soil stabilizers shall be incorporated according to manufacturers' specifications to all inactive construction areas;
- Water sprayers, dust curtains and/or other available best practice control measures shall be utilized during the crushing, conveying, and loading of materials ~~installed on the rock crushing equipment~~ to control particulate emissions during crushing operations;
- Approved chemical soil stabilizers shall be applied according to the manufacturers' specifications to all inactive construction areas (previously graded areas that remain inactive for 96 hours), including unpaved roads and employee/equipment parking areas;
- Stabilize the surface soil in areas subject to sub-surface blasting immediately before each blast;
- All construction roads with more than 150 daily trips shall be paved;
- All construction access roads from Otay Lakes Road onto the Project site shall be paved for a minimum of 100 feet onto the site;
- Approved chemical soil stabilizers shall be applied according to the manufactures' specifications to all active construction areas, both pre- and post-blasting activity.
- At a minimum, all off-road, diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 3 emission standards for nonroad diesel engines promulgated by the U.S. Environmental Protection Agency, if such equipment is available in the San Diego region. Construction equipment that

meets the Tier 4 emission standards will be integrated into the construction fleet during the later stages of the Project's construction period (post 2020), if such equipment becomes available in the San Diego region.

- Paved streets shall be swept frequently ~~(water sweeper with reclaimed water recommended; wet broom permitted)~~ if soil material has been carried onto adjacent paved, public thoroughfares from the Project site;
- Traffic speeds on all unpaved surfaces shall be reduced to 15 mph or less, and unnecessary vehicle traffic shall be reduced by restricting access. Appropriate training to truck and equipment drivers, on-site enforcement, and signage shall be provided;
- The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained before and for the duration of on-site operation;
- Termination of grading and/or surface-level blasting activities shall occur if winds exceed 25 mph;
- Hydroseeding of graded pads and surface-level blasting areas shall occur if construction activities or development will not occur within 90 days;
- Minimize simultaneous operation of multiple construction equipment units. During construction, vehicles in loading and unloading queues shall turn their engines off when not in use to reduce vehicle emissions;
- All construction equipment shall be outfitted with best available control technology (BACT) devices certified by CARB. A copy of each unit's BACT documentation shall be provided at the time of mobilization of each applicable unit of equipment;
- All construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications;
- All diesel-fueled on-road construction vehicles shall meet the emission standards applicable to the most current year to the greatest extent possible. To achieve this standard, new vehicles shall be used, or older vehicles shall use post-combustion controls that reduce pollutant emissions to the greatest extent feasible;
- The use of electrical construction equipment shall be employed where feasible;
- The use of catalytic reduction for gasoline-powered equipment shall be employed where feasible;
- The use of injection timing retard for diesel-powered equipment shall be employed where feasible; and
- Construction diesel fuel shall be composed of at least 25 percent biodiesel.

The provided mitigation measures were evaluated to determine their effectiveness to reduce construction emissions. The results are presented in **Table 2.2-6**.

M-AQ-1b The applicants or subsequent designee(s) shall prepare a Dust Control Plan, subject to review and approval by the County of San Diego Department of Planning & Development Services, to be implemented during the Project's construction period. The Dust Control Plan, at a minimum, shall provide the following information:

- Project name and location;
- Contact information for the property owner(s) and construction contractor(s);
- Primary project contact responsible for implementation of the plan;
- Primary agency contact responsible for oversight of the plan;
- Description of construction activities;
- Plot plan;
- Information on the amount of area to be disturbed;
- Phasing schedule for dust generating activities;
- List of dust generating activities;
- Fugitive dust control measures to be implemented, including measures to prevent trackout/carryout;
- Adaptive management provisions that authorize modifications to dust control measures (e.g., increased watering applications) in response to on-site, real-time conditions;
- Requirement to post publicly visible signs with the contact information for the primary project and agency contacts in the event of dust control complaints;
- Requirement to take any necessary corrective action in response to dust control complaints within 24 hours;
- Recordkeeping requirements to log daily dust control activities; and
- Certification by primary agency contact of compliance at quarterly intervals.

A sample Dust Control Plan template is provided as an attachment to this mitigation measure.

The Fugitive Dust Control Plan will also include a requirement to post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 24 hours.

M-AQ-1c Prior to the issuance of grading permits, the applicants or subsequent designee(s) shall develop a construction truck traffic plan for implementation during the Project's construction period. The plan shall identify the preferred truck routing

from freeways and/or major roadways, as applicable, to the Project site; those routes shall avoid areas with substantial numbers of sensitive receptors, such as residential developments and/or schools, while minimizing the travel distance. The plan shall be submitted to the County of San Diego Department of Planning & Development Services for review and approval.

M-AQ-1d Prior to the issuance of grading and building permits, the applicants or subsequent designee(s) shall submit verification to the County of San Diego Department of Planning & Development Services that a ridesharing program for the construction crew has been encouraged by the contractor(s). Evidence shall include copies of rideshare materials provided to employees and any incentives offered.

M-AQ-1e The Project's architectural coatings shall comply with Rule 1113 of the South Coast Air Quality Management District, as amended in 2013.

2.2.5.2 Operational Emissions

M-AQ-2a Project permittees shall implement the following mitigation measures to reduce the air pollutant emissions associated with mobile sources and on-site gas combustion (CAPCOA 2010):

- Plant low-maintenance, drought-resistant plant species that reduce gas-powered landscape maintenance equipment usage and water consumption;
- Equip residential structures with electric outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment.
- All single-family residences shall be constructed with connections for solar water heaters and solar and/or wind renewable energy systems.
- Use regulated low-VOC coatings for all architectural coating activities.
- Incorporate pedestrian trails, paths and sidewalks, and bicycle trails to encourage reduction in vehicle usage and trips.

M-AQ-2b The Project's HOA shall require that all open space areas under its control be landscaped and maintained with electrical equipment, to the extent feasible.

2.2.6 Conclusion

2.2.6.1 Conformance to Federal and State Ambient Air Quality Standards

Construction Emissions

Implementation of M-AQ-1 would reduce site grading fugitive PM_{10} and $PM_{2.5}$ dust emissions during construction activities. Implementation of MM-AQ-1 would also reduce emissions of VOCs below the significance thresholds due to the use of low-VOC coatings. However, as shown in **Table 2.2-6**, construction-related emissions of ~~VOCs~~ NO_X, CO, PM_{10}, and $PM_{2.5}$ would continue to exceed the County's SLT with implementation of mitigation (Impact AQ-1).

Therefore, construction emissions would remain a ***significant and unavoidable direct impact*** to regional air quality.

Operational Emissions

Implementation of the mitigation measures and design considerations in mitigation measure M-AQ-2 would be expected to reduce air pollutant emissions associated with the proposed Project. However, at the time of this writing, there are no established methods to accurately quantify the emission reductions achieved by these measures. Furthermore, the emission reductions required to reduce operational emissions to below the County's SLT would require substantial reductions (e.g., 87 percent for VOC, 76 percent for CO, and 83 percent for PM_{10}) that would not be expected to be achievable even with full implementation of the measures described above. Therefore, the proposed Project's operational emissions (**Impact AQ-2**) would continue to exceed the County's SLT after implementation of mitigation and would remain a ***significant and unavoidable direct impact*** to regional air quality.

2.2.6.2 Cumulatively Considerable Net Increase of Nonattainment Pollutants

Construction Emissions

Net increases of emissions (**Impact AQ-3**) during construction of the proposed Project would be considered cumulatively considerable (**Impact AQ-3**). Application of **M-AQ-1** would reduce construction-related dust and exhaust. Because construction dust and exhaust would not be fully mitigated after application of the construction-related mitigation measures (i.e., **M-AQ-1**), Impact AQ-3 would remain ***significant and unavoidable***.

Operational Emissions

Implementation of the mitigation measures and design considerations in mitigation measure M-AQ-2 would be expected to reduce air pollutant emissions associated with the proposed Project and therefore reduce cumulatively considerable impacts. Because the measures proposed in M-AQ-2 are not quantifiable, the proposed Project's cumulative operational emissions (Impact AQ-4) would be cumulatively considerable, and would remain a ***significant and unavoidable cumulative impact*** to regional air quality.

Table 2.2-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	National[a]		California[b]
		Primary[c, d]	Secondary[c, e]	Concentration[c]
Ozone	1 hour	—	Same as primary standard	0.09 ppm (180 µg/m^3)
	8 hour	0.070~~5~~ ppm (134~~7~~ µg/m^3)		0.070 ppm (137 µg/m^3)
Respirable particulate matter	24 hour	150 µg/m^3	Same as primary standard	50 µg/m^3
	Annual arithmetic mean	—		20 µg/m^3
Fine particulate matter	24 hour	35 µg/m^3	Same as primary standard	No separate state standard
	Annual arithmetic mean	12.0 µg/m^3	15 µg/m^3	12 µg/m^3
Carbon monoxide	8 hour	9 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1 hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
	8 hour (Lake Tahoe)	—	—	6 ppm (7 mg/m^3)
Nitrogen dioxide	Annual arithmetic mean	0.053 ppm (100 µg/m^3)	Same as primary standard	0.030 ppm (57 µg/m^3)
	1 hour	0.100 ppm	None	0.18 ppm (339 µg/m^3)
Sulfur dioxide	Annual arithmetic mean	0.030 ppm (80 µg/m^3)[h]	—	—
	24 hour	0.14 ppm (365 µg/m^3)[h]	—	0.04 ppm (105 µg/m^3)
	3 hour	—	0.5 ppm (1,300 µg/m^3)	—
	1 hour	75 ppb (196 µg/m^3)	—	0.25 ppm (655 µg/m^3)
Lead[f]	30-day average	—	—	1.5 µg/m^3
	Calendar quarter	1.5 µg/m^3	Same as primary standard	—
	Rolling 3-month average[g]	0.15 µg/m^3		—
Visibility-reducing particles	8 hour	No national standards		Extinction coefficient of 0.23 per kilometer —visibility of 10 miles or more (0.07 to 30 miles for Lake Tahoe) because of particles when the relative humidity is less than 70%. Method: Beta attenuation and transmittance through filter tape.
Sulfates	24 hour			25 µg/m^3
Hydrogen sulfide	1 hour			0.03 ppm (42 µg/m^3)
Vinyl chloride[f]	24 hour			0.01 ppm (26 µg/m^3)

Notes: mg/m^3 = milligrams per cubic meter; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppm = parts per million; µg/m^3 = micrograms per cubic meter.

[a] National standards (other than those for ozone and particulate matter and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration 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. Contact U.S. Environmental Protection Agency for further clarification and current federal policies.

[b] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, 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. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[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] The California Air Resources Board has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[g] National lead standard, rolling 3-month average: final rule signed October 15, 2008.

[h] For certain areas 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Source: ARB 2014a

Table 2.2-2
Ambient Air Quality Summary-Chula Vista Monitoring Station

Pollutant Standards	2010	2011	2012	2013
Carbon Monoxide (CO)				
National maximum 8-hour concentration (ppm)	1.56	*	*	*
State maximum 8-hour concentration (ppm)	1.56	*	*	*
State maximum 1-hour concentration (ppm)	2.1	*		*
Number of Days Standard Exceeded				
NAAQS 8-hour (>9.0 ppm)	0	*	*	*
CAAQS 8-hour (>9.0 ppm)	0	*	*	*
CAAQS 1-hour (>20.0 ppm)	0	*	*	*
Nitrogen Dioxide (NO_2)				
State maximum 1-hour concentration (ppm)	0.050	0.057	0.057	0.057
Annual Average (ppm)	0.012	0.012	0.011	0.011
Number of Days Standard Exceeded				
CAAQS 1-hour	0	0	0	0
Ozone (O_3)				
State maximum 1-hour concentration (ppm)	0.107	0.083	0.085	0.073
National maximum 8-hour concentration (ppm)	0.083	0.057	0.078	0.062
Number of Days Standard Exceeded				
CAAQS 1-hour (>0.09 ppm)	1	0	0	0
NAAQS 8-hour (>0.075 ppm)	2	0	1	0
Particulate Matter (PM_{10}) [a]				
National maximum 24-hour concentration ($\mu g/m^3$)	43.0	45.0	37.0	38.0
State maximum 24-hour concentration ($\mu g/m^3$)	45.0	46.0	38.0	40.0
State annual average concentration ($\mu g/m^3$)	24.6	21.9	21.5	23.7
Estimated Number of Days Standard Exceeded				
NAAQS 24-hour (>150 $\mu g/m^3$)	0	0	0	0
CAAQS 24-hour (>50 $\mu g/m^3$)	0	0	0	0
Particulate Matter ($PM_{2.5}$) [a]				
National maximum 24-hour concentration ($\mu g/m^3$)	22.7	27.9	34.3	21.9
State maximum 24-hour concentration ($\mu g/m^3$)	22.7	27.9	34.3	21.9
National annual average concentration ($\mu g/m^3$)	*	*	10.2	9.4
State annual average concentration ($\mu g/m^3$)	*	*	*	9.5
Estimated Number of Days Standard Exceeded				
NAAQS 24-hour (>65 $\mu g/m^3$)	0.0	0.0	0.0	0.0

Notes:
* Data unavailable or insufficient data to determine the value.
[a] State and national statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. State statistics are based on *local* conditions; national statistics are based on *standard* conditions. State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.
[b] This data point was designated as "exceptional event" data due to wildfires.
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter
Source: ARB 2014b

Table 2.2-3
Regional Pollutant Emissions Screening Level Thresholds of Significance[a]

Units	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	Pb
Pounds per hour	–	25	100	25	–	–	–
Pounds per day	75 [ba]	250	550	250	100	55 [cb]	3.2
Tons per year	13.7 [de]	40	100	40	15	10 [cb]	0.6

Notes:
[a] Consistent with the South Coast Air Quality Management District (SCAQMD) Air Quality Significance Thresholds (SCAQMD 2015), the pounds per day thresholds were used for the purpose of evaluating air quality impacts for both construction and operation.
[ba] Threshold for volatile organic compounds (VOC) based on the threshold of significance for VOC from ~~South Coast Air Quality Management District (~~SCAQMD~~)~~ for the Coachella Valley.
[cb] USEPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005. Also used by the SCAQMD.
[de] 13.7 Tons Per Year threshold based on 75 pounds per day multiplied by 365 days per year and divided by 2,000 pounds per ton.
VOC = volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide;
SO_X = oxides of sulfur; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter;
Pb = lead
Source: County of San Diego 2007c

Table 2.2-4
Maximum Daily Construction Emissions, without dust controls[1]

Construction Year	VOC (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2 (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Blasting Emissions[2]	-	~~660.15~~408.00	~~3184.78~~1,608.00	-	~~4715.61~~2,208.00	~~435.44~~244.80
Rock Crushing Emissions[2]	1.45	19.16	5.78	0.03	~~2.22~~14.21	~~0.66~~4.65
Year 1	51.25	344.97	341.50	0.33	33.25	23.32
Year 2	65.38	335.42	382.71	0.34	31.83	22.29
Year 3	66.19	320.60	412.06	0.36	32.71	21.49
Year 4	62.77	277.82	387.54	0.36	30.18	19.23
Year 5	61.68	260.89	378.73	0.37	29.14	18.18
Year 6	94.70	250.31	439.89	0.44	32.41	18.19
Year 7	61.51	210.34	353.24	0.36	26.84	15.91
Year 8	67.58	192.43	389.35	0.38	27.03	15.09
Year 9	55.88	172.12	329.11	0.36	24.39	14.04
Year 10	27.40	141.37	221.91	0.30	20.59	12.63
Year 11	33.13	67.87	111.44	0.21	6.89	3.89
Maximum Daily Emissions	96.15	762.58~~1,024.28~~	2,053.67~~3,630.45~~	0.47	2,255.46~~4,742.94~~	272.77~~455.27~~
Screening Level Thresholds (SLT)	75	250	550	250	100	55
Significant Impact?	Yes	Yes	Yes	No	Yes	Yes

Notes:

[1] Maximum daily emissions calculated using the CalEEMod Model. CalEEMod identifies the maximum for each pollutant. Maximum ROG emissions occur during overlap of architectural coatings application, building construction, and paving for all construction years. Maximum daily emissions of other pollutants occur during overlap of grading, trenching, and building construction.

[2] Maximum daily emissions for blasting and rock crushing have been included in the table. Construction emissions without blasting are shown separately for informational purposes because these are the levels of emissions that would occur on a majority of the days.

~~Blasting would occur for approximately 114 to 125 days and rock crushing would occur for approximately 49~~ 130 ~~days during construction.~~ It is anticipated that blasting and rock crushing could occur ~~over~~during the first 10 years of construction. Blasting emissions are conservative because the model assumed surface blasting even though blasting associated with the proposed Project would occur underground (i.e., sub-surface) and be conducted so as to minimize surface disturbance.~~Maximum daily emissions for blasting and rock crushing have been included in the table. Construction emissions without blasting are shown for informational purposed because these are the levels of emissions that would occur on a majority of the days.~~

All emissions have been modeled assuming compliance with the County's Grading, Clearing and Watercourses Ordinance and SDAPCD Rule 67.

VOC =volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter

Source: SRA 2014

Table 2.2-5
Area Source/Motor Vehicle Emissions, Unmitigated

Phase/Emissions Source	VOC (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2 (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Maximum Daily Emissions, Summer						
Area Sources	157.42	1.84	160.03	0.008	3.49	3.46
Energy Use	2.10	18.24	9.80	0.11	1.45	1.45
Motor Vehicles	64.93	110.04	604.46	2.16	147.39	40.86
Total	**224.45**	**130.12**	**774.28**	**2.29**	**152.32**	**45.77**
Screening Level Thresholds	75	250	550	250	100	55
Significant Impact?	***Yes***	No	***Yes***	No	***Yes***	No
Maximum Daily Emissions, Winter						
Area Sources	157.42	1.84	160.03	0.008	3.49	3.46
Energy Use	2.10	18.24	9.80	0.11	1.45	1.45
Motor Vehicles	68.65	117.09	637.92	2.06	147.39	40.86
Total	**228.17**	**137.17**	**807.75**	**2.18**	**152.33**	**45.77**
Screening Level Thresholds	75	250	550	250	100	55
Significant Impact?	***Yes***	No	***Yes***	No	***Yes***	No

Notes:
Emissions shown represent the maximum daily area source, energy use, and motor vehicles emissions that would occur from summertime and wintertime operations calculated by CalEEMod. Totals are not exact due to rounding.
VOC =volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter
Source: SRA 2014

Table 2.2-6
Maximum Daily Construction Emissions, with Dust Controls and Low-VOC Coatings [1]

Construction Year	VOC (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2 (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Blasting Emissions[2]	-	~~660.15~~408.00	~~3184.78~~1,608.00	-	~~4715.61~~2,208.00	~~435.44~~244.80
Rock Crushing Emissions[2]	1.45	19.16	5.78	0.03	~~2.22~~14.21	~~0.66~~4.65
Year 1	33.59~~51.25~~	344.97	341.50	0.33	25.11	19.17
Year 2	39.15~~65.38~~	335.42	382.71	0.34	24.09	18.21
Year 3	38.79~~66.19~~	320.60	412.06	0.36	23.86	17.24
Year 4	35.97~~62.77~~	277.82	387.54	0.36	21.33	14.98
Year 5	34.69~~61.68~~	260.89	378.73	0.37	20.28	13.93
Year 6	45.27~~94.70~~	250.31	439.89	0.44	23.12	13.88
Year 7	33.56~~61.51~~	210.34	353.24	0.36	17.96	11.65
Year 8	35.85~~67.58~~	192.43	389.35	0.38	17.76	10.78
Year 9	30.03~~55.88~~	172.12	329.11	0.36	15.56	9.79
Year 10	15.73~~27.40~~	141.37	221.91	0.30	12.56	8.49
Year 11	19.51~~33.13~~	67.87	111.44	0.21	6.89	3.89
Maximum Daily Emissions	46.72~~96.15~~	762.58~~1,024.28~~	2,053.67~~3,630.45~~	0.47	2,247.32~~4,742.94~~	268.62~~455.27~~
Screening Level Thresholds (SLT)	75	250	550	250	100	55
Significant Impact?	~~***Yes***~~***No***	***Yes***	***Yes***	No	***Yes***	***Yes***

Notes:

[1] Maximum daily emissions calculated using the CalEEMod Model. CalEEMod identifies the maximum for each pollutant. Maximum ROG emissions occur during overlap of architectural coatings application, building construction, and paving for all construction years. Maximum daily emissions of other pollutants occur during overlap of grading, trenching, and building construction.

[2] Maximum daily emissions for blasting and rock crushing have been included in the table. Construction emissions without blasting are shown separately for informational purposes because these are the levels of emissions that would occur on a majority of the days.
Blasting and rock crushing would occur for approximately 49 days during construction. It is anticipated that blasting and rock crushing could occur during the first 10 years of construction.
Blasting emissions are conservative because the model assumed surface blasting even though blasting associated with the proposed Project would occur underground (i.e., sub-surface) and be conducted so as to minimize surface disturbance.
~~Blasting would occur for approximately 114 to 125 days and rock crushing would occur for approximately 49~~ 130 ~~days during the first year of construction. Year 1 construction emissions without blasting are shown for informational purposes because these are the levels of emissions that would occur on a majority of the days.~~

All emissions have been modeled assuming compliance with the County's Grading, Clearing and Watercourses Ordinance and SDAPCD Rule 67.
VOC =volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter
Source: SRA 2014

Table 2.2-7
Area Source/Motor Vehicle Emissions, Mitigated

Phase/Emissions Source	VOC (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2 (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Maximum Daily Emissions, Summer						
Area Sources	128.11	1.83	158.88	0.008	3.48	3.45
Energy Use	1.85	16.06	8.62	0.10	1.28	1.28
Motor Vehicles	62.64	100.54	555.86	1.93	131.35	36.43
Total	**192.60**	**118.43**	**723.36**	**2.04**	**136.11**	**41.16**
Screening Level Thresholds	75	250	550	250	100	55
Significant Impact?	***Yes***	No	***Yes***	No	***Yes***	No
Maximum Daily Emissions, Winter						
Area Sources	128.11	1.83	158.88	0.008	3.48	3.45
Energy Use	1.85	16.06	8.62	0.10	1.28	1.28
Motor Vehicles	66.42	106.91	593.42	1.84	131.36	36.44
Total	**196.37**	**124.80**	**760.92**	**1.95**	**136.11**	**41.16**
Screening Level Thresholds	75	250	550	250	100	55
Significant Impact?	***Yes***	No	***Yes***	No	***Yes***	No

Notes:
Emissions shown represent the maximum daily area source, energy use, and motor vehicles emissions that would occur from summertime and wintertime operations calculated by CalEEMod.
VOC =volatile organic compounds; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = suspended particulate matter; $PM_{2.5}$ = fine particulate matter
Source: SRA 2014

Table 2.2-8
Project Contribution to Ambient Ozone Concentrations
Otay Ranch Resort Village

Criteria Pollutant	Existing Peak Background 8-hour O_3 Concentration (ppm)[1]	CAAQS	NAAQS	Project Emissions (tons/day)[2]	CARB Projections of SDAB Emissions (tons/day)[3]	Percent of Regional Emissions	Adjusted 8-hour O_3 Concentration (ppm)[4]
Construction, 2020							
NOx	0.083	0.070	0.075	0.512	68	0.752	0.0836
VOC[5]				0.048	114	0.042	
Construction, 2025							
NOx	0.083	0.070	0.075	0.512	56	0.914	0.0838
VOC[5]				0.048	111	0.043	
Operations, 2025							
NOx	0.083	0.070	0.075	0.059	56	0.105	0.0832
VOC				0.096	111	0.086	
Operations, 2030							
NOx	0.083	0.070	0.075	0.059	51	0.116	0.0832
VOC				0.096	111	0.086	

[1] Peak 8-hour background concentrations for 2010-2013, see Draft EIR Table 2.2-2.
[2] Maximum daily construction emissions, see Draft EIR Table 2.2-4; mitigated maximum daily operational emissions, see Draft EIR Table 2.2-7.
[3] From CARB 2013 Almanac, Chapter 4, reported in tons/day, annual average. http://www.arb.ca.gov/aqd/almanac/almanac13/pdf/chap413.pdf
[4] Based on the basin-wide percent increase in NOx emissions added to the background O_3 levels plus the basin-wide percent increase in VOC emissions added to the background O_3 levels.
[5] Because VOC emissions contribute to the formation of ozone, they are presented here. However, please note that the Project's construction-related VOC emissions would be less than significant with mitigation.

Table 2.2-9
Project Contribution to Ambient NO_2 Concentrations
Otay Ranch Resort Village

Criteria Pollutant	Existing Peak Background 1-hour NO_2 Concentration (ppm)[1]	CAAQS	NAAQS	Project Emissions (tons/day)[2]	CARB Projections of SDAB Emissions (tons/day)[3]	Percent of Regional Emissions	Adjusted 1-hour NO_2 Concentration (ppm)[4]
Construction, 2020							
NOx	0.057	0.18	0.100	0.512	68	0.752	0.0574
Construction, 2025							
NOx	0.057	0.18	0.100	0.512	56	0.914	0.0575
Operations, 2025							
NOx	0.057	0.18	0.100	0.059	56	0.105	0.0571
Operations, 2030							
NOx	0.057	0.18	0.100	0.059	51	0.116	0.0571

[1] Peak 1-hour background concentrations for 2010-2013, Draft EIR, Table 2.2-2.
[2] Maximum daily construction emissions, Draft EIR, Table 2.2-4; ,mitigated maximum daily operational emissions, Draft EIR, Table 2.2-7.
[3] From ARB 2013 Almanac, Chapter 4, reported in tons/day, annual average. http://www.arb.ca.gov/aqd/almanac/almanac13/pdf/chap413.pdf
[4] Based on the basin-wide percent increase in NOx emissions added to the background NO_2 level.

Table 2.2-10
Project Contribution to Ambient PM_{10} Concentrations
Otay Ranch Resort Village

Criteria Pollutant	Existing Peak Background 24-hour PM_{10} Concentration ($\mu g/m^3$)[1]	CAAQS	NAAQS	Project Emissions (tons/day)[2]	CARB Projections of SDAB Emissions (tons/day)[3]	Percent of Regional Emissions	Adjusted 24-hour PM_{10} Concentration (ppm)[4]
Construction, 2020							
PM_{10}	46	50	150	2.371	74	3.20	47.47
Construction, 2025							
PM_{10}	46	50	150	2.371	75	3.16	47.45
Operations, 2025							
PM_{10}	46	50	150	0.068	75	0.091	46.04
Operations, 2030							
PM_{10}	46	50	150	0.068	76	0.089	46.04

[1] Peak 24-hour background concentrations for 2010-2013, California average; see Draft EIR Table 2.2-2.
[2] Maximum daily construction emissions, see Draft EIR Table 2.2-4; mitigated maximum daily operational emissions, see Draft EIR Table 2.2-7. These emissions are conservative because they include blasting emissions, which were modeled assuming that all blasting is surface blasting; in reality, emissions would be lower because blasting would be underground.
[3] From CARB 2013 Almanac, Chapter 4, reported in tons/day, annual average; see http://www.arb.ca.gov/aqd/almanac/almanac13/pdf/chap413.pdf
[4] Based on the basin-wide percent increase in PM_{10} emissions added to the background PM_{10} level.

Table 2.2-11
Project Contribution to Ambient $PM_{2.5}$ Concentrations
Otay Ranch Resort Village

Criteria Pollutant	Existing Peak Background 24-hour $PM_{2.5}$ Concentration ($\mu g/m^3$)[1]	NAAQS	Project Emissions (tons/day)[2]	SDAB Emissions (tons/day)[3]	Percent of Regional Emissions	Adjusted 24-hour PM_{10} Concentration (ppm)[4]
Construction, 2020						
$PM_{2.5}$	24.3	35	0.228	19	12	27.22
Construction, 2025						
$PM_{2.5}$	24.3	35	0.228	20	11.4	27.07
Operations, 2025						
$PM_{2.5}$	24.3	35	0.021	20	1.05	24.56
Operations, 2030						
$PM_{2.5}$	24.3	35	0.021	20	1.05	24.56

[1] The NAAQS for $PM_{2.5}$ is based on the 98th percentile of three years of monitoring data, and is not defined by a single exceedance. The highest 98th percentile reported by CARB at http://www.arb.ca.gov/adam/topfour/topfourdisplay.php for the Chula Vista monitoring station is shown in the table.
[2] Maximum daily construction emissions, see Draft EIR Table 2.2-4; mitigated maximum daily operational emissions, see Draft EIR Table 2.2-7. These emissions are conservative because they include blasting emissions, which were modeled assuming that all blasting is surface blasting; in reality, emissions would be lower because blasting would be underground.
[3] From ARB 2013 Almanac, Chapter 4, reported in tons/day, annual average. http://www.arb.ca.gov/aqd/almanac/almanac13/pdf/chap413.pdf
[4] Based on the basin-wide percent increase in $PM_{2.5}$ emissions added to the background $PM_{2.5}$ level.