2.1 Air Quality

This section of the SEIR summarizes information from the *Air Quality Technical Report* prepared by Scientific Resources Associated (SRA) (August 31, 2016) for the proposed Project, included as Appendix B of this SEIR. This section includes existing conditions for air quality plans, air quality attainment in the County, hazardous air pollutants, and odors relative to the Project areas addressed in this SEIR, and evaluates the potential effects that implementation of the proposed Project may have on these conditions.

2.1.1 Existing Conditions

2.1.1.1 *Environmental Setting*

Climate and Meteorology

The Project site is located in the San Diego Air Basin (SDAB). The climate of the SDAB is dominated by a semi- permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

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

The climate of the coastal southern California, including the County of San Diego, is determined largely by high pressure that is almost always present off the west coast of North America. High-pressure systems are characterized by an upper layer of dry air that warms as it descends. This warm, dry air acts as a lid, restricting cool air located near the surface and creating an inversion of typical temperature conditions.

Average summer high temperatures in the Project vicinity (City of Chula Vista) are approximately 73 degrees Fahrenheit. Average winter low temperatures are approximately 45 degrees Fahrenheit. The average rainfall in the Project vicinity is approximately 9.3 inches annually.

The distinctive climate of the Project area and the SDAB is determined by its terrain and geographical location. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly on- shore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season. The prevailing winds in the Project area move predominately from northwest to southeast with an average wind speed of 2.33 meters per second (in/s).

During the summer and fall, emissions generated in the region combine with abundant sunshine under the influences of topography and an inversion to create conditions that are conducive to the formation of photochemical pollutants, such as ozone, and secondary particulates, such as sulfates and nitrates. As a result, air quality in the SDAB is often the poorest during the warmer summer and fall months.

Background Air Quality

The APCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Stnadards (NAAQS). The nearest ambient monitoring stations to the Project site are the Chula Vista monitoring station on J Street in Chula Vista (located approximately 12 mile northwest of the Project site), the Paseo International monitoring station at the Otay Mesa border crossing (approximately 10 miles west of the Project site), and the Donovan Correctional Facility monitoring station in Otay Mesa (located northwest of the Project site). Pollutant levels at the Otay Mesa border crossing are elevated because they reflect emissions from vehicles idling at the crossing. The ambient background data from the Chula Vista monitoring station for ozone (O_3), nitrogen dioxide (NO_2), and fine particulate matter or particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and the ambient background data from the Donovan monitoring station for respirable particulate matter or particulate matter of 10 microns in diameter or smaller (PM_{10}), and $PM_{2.5}$ are most representative of the site. The nearest location that monitored carbon monoxide (CO) was the downtown San Diego monitoring station (located approximately 20 miles northwest of the Project site). Ambient concentrations of pollutants over the last three years are presented in Table 2.1-1, *Ambient Background Concentrations*.

The 8-hour Federal ozone standard was not exceeded at the Chula Vista monitoring station during the period from 2013 through 2015. The 8-hour CAAQS was exceeded once in 2014. The Chula Vista monitoring station has measured exceedances of the CAAQS for ozone, and the Donovan monitoring station has measured exceedances of the CAAQS for PM_{10} during the period from 2012 to 2014. The data from the monitoring stations indicates that air quality is in attainment of all other standards.

2.1.1.2 *Methodology*

The County of San Diego recognizes the APCD's established screening level thresholds for air quality emissions (Rules 20.1 et seq.) as screening-level thresholds for land

development projects. As stated above, projects that propose development that is consistent with the growth anticipated by the general plans and SANDAG's growth forecasts would be consistent with the RAQS and SIP (described below in Section 2.1.1.3). Also, projects that are consistent with the SIP rules (i.e., the Federally-approved rules and regulations adopted by the APCD) are consistent with the SIP itself. Thus, projects would be required to conform with measures adopted in the RAQS (including use of low-VOC architectural coatings, use of low-NO_x water heaters, and compliance with rules and regulations governing stationary sources) and would also be required to comply with all applicable rules and regulations adopted by the APCD.

To determine whether a project would (a) result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation; or (b) result in a cumulatively considerable net increase of PM_{10} or $PM_{2.5}$ or exceed quantitative thresholds for O_3 precursors, oxides of nitrogen (NO_X) and volatile organic compounds (VOCs), project emissions may be evaluated based on the quantitative emission thresholds established by the San Diego APCD. As part of its air quality permitting process, the APCD has established thresholds in Rule 20.2 for the preparation of Air Quality Impact Assessments (AQIA). The County of San Diego also recommends the South Coast Air Quality Management District's (SCAQMD) screening threshold of 55 pounds per day or 10 tons per year as a significance threshold for $PM_{2.5}$.

For CEQA purposes, these screening criteria can be used as numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality. The screening thresholds are included in Table 2.1-2, *Screening Level Thresholds for Air Quality Impact Analysis*.

In the event that emissions exceed these screening-level thresholds, modeling would be required to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the State and Federal Ambient Air Quality Standards, including appropriate background levels. For nonattainment pollutants (ozone, with ozone precursors NOx and VOCs, $PM_{2.5}$ and PM_{10}), if emissions exceed the thresholds shown in Table 2.1-2, the project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as toxic air contaminants (TACs) or Hazardous Air Pollutants (HAPs). In San Diego County, the County Planning & Development Services department identifies an excess cancer risk level of one in one million or less for projects that do not implement Toxics Best Available Control Technology (T-BACT), and an excess cancer risk level of ten in one million or less for projects that do implement T-BACT. The significance threshold for non-cancer health effects is a health hazard index of one or less. These significance thresholds are consistent with the San Diego APCD's Rule 1210 requirements for stationary sources. If a project has the potential to result in emissions of any TAC or HAP which result in a cancer risk of greater than one in one million without T-BACT, ten in one million with T-

BACT, or health hazard index of one or more, the project would be deemed to have a potentially significant impact.

With regard to evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as residences, schools (Preschool-12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Any project which has the potential to directly impact a sensitive receptor located within one mile and results in a health risk greater than the risk significance thresholds discussed above would be deemed to have a potentially significant impact. One mile was chosen as a conservative means of evaluating significance. As discussed in the SCAQMD's CEQA Air Quality Handbook, if there is an industrial source within a quarter mile of a sensitive receptor, planners should review the potential for toxic impacts. Therefore, use of a one-mile radius is conservative.

APCD Rule 51 (Public Nuisance) also prohibits emission of any material which causes nuisance to a considerable number of persons or endangers the comfort, health or safety of any person. A project that proposes a use which would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of offsite receptors.

The impacts associated with construction and operation of the Project were evaluated for significance based on these significance criteria.

2.1.1.3 *Regulatory Framework*

Federal Regulations

Air quality is defined by ambient air concentrations of specific pollutants identified by the United States Environmental Protection Agency (USEPA) to be of concern with respect to health and welfare of the general public. The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish NAAQS, which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for seven pollutants (called “criteria” pollutants). The seven pollutants regulated under the NAAQS are as follows: O_3, CO, NO_2, PM_{10}, $PM_{2.5}$, sulfur dioxide (SO_2), and lead (Pb). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere. Areas that do not meet the NAAQS for a particular pollutant are considered to be “non-attainment areas” for that pollutant. The SDAB has been designated a marginal non-attainment area for the 8-hour NAAQS for O_3.

The following specific descriptions of health effects for each of the criteria air pollutants associated with Project construction and operations are based on information from USEPA (USEPA 2007) and the California Air Resources Board (ARB) (ARB 2005).

Ozone

O_3 is a photochemical oxidant, which is a chemical that is formed when reactive organic gases (ROG) and NOx, both by-products of combustion, react in the presence of ultraviolet light. O_3 is 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 O_3.

Carbon Monoxide

CO is a product of combustion, and the main source of CO in the SDAB is from motor vehicle exhaust. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease, and can also affect mental alertness and vision.

Nitrogen Dioxide

NO_2 is also a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide (NO) with oxygen. NO_2 is a respiratory irritant and may affect those with existing respiratory illness, including asthma. NO_2 can also increase the risk of respiratory illness.

Respirable Particulate Matter and Fine Particulate Matter

Respirable particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or $PM_{2.5}$, refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in this size range has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, combustion, tire and brake wear, construction operations and windblown dust. PM_{10} and $PM_{2.5}$ can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. $PM_{2.5}$ is considered to have the potential to lodge deeper in the lungs. Suspended PM_{10} and $PM_{2.5}$ can also degrade visibility in the atmosphere.

Sulfur dioxide

SO_2 is a colorless, reactive gas that is produced from the burning of sulfur- containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of

breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Lead

Pb in the atmosphere occurs as particulate matter. Pb has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Pb has the potential to cause gastrointestinal, central nervous system, kidney and blood diseases upon prolonged exposure. Pb is also classified as a probable human carcinogen.

Toxic Air Contaminants

TACs are controlled under a different regulatory process than criteria air pollutants. Because no safe level of emissions can be established for toxic air pollutants region-wide, the regulation of toxic air pollutants is based on the levels of cancer risk and other health risks posed to persons who may be exposed. Joint Federal, State and local efforts to develop further regulation of air toxics will be ongoing for the foreseeable future.

Under Federal law, 188 substances are listed as HAPs. Major sources of specific HAPs are subject to the requirements of the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) program. The USEPA is establishing regulatory schemes for specific source categories, and requires implementation of Maximum Achievable Control Technologies (MACTs) for major sources of HAPs in each source category.

State regulations for TACs are described below.

State Regulations

California Clean Air Act

The California Clean Air Act (CAA) was signed into law on September 30, 1988, and became effective on January 1, 1989. The CAA requires that local air districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. The CAA required the SDAB to achieve a five percent annual reduction in ozone precursor emissions from 1987 until the CAAQS standards (described below) are attained. If this reduction cannot be achieved, all feasible control measures must be implemented. Furthermore, the CAA required local air districts to implement a Best Available Control Technology rule and to require emission offsets for non- attainment pollutants.

The ARB is the State regulatory agency with authority to enforce regulations to both achieve and maintain air quality in the state. The ARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions

program, as well as the adoption of the CAAQS. The ARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a non-attainment area to develop its own strategy for achieving the NAAQS and CAAQS. The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as Federal standards. The ARB has established the more stringent CAAQS for the six criteria pollutants (NAAQS maintains a more stringent standard for NO_2) through the CAA of 1988, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. The SDAB is currently classified as a non-attainment area under the CAAQS for O_3, PM_{10}, and $PM_{2.5}$. It should be noted that the ARB does not differentiate between attainment of the 1-hour and 8-hour CAAQS for O_3; therefore, if an air basin records exceedances of either standard the area is considered a non-attainment area for the CAAQS for O_3. The SDAB has recorded exceedances of both the 1-hour and 8-hour CAAQS for O_3. The following specific descriptions of health effects for the additional California criteria air pollutants are based in information from the ARB (ARB 2001).

Sulfates

Sulfates are the fully oxidized ionic form of sulfur. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The ARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and due to the fact that they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide

Hydrogen Sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard would result in exposure to a very disagreeable odor. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

Vinyl Chloride

Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants and hazardous waste

sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.

Visibility Reducing Particles

Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The CAAQS is intended to limit the frequency and severity of visibility impairment due to regional haze. A separate standard for visibility-reducing particles that is applicable only in the Lake Tahoe Air Basin is based on reduction in scenic quality.

Table 2.1-3, *Ambient Air Quality Standards*, presents a summary of the ambient air quality standards adopted by the Federal and California Clean Air Acts.

Toxic Air Contaminants

Federal regulations pertaining to TACs are described above.

In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (AB 1807: Health and Safety Code sections 39650-39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

The State of California has identified diesel particulate matter as a TAC. Diesel particulate matter is emitted from on- and off-road vehicles that utilize diesel as fuel. Following identification of diesel particulate matter as a TAC in 1998, the ARB has worked on developing strategies and regulations aimed at reducing the emissions and associated risk from diesel particulate matter. The overall strategy for achieving these reductions is found in the *Risk Reduction Plan to Reduce Particulate Matter from Diesel-Fueled Engines and Vehicles* (State of California 2000). A stated goal of the plan is to reduce the cancer risk statewide arising from exposure to diesel particulate matter by 75 percent by 2010 and by 85 percent by 2020. The *Risk Reduction Plan* contains the following three components:

- New regulatory standards for all new on-road, off-road and stationary diesel-fueled engines and vehicles to reduce diesel particulate matter emissions by about 90 percent overall from current levels;

- New retrofit requirements for existing on-road, off-road and stationary diesel-fueled engines and vehicles were determined to be technically feasible and cost-effective; and
- New Phase 2 diesel fuel regulations to reduce the sulfur content levels of diesel fuel to no more than 15 parts per million (ppm) to provide the quality of diesel fuel needed by the advanced diesel particulate matter emission controls.

As an ongoing process, the ARB reviews air contaminants and identifies those that are classified as TACs. The ARB also continues to establish new programs and regulations for the control of TACs, including diesel particulate matter, as appropriate.

Local

In San Diego County, the San Diego APCD is the regulatory agency that is responsible for maintaining air quality, including implementation and enforcement of State and Federal regulations. The Project site is located in the County of San Diego. The County of San Diego has adopted a General Plan that includes a Conservation Element that adopts policies to reduce air emissions and improve air quality within the County.

The local air APCD has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The San Diego APCD is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County.

The APCD and the SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County RAQS was initially adopted in 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004 and most recently in 2009 (APCD 2009). The RAQS outlines APCD's plans and control measures designed to attain the State air quality standards for O_3. The RAQS does not address the State air quality standards for PM_{10} or $PM_{2.5}$.

The APCD has also developed the air basin's input to the SIP, which is required under the Federal Clean Air Act for areas that are in non-attainment for the NAAQS. The SIP includes the APCD's plans and control measures for attaining the O_3 NAAQS. The SIP is also updated on a triennial basis. The latest SIP update that has been approved by USEPA was in 2007. The current SIP is the APCD's *Eight-Hour Ozone Attainment Plan for San Diego County* (hereinafter referred to as the Attainment Plan) (APCD 2007). The Attainment Plan forms the basis for the SIP update, as it contains documentation on emission inventories and trends, the APCD's emission control strategy, and an attainment demonstration that shows that the SDAB will meet the NAAQS for O_3. Emission inventories, projections, and trends in the Attainment Plan are based on the latest O_3 SIP planning emission projections compiled and maintained by ARB. The inventories are based on data submitted by stakeholder agencies, including SANDAG,

based on growth projections in municipal General Plans.

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 67.1 (Architectural Coatings)
- Rule 67.7 (Cutback and Emulsified Asphalts)
- Rule 69.5 (Natural Gas Fired Water Heaters)

As stated in the Air Quality Technical Report (August 2016) prepared for the Project by SRA, the ARB compiles annual statewide emission inventories in its emission-related information database, the California Emission Inventory Development and Reporting System (CEIDARS). Emission projections for past and future years were generated using the California Emission Forecasting System (CEFS), developed by ARB to project emission trends and track progress towards meeting emission reduction goals and mandates. CEFS utilizes the most current growth and emissions control data available and agreed upon by the stakeholder agencies to provide comprehensive projections of anthropogenic (human activity-related) emissions for any year from 1975 through 2030. Local air districts are responsible for compiling emissions data for all point sources and many stationary area-wide sources. For mobile sources, CEFS integrates emission estimates from ARB's EMFAC and OFFROAD models. SANDAG incorporates data regarding highway and transit projects into their Travel Demand Models for estimating and projecting vehicle miles traveled (VMT) and speed. The ARB's on-road emissions inventory in EMFAC relies on these VMT and speed estimates.

Because the 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 part of the development of General Plans, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS and the Attainment Plan. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS and the Attainment Plan. If a project proposes development that is greater than that anticipated in the general plan and

SANDAG's growth projections, the project may be in conflict with the RAQS and SIP, and may have a potentially significant impact on air quality.

2.1.2 Analysis of Project Effects and Determination as to Significance

2.1.2.1 *Guidelines for Determination of Significance*

Based on the County of San Diego Guidelines for Determining Significance – Air Quality, the Project would result in a significant impact to air quality if the Project would:

a) Conflict with or obstruct implementation of the applicable air quality plan.
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O_3 precursors).
d) Expose sensitive receptors to substantial pollutant concentrations.
e) Create objectionable odors affecting a substantial number of people.

2.1.2.2 *1994 East Otay Mesa Specific Plan EIR*

The 1994 EIR included an analysis of air quality regulations and legislation pertinent at the time of adoption, as well as existing conditions and impacts related to the East Otay Mesa Specific Plan project. The 1994 EIR identified the following air quality impacts as significant:

- Construction impacts
- Vehicular impacts
- Stationary source impacts
- Total emissions

The 1994 EIR included air quality mitigation measures that relate to construction, facilities to promote the use of alternative transportation methods, and transportation. Due to the general nature of these mitigation measures and their broad application to the entire Specific Plan area, they are superseded by mitigation included within this section and are not applicable to the Project. The 1994 EIR mitigation measures can be found on pages 4.9-15 through 4.9-17 of the 1994 EIR.

2.1.2.3 *2000 East Otay Mesa Specific Plan Sunroad Centrum SEIR*

The 2000 SEIR also addressed air quality impacts and proposed mitigation. This

mitigation is also superseded by the mitigation included within this section due to its broad and general nature. The 2000 SEIR mitigation measures can be found on pages 2-73 and 2-74 of the 2000 SEIR.

2.1.2.4 *2012 Sunroad Otay Tech Centre Addendum*

In 2012, an Addendum was prepared for the Sunroad Otay Tech Centre project. An Air Quality Technical Report was prepared for the Sunroad Otay Tech Centre project by Scientific Resources Associated (November 16, 2010). The analysis in the report concluded that construction emissions, operational emissions, CO hot spots, health risks, and odor impacts would be less than significant. Additionally, the project would be consistent with the RAQS and SIP and would not result in a cumulatively considerable impact for operations. Therefore, no new mitigation was identified in the 2012 Addendum.

2.1.2.5 *Proposed Project*

Conformance with Regional Air Quality Strategy

Guideline for the Determination of Significance:

Would the proposed Project have a potentially significant environmental impact if it would conflict with or obstruct the implementation of the San Diego RAQS and/or applicable portions of the SIP?

The RAQS outlines APCD's plans and control measures designed to attain the State air quality standards for ozone. In addition, the APCD relies on the SIP, which includes the APCD's plans and control measures for attaining the ozone NAAQS. These plans accommodate emissions from all sources, including natural sources, through implementation of control measures, where feasible, on stationary sources to attain the standards. Mobile sources are regulated by the USEPA and the ARB, and the emissions and reduction strategies related to mobile sources are considered in the RAQS and SIP.

The RAQS relies on information from ARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions in order to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. The 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 the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the County of San Diego General Plan and SANDAG's growth projections, the project would be in conflict with the RAQS and SIP,

and might have a potentially significant impact on air quality. This situation would warrant further analysis to determine if the proposed project and the surrounding projects exceed the growth projections used in the RAQS for the specific subregional area.

The Project proposes to establish a new mixed-use land use category within the East Otay Mesa Business Park Specific Plan. The new land use category would allow for employment, retail, and residential uses within the area. The Project would provide a mix of uses at the site that would serve the Otay Mesa area.

The 1994 EIR did not address residential uses at the site; therefore, the Project is required to revise the Specific Plan to allow residential uses, and evaluate impacts associated with the change in use. Vehicle trips generated by the proposed Project would be consistent with traffic assumed in the approved Specific Plan. Therefore, the proposed Project would not result in additional vehicle trips above the levels anticipated in the General Plan. Thus, the Project would not differ from the analysis included within the RAQS and SIP to demonstrate attainment.

The Otay Subregional Plan did not address residential uses at the site; therefore, the Project is required to revise the Subregional Plan to allow residential uses, which requires an Amendment to the General Plan. However, the Project is consistent with the intensity scale in the General Plan and would not result in additional vehicle trips above the levels anticipated in the General Plan. The Project would, therefore, not differ from the analysis included within the RAQS and SIP to demonstrate attainment.

Providing a mix of uses at the site that include residential, retail, and commercial/industrial uses would serve to reduce VMT overall in the County. The purpose of the development is to provide residential uses in the area. The current zoning would require workers to travel longer distances rather than providing the opportunity to live and work within the community. While this reduction in distance cannot be quantified, part of the goal of providing these uses at the site is to provide local residential uses in the East Otay Mesa area.

As part of its attainment planning process, the San Diego APCD proposed and adopted Rules and Regulations to control air pollutants to demonstrate further progress toward attainment as part of the RAQS and SIP. The Project would comply with all applicable rules and regulations that have been adopted as part of the RAQS and SIP by the San Diego APCD.

The Project proposes a Specific Plan Amendment that is consistent with the County's General Plan for Village Development. The Village category identifies areas where a higher intensity and a wide range of land uses are established or have been planned. Ideally, a Village would reflect a development pattern that is characterized as compact, higher density development that is located within walking distance of commercial services, employment centers, civic uses, and transit (when feasible). The Project would provide local residential, employment, and commercial uses in an existing employment

center. Through providing local residential uses, the Project would serve to reduce the VMT within the region. Because the Project proposes development that is consistent with the density within the General Plan and would not allow additional vehicle trips, the Project would not conflict with or obstruct implementation of the RAQS or SIP.

Conformance with Federal and State Ambient Air Quality Standards

Guideline for the Determination of Significance:

> *Would the proposed Project have a potentially significant environmental impact if it would result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Construction Impacts

A specific schedule for Project construction is not known at this time. It is assumed that the Project could be built out over a period of approximately ten years starting in 2018, with Project buildout complete in 2027. Emissions from the construction phase of the Project were estimated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2 (ENVIRON 2013). Project grading would be completed in a single phase prior to commencement of construction of buildings; grading would not be conducted for each phase separately. It is estimated that grading would involve a total of 1,350,000 cubic yards of earthmoving, with the cut and fill balanced on site. Accordingly, soil transport distances were reduced within the CalEEMod model to 0.5 miles. Infrastructure would be constructed at each site development phase and has been included in the CalEEMod modeling analysis under building construction and paving; equipment used within the analysis includes backhoe/loaders that would be used to install infrastructure and utilities, as well as paving.

CalEEMod relies on the total area of the site and estimates site disturbance based on the maximum acres that can be graded given the construction equipment input in an eight-hour day. To account for standard dust control measures within the CalEEMod Model, it was assumed that watering three times day would reduce particulate matter emissions by 61 percent, and that speeds on unpaved surfaces would be reduced to 15 mph. No other mitigation measures were taken into account in the model.

Architectural coatings would be required to meet the requirements of SDAPCD Rule 67.0.1, which was adopted in June 2015 and went into effect on January 1, 2016. Rule 67.0.1 limits VOC content to 100 g/l for exterior paints and 50 g/l for interior paints. This rule was taken into account in the CalEEMod Model. It was also assumed, based on County T-BACT requirements, that all Tier 3 equipment would be used during construction.

Table 2.1-4, *Assumed Construction Schedule*, provides a summary of the assumed construction phases for Project construction. Table 2.1-5, *Maximum Daily Construction Emissions by Construction Year*, presents a summary of the maximum daily emission

estimates for construction of the Otay 250 Sunroad - East Otay Mesa Business Park Specific Plan Amendment Project.

As shown in Table 2.1-5, with implementation of standard dust control measures (watering three times daily, cleaning paved roads, and reducing speeds on unpaved surfaces to 15 mph), the maximum simultaneous emissions are below the screening-level thresholds for all criteria pollutants except VOCs, which are above the threshold in 2021.

Project construction would employ dust control measures to reduce impacts as feasible. Dust control measures would include watering the site at least three times daily during active grading, and reducing vehicle speeds on unpaved surfaces to 15 mph, and cleaning paved roads, which was assumed to be 25 percent effective in reducing PM emissions (SCAQMD 1999). In addition, the Project would utilize low-VOC coatings in accordance with APCD Rule 67.0.1 requirements. The Project would reduce emissions to the extent feasible. The emissions are mainly attributable to application of architectural coatings. Because the coatings would meet SDAPCD low-VOC requirements, there are no additional mitigation measures that would reduce VOC emissions to less than significant levels. Therefore, direct air quality impacts associated with construction would remain significant and unmitigated. Construction impacts would occur on short duration construction.

Operational Impacts

The main operational impacts associated with the Project would include impacts associated with traffic; additional emissions would be associated with area sources such as energy use and landscaping.

Project-generated traffic was addressed in the Traffic Impact Analysis for the Otay Mesa Specific Plan Amendment (Linscott, Law & Greenspan 2016). Based on the Traffic Impact Analysis, under Buildout conditions the total trip generation would be 37,916 ADT without accounting for a mixed-use reduction. The mixed-use reduction assumed by the traffic analysis is ten percent; however, this reduction was not taken into account in the analysis. Project operational emissions were estimated using the CalEEMod Model, Version 2013.2.2, conservatively assuming an operational year of 2027.

Emissions were calculated for area sources (including architectural coatings for maintenance purposes, consumer products, landscaping, and fireplace use – all natural gas fireplaces assumed), energy use (natural gas use), and vehicles. Emissions were calculated for both summer and winter conditions, as well as for annual operations.

The main operational impacts associated with the Project would include impacts associated with traffic; additional emissions would be associated with area sources such as energy use and landscaping. Emissions are attributable to the following sources:

- Vehicles from trips generated by the Project. Trip generation rates were obtained

from the Traffic Impact Study (Linscott, Law and Greenspan 2016).
- Architectural coatings application for maintenance purposes
- Consumer products use
- Fireplace use – it was assumed that 1,000 residential units would include a natural gas fireplace, with the remaining 2,158 units to be constructed without fireplaces
- Landscaping equipment use
- Energy use – natural gas

The results of the emission calculations, in pounds (lbs)/day and tons/year, are summarized in Table 2.1-6, *Total Operational Emissions*, for build-out conditions, along with emissions associated with area sources and a comparison with the County of San Diego significance criteria. Emissions associated with the Project are above the County's screening-level thresholds for the following pollutants:

- VOCs, CO, PM_{10}, and $PM_{2.5}$ (daily)
- VOCs, CO, and PM_{10} (annual)

Because vehicular emissions decrease over time with phase-out of older vehicles and implementation of increasingly stringent emission controls, future emissions would decrease from 2025 onward. However, emissions would remain above the significance thresholds due to the use of fireplaces and consumer products, as well as vehicle travel.

The Project has incorporated design features, such as a mix of uses, and provides local-serving retail for residential and business land uses currently located in the Project area. Because the (VOC emissions associated with area sources are mainly attributable to the use of consumer products in residential dwellings, and because the applicant does not have the ability to regulate consumer products use, the emissions from area sources would not be mitigable by the applicant. According to the Traffic Impact Analysis, the mix of uses would result in a reduction in VMT, and associated VOCs, of ten percent; according to the CAPCOA reference *Quantifying Greenhouse Gas Reduction Measures* (CAPCOA 2010), the reduction based on the land use index calculation is 15.04 percent (see Project Air Quality Technical Report in included in this SEIR as Appendix B for additional details on this calculation). The Project would not include conventional fireplaces and would be equipped with natural gas fireplaces only. Furthermore, because the Project is consistent with the General Plan's Village land use category, and would provide residential uses in an employment center, the Project would ultimately reduce VOCs from vehicles within the region by reducing VMTs from travel to employment. The proposed Project would provide a new bus stop located at the northeast corner of Otay Mesa Road and Harvest Road (on Otay Mesa Road), which would be served by Bus Route 905, providing local and regional connection (at the Iris Trolley station), which would further reduce VMT by offering a viable and connected transit option. Future vehicle emissions would decrease due to increasingly stringent air quality standards and phase-out of older vehicles.

Operational emissions would exceed the County's screening-level thresholds for VOCs,

CO, PM_{10}, and $PM_{2.5}$. Most of the emissions are attributable to vehicle trips generated by the Project; however, the VOC emissions are above the threshold mainly due to the use of consumer products in the residential development. The consumer products use is associated with residential uses, and the applicant cannot mandate that residents not use consumer products that contain VOCs. Because the Project is providing residential uses within the East Otay Mesa Specific Plan Area, it is likely that overall within the region the VMT would be reduced due to the availability of nearby residences to workplaces. However, based on estimated emissions from full buildout, the Project would result in a significant impact.

Sensitive Receptors

Guideline for the Determination of Significance:

> *Would the proposed Project would have a potentially significant environmental impact if it would expose sensitive receptors to substantial pollutant concentrations?*

Air quality regulators typically define "sensitive receptors" as schools, hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purpose of CEQA analysis, the County of San Diego definition of "sensitive receptors" includes residences (County of San Diego 2007). The two pollutants of main concern for development projects are CO and diesel particulate matter.

CO Hot Spots

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." To verify that the Project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO "hot spots" was conducted. The potential for CO "hot spots" was evaluated based on the results of the Traffic Impact Analysis prepared for the Project. In accordance with the Caltrans Intelligent Transportation System (ITS) Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998), CO "hot spots" are typically evaluated when (a) the level of service (LOS) of an intersection or roadway decreases to LOS E or worse; (b) signalization and/or channelization is added to an intersection; and (c) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

The Traffic Impact Analysis evaluated 23 intersections in the Project vicinity to evaluate the potential for direct impacts. Based on the Traffic Impact Analysis, significant intersection impacts were identified for the following intersections:

Existing plus Project

Otay Mesa Road and La Media Road
Otay Mesa Road and Harvest Road
Otay Mesa Road and Sanyo Road

Otay Mesa Road and Vann Centre Boulevard

Year 2020 Cumulative Conditions

Otay Mesa Road and La Media Road
Otay Mesa Road and Harvest Road
Otay Mesa Road and Sanyo Road
Otay Mesa Road and Vann Centre Boulevard
Airway Road and Sanyo Road
Airway Road and Paseo de las Americas
Siempre Viva Road and Paseo de las Americas
Siempre Viva Road and Enrico Fermi Drive

Table 2.1-7, *CO "Hot Spots" Evaluation*, presents a summary of the predicted CO concentrations (impact plus background) for the intersections evaluated. As shown in Table 2.1-7, the predicted CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS for CO shown in Table 2.1-3. Therefore, no exceedances of the CO standard are predicted, and the Project would not cause or contribute to a violation of this air quality standard. The traffic would therefore not expose sensitive receptors to substantial CO concentrations.

Toxic Air Contaminants

The Project would result in emissions of diesel particulate matter during construction activities and also due to truck traffic associated with Project operations. To evaluate whether Project construction could pose a significant impact to nearby sensitive receptors, an evaluation of diesel exhaust particulate matter was conducted. Diesel exhaust particulate matter is known to the state of California as carcinogenic compounds. The risks associated with exposure to substances with carcinogenic effects are typically evaluated based on a lifetime of chronic exposure, which is defined in the California Office of Environmental Health Hazard Assessment (OEHHA) guidelines, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015) as 24 hours per day, seven days per week, 365 days per year, for 70 years. Diesel exhaust particulate matter would be emitted during construction due to the operation of heavy equipment at the site. Because diesel exhaust particulate matter is considered to be carcinogenic, long-term exposure to diesel exhaust emissions have the potential to result in adverse health impacts.

The purpose of this analysis is to provide a program-level evaluation of potential toxic air contaminant impacts on existing receptors in the Project area. As discussed in this document, each development area would be required to conduct a Site Plan Review. At that time, it can be determined if: (a) the sensitive receptors identified within the existing impact area are still present; (b) there are new sensitive receptors developed as part of the Specific Plan Area that could be exposed to toxic air contaminants; and (c) whether there are any specific toxic air contaminant emissions identified as part of the development itself.

Construction

To assess whether there is a potential for a significant impact associated with exposure to diesel exhaust particulate matter, a health risk evaluation was conducted on the particulate emissions. The amount of diesel particulate varies with the Project schedule and construction phasing; the Project is anticipated to be constructed over a period of approximately ten years starting in 2018 and ending in 2027. The on-site construction heavy equipment diesel particulate emissions calculated by the CalEEMod Model for each year are shown in Table 2.1-8, *Diesel Particulate Emissions – Construction Phase*.

The construction heavy equipment sources were represented as a series of 266 volume sources placed at the site. The sources were placed throughout the site, because it is not known where specific activities would occur at various construction phases and times. Emissions were allocated to each source based on the estimated emission rates for diesel particulate during construction.

The nearest existing receptors were located based on the site map and aerial photographs for the Project area. The only sensitive receptors identified in the Project vicinity are three residences located on Otay Mesa Road to the southeast of the site. These residential dwellings are part of a pending Tentative Map development, which would result in the removal of the residences. For the purpose of this analysis, however, it was assumed that these residential dwellings would be occupied for a period of five years during construction of the East Otay Mesa Business Park Specific Plan Amendment Project. In the event that the residences are still present at the time of individual Site Plan reviews, further analysis may be warranted to evaluate potential risks to the existing residences. The Site Plan review process may also identify circumstances where a review of impacts to residences within the development from future construction activities is warranted.

The risk evaluation was conducted to assess the potential for an unacceptable risk at the existing receptors due to exposure to diesel particulate emissions from heavy construction equipment during construction. The residential receptors identified are the closest residences. No other sensitive receptors are located in the Project vicinity within the one-mile distance identified in this analysis.

The USEPA's approved air dispersion model, AERMOD (USEPA 2014), was used to estimate the downwind impacts at the closest receptors to the construction site. Table 2.1-9, *Risk Assessment Exposure Factors*, presents the exposure factors used in this analysis to evaluate potential risks from the construction of the Project.

OEHHA recommends exposure assumptions to calculate potential health risks, including adjustments to account for childhood exposure, to calculate excess cancer risks. The guidance recommends a 30-year exposure period for use as the basis for estimating cancer risk at residential receptors. Risks are calculated on the basis of the 30-year exposure period, accounting for childhood sensitivity, using the OEHHA-recommended age sensitivity factors (ASFs) to take into account the increased

sensitivity to carcinogens during early-in-life exposure. In addition, high-end breathing rates recommended by OEHHA were used to provide a conservative estimate of risk. The residential exposure scenario assumes that an individual is present at the same location 24 hours per day, 350 days per year, for a 30-year period that includes childhood. Table 2.1-9 presents the exposure factors used in this analysis to evaluate potential risks from the construction of the Project.

It should be understood that the averaging time (AT) for cancer risk is not the same as the exposure duration (ED). According to the USEPA (USEPA 2015), for quantifying cancer risk, "lifetime" exposure employs an averaging time of 70 years (i.e., 70 years × 365 days/year). This term specifies the length of time over which the average dose is calculated. According to the USEPA (USEPA 2009), the estimation of an exposure concentration when assessing cancer risks characterized by an inhalation unit risk involves the concentration in air measured at an exposure point at a site as well as scenario-specific parameters, such as the exposure duration and frequency. The exposure concentration typically takes the form of a concentration in air that is time-weighted over the duration of exposure and incorporates information on activity patterns for the specific site or the use of professional judgment. However, the cancer slope factor used to calculate the risk is always based on an averaging time of 70 years, which represent a lifetime of exposure.

Risks are calculated on the basis of a 30-year exposure scenario as recommended by OEHHA. Because the risk calculation is based on 30 years (10,950 days) of exposure for 24 hours per day, 350 days per year, the results of the analysis were scaled to account for exposure for the duration of exposure assumed at the nearest receptors (five years), as shown in the example calculation below.

Risk = Excess cancer risk for 30 years x (1,825 days/10,950 days).

The maximum annual concentration at an offsite receptor is 0.04599 µg/m^3. According to OEHHA (OEHHA 2015), cancer and chronic risks are calculated based on air dispersion modeling using meteorological data that is sufficient to estimate long-term exposure concentrations. To be representative, meteorological data must be of sufficient duration to define the range of sequential atmospheric conditions anticipated at a site. As a minimum, one full year of on-site meteorological data is necessary to prescribe this time series. OEHHA recommends that annual average concentrations be used in calculating cancer and chronic risks. The maximum concentration was used to calculate risk based on on-site diesel particulate emissions. The risk predicted using this equation is then compared to a risk level of ten in one million, which is the County's significance threshold with implementation of T-BACT. If the risk predicted using this equation is above ten in one million, the risk would be above the County of San Diego's significance threshold. Based on the above equation, the maximum excess cancer risk predicted at the nearest residential receptor would be 5.23 in one million. This value is below the County of San Diego's significance threshold of ten in one million with implementation of T-BACT.

In addition, the chronic hazard was calculated based on the potential for adverse non-cancer health effects associated with exposure to diesel particulate matter. It should be noted that cancer risks generally drive the potential risk assessment for diesel particulate matter. The chronic reference exposure level (REL) for diesel particulate matter is 5 $\mu g/m^3$. The hazard quotient is calculated by dividing the downwind concentration of diesel particulate matter by the REL. The chronic hazard quotient for construction of the Otay 250 - Sunroad East Otay Mesa Business Park Specific Plan Amendment would therefore be 0.0118, which is below the County's significance hazard threshold of 1.0.

Operations

Vehicular traffic may result in emissions of TACs. Minor amounts of TACs are found in light-duty vehicle exhaust; however, the main source of on-road TACs is from diesel-powered heavy-duty trucks. As discussed above, however, the three offsite residences would eventually be removed upon development of the adjacent tentative map area. Accordingly, it is anticipated that truck traffic attributable to the Project's operations would not result in an impact to these sensitive receptors.

Because it is not known exactly what types of facilities would be located at the Technology Park, and because the specific development scenario for residences versus Technology Park uses are not known at this time, it is not possible to evaluate risks at the on-site residences. However, as specific planning areas are developed, they would be required to undergo further review, which may include preparation of a site-specific health risk assessment as warranted to identify potential TAC emissions from proposed uses as well as additional sensitive receptors that may be developed as part of this Project.

Odors

Guideline for the Determination of Significance:

> *Would the proposed Project have a potentially significant environmental impact if it would create objectionable odors affecting a substantial number of people?*

Project construction could result in minor amounts of odor compounds associated with diesel heavy equipment exhaust. Because the construction equipment would be operating at various locations throughout the construction site, and because any operation that would occur in the vicinity of existing receptors would be temporary, impacts associated with odors during construction are therefore not considered significant.

During construction, diesel equipment operating at the site may generate some nuisance odors; however, due to the distance of sensitive receptors to the Project site and the temporary nature of construction, odors associated with Project construction would not be significant.

According to the SCAQMD (SCAQMD 1999), the following sources are considered odor sources:

- Agriculture (farming and livestock)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting
- Refineries
- Landfills
- Dairies
- Fiberglass molding

The Project would not include any of these odor sources at the site. The Project is designed to provide a mix of residential, employment, and retail uses: Mixed-Use Residential Emphasis; Mixed-Use Employment Emphasis; and Mixed-Use Retail Emphasis. Within the Project site, the uses could include light manufacturing and technology uses that would not include any of the odor-generating land uses listed above. The Specific Plan does not allow any of the types of land uses listed above that are identified as potential sources of objectionable odors. Furthermore, as the Project is built out with mixed uses, each subsequent Site Plan would be required to undergo additional discretionary and environmental review, and specific uses that are identified can be evaluated for potential odor impacts at the time of review. The Project is therefore not considered a source of objectionable odors from operations.

2.1.3 Cumulative Impact Analysis

Based on the County of San Diego guidelines (County of San Diego 2007), a project would result in a cumulatively significant impact if the project results in a significant contribution to the cumulative increase in pollutants for which the SDAB is listed as nonattainment for the CAAQS and NAAQS. As discussed above, the SDAB is designated as a nonattainment area for the NAAQS for ozone and the CAAQS for ozone, PM_{10}, and $PM_{2.5}$.

Cumulatively considerable net increases during the construction phase would typically happen if two or more projects near each other are simultaneously constructing projects. A project that has a significant direct impact on air quality with regard to emissions of PM_{10}, $PM_{2.5}$, NOx, or VOCs during construction would also have a significant cumulatively considerably net increase. In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other proposed projects or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines identified above.

The construction emissions would not exceed the County's screening-level thresholds for nonattainment pollutants with the exception of VOCs during one year of construction (NOx, PM_{10}, or $PM_{2.5}$). Construction emissions are anticipated within the San Diego Air Basin SIP and within the ARB's regional air emissions budgets, and are below the significance thresholds for all pollutants. Because emissions are below the screening-level thresholds for construction, emissions would not be cumulatively considerable on a regional basis.

In general, impacts associated with fugitive dust from construction are localized and would affect the area within approximately one-quarter mile of the Project site. To evaluate the potential for cumulative impacts from grading at the Project site, the following equation was used, which is utilized in the SCAQMD's Localized Significance Threshold Methodology (SCAQMD 2003) to evaluate localized PM_{10} impacts:

$$C_x = 0.9403\ C_0\ e^{-0.0462X}$$

Where C_x = predicted PM_{10} concentration at X meters from the fenceline;
C_0 = PM_{10} concentration at the fenceline;
e = natural logarithm; and
X = distance in meters from the fenceline.

Conservatively assuming C_0 equals the 24-hour ambient air quality standard of 50 $\mu g/m^3$, fugitive PM_{10} concentrations would decrease with distance from the fence line. As analyzed in the Air Quality Technical Report, by 100 meters (approximately 330 feet) from the Project boundary, the concentration of PM_{10} would decrease by 99 percent.
There are two developments located within 100 meters of the Project site: California Crossings to the west of the site adjacent to the SR-125 freeway, and the Rabago Tentative Map project to the east of the site. The California Crossings project is most likely be completed with construction by the time construction commences at the Project site; therefore, construction impacts would not combine to become cumulatively considerable.

It is likely that construction would occur at the Rabago Tentative Map site during the construction period proposed for the Project, given the duration of the project and proximity to the Project site. However, with the removal of the residential receptors located on that site, there would be no sensitive receptors that would be exposed to elevated particulate concentrations.

As stated by the California Natural Resources Agency (CNRA 2009), there is no "one molecule rule" in CEQA. In other words, the courts have ruled that addition of "one molecule" of pollutants does not constitute a cumulative impact for either localized or regional pollutants. While emissions of VOCs are above the County's threshold for construction emissions during Year 4 of construction, this is a temporary impact associated with application of architectural coatings. Emission of VOCs would be below the threshold for all other years of construction, and would not result in a long-term

impact. For that reason, impacts from VOCs are not considered cumulatively considerable.

Because the Project's construction emissions are below the County's significance thresholds, and because localized impacts would not affect a substantial number of receptors, impacts would be less than cumulatively considerable.

Emissions of nonattainment pollutants VOCs, CO, PM_{10}, and $PM_{2.5}$ (daily) and VOCs, CO, and PM_{10} (annual) would exceed the County's screening-level thresholds for operations. The Project would therefore result in a cumulatively considerable net increase in nonattainment pollutants. The evaluation of CO "hot spots" took into account cumulative traffic at the intersections, and determined that no exceedance of the CO standard would result from cumulative traffic.

Operational emissions are below the significance thresholds for all pollutants except VOCs. Emissions of VOCs are mainly attributable to consumer products use in residences and vehicles. As discussed above, emissions of VOCs attributable to vehicles would be lower due to the provision of a mix of uses (employment, residential, and commercial) within the Specific Plan Area. Emissions of VOCs attributable to consumer products use is not within the control of the applicant. Because the emissions of VOCs exceed the significance threshold, emissions of VOCs would be cumulatively considerable on a regional basis.

2.1.4 Significance of Impacts Prior to Mitigation

The proposed Project would result in emissions of air pollutants for both the construction phase and operational phase of the Project. Construction emissions would include emissions associated with fugitive dust, heavy construction equipment and construction workers commuting to and from the site. Emissions of VOCs would exceed the County's screening-level thresholds for construction. Significant direct air quality impacts would occur on short duration during construction due to VOC emissions from application of architectural coatings (**Impact AQ-1**).

Operational emissions would be associated with traffic accessing the Project and with area sources such as energy use and landscaping. Based on the evaluation of air emissions, the Project emissions would exceed the screening-level thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. Because the Project would provide a mix of uses and would provide residential uses near occupational locations, it is likely that siting these residential uses in the East Otay Mesa Business Park Specific Plan Area would reduce, rather than increase, VMT and therefore emissions on a regional basis. However, because emissions of VOCs, CO, PM_{10}, and $PM_{2.5}$ criteria pollutants would exceed the County's screening-level thresholds, impacts would be significant (**Impact AQ-2**).

A health risk assessment was conducted to evaluate the potential for Project construction or operations to result in a significant impact to nearby sensitive receptors. The risk assessment focused on diesel particulate matter, which is the main TAC

emitted from vehicles. The risk assessment concluded that risks would be less than significant, with adherence to the County of San Diego Planning and Development Services requirements that require the construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and/or ARB certified Tier III, or IV equipment.

An evaluation of odors indicated that odor impacts would be less than significant.

Emissions of nonattainment pollutants would be below the County's screening-level thresholds during construction. Emissions would comprise a small percentage of the overall emissions budget within the region. Construction emissions would be less than cumulatively considerable.

Operational emissions of VOCs, CO, PM_{10}, and $PM_{2.5}$ are above the County's screening-level thresholds and would therefore result in a cumulatively considerable impact (**Impact AQ-3**).

Thus, the following significant impacts related to air quality would occur with Project implementation:

Impact AQ-1: Emissions of VOCs would exceed the County's screening-level thresholds for construction. Significant direct air quality impacts would occur on short duration during construction due to VOC emissions from application of architectural coatings.

Impact AQ-2: Emissions of VOCs would exceed the County's screening-level thresholds for operations, resulting in direct impacts associated with air quality.

Impact AQ-3: Cumulative operational impacts would exceed County screening-level thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$. Therefore, the Project would result in significant cumulative air quality impacts associated with operations.

2.1.5 Mitigation

M-AQ-1:The Project would reduce construction emissions associated with VOC to the extent feasible by utilizing low-VOC coatings in accordance with APCD Rule 67.0.1 requirements.

The 1994 EIR and the 2000 SEIR included measures to mitigate air quality impacts. Due to the general nature of those mitigation measures and their broad application to the entire Specific Plan area, they are not applicable to the Project. There are no additional measures identified that would reduce impacts to below a level of significance.

2.1.6 Conclusion

The Project would provide a mix of uses and would be consistent with the intensity scale in the General Plan and would not result in additional vehicle trips above the levels anticipated in the General Plan. The Project would not differ from the analysis included within the RAQS and SIP to demonstrate attainment. The Project would therefore not conflict with or obstruct implementation of the RAQS and SIP.

Emissions of nonattainment pollutants would be below the County's screening-level thresholds during construction, with the exception of VOC. The emissions are mainly attributable to application of architectural coatings and would occur on short duration during construction. VOCs would exceed the threshold during Year 4 of construction (**Impact AQ-1**). Because architectural coatings would comply with the SDAPCD's low-VOC requirements, there are no additional feasible mitigation measures to reduce impacts to less than significant. VOC emissions are below the significance threshold for all other years of construction. To reduce the emissions to the extent feasible, fugitive dust control measures would be implemented during construction. Measures that are incorporated into the Project description as design features to reduce emissions associated with construction include the following:

- Application of water three times daily during grading on active grading sites.
- Reduce speeds to 15 mph on unpaved roads.
- Clean paved roads.
- Use architectural coatings with a VOC content of 100 g/l or less for exterior coatings and 50 g/l or less for interior coatings.
- Require the construction fleet to use any combination of catalytic converters, diesel oxidation catalysts, diesel particulate filters, and/or ARB certified Tier III or Tier IV equipment.
- Use of low-VOC coatings in accordance with APCD Rule 67.0.1 requirements.

These measures constitute best management practices for dust control, architectural coatings, diesel particulate, and construction equipment emissions. There are no additional mitigation measures that would reduce construction VOC emissions to less than significant levels. Therefore, direct air quality impacts associated with construction would remain significant and unmitigated.

Operational emissions would be associated with traffic accessing the Project, and with area sources such as energy use and landscaping. Based on the evaluation of air emissions, the Project emissions would exceed the screening-level thresholds for VOCs, CO, PM_{10}, and $PM_{2.5}$ (**Impact AQ-2**). The Project would provide a mix of uses and would provide residential uses near occupational locations, and it is likely that siting these residential uses in the East Otay Mesa Business Park Specific Plan Area would reduce, rather than increase, VMT and therefore emissions on a regional basis. Nonetheless, because emissions of VOCs, CO, PM_{10}, and $PM_{2.5}$ criteria pollutants would exceed the County's screening-level thresholds, impacts would be significant. Project design includes features that would reduce emissions to the extent feasible,

including providing a mix of uses in the East Otay Mesa area that reduces VMT overall within the region; use of natural gas fireplaces; and providing on-site residential, employment, and retail uses. Additionally, VOC emissions include emissions from consumer products that cannot be controlled by the applicant. However, there are no additional measures identified that would reduce impacts to below a level of significance.

Relative to cumulative air quality impacts associated with construction, emissions would comprise a small percentage of the overall emissions budget within the region. Construction emissions are anticipated within the San Diego Air Basin SIP and within the ARB's regional air emissions budgets, and are below the significance thresholds for all pollutants. Because emissions are below the screening-level thresholds for construction, emissions would not be cumulatively considerable on a regional basis.

Operational emissions of VOCs, CO, PM_{10}, and $PM_{2.5}$ are above the County's screening-level thresholds and would therefore result in a cumulatively considerable impact (**Impact AQ-3**). There are no mitigation measures identified that would reduce this impact to below a level of significance. However, as noted above, because the Project would provide residential uses in the East Otay Mesa area in close proximity to occupational uses, it is likely that the overall basin-wide emissions of these pollutants would be reduced due to less VMT to commute to places of employment.

The Project would not expose sensitive receptors to substantial pollutant concentrations. Additionally, the Project would not generate objectionable odors that would affect a considerable number of persons or the public. Odor impacts are less than significant.

TABLE 2.1-1. *AMBIENT BACKGROUND CONCENTRATIONS*
(ppm unless otherwise indicated)

Pollutant	Averaging Time	2013	2014	2015	Most Stringent Ambient Air Quality Standard	Monitoring Station
Ozone	8 hour	0.062	0.072	0.066	0.070	Chula Vista
	1 hour	0.073	0.093	0.088	0.09	Chula Vista
$PM_{2.5}$	Annual	9.4 µg/m^3	9.2 µg/m^3	8.3 µg/m^3	12 µg/m^3	Chula Vista
	24 hour maximum[1]	21.9 µg/m^3	26.5 µg/m^3	33.5 µg/m^3	35 µg/m^3	Chula Vista
	98th Percentile, 24 hour[1]	18.0 µg/m^3	19.3 µg/m^3	19.3 µg/m^3	35 µg/m^3	Chula Vista
PM_{10}	Annual	25.3 µg/m^3	30.1 µg/m^3	34.4 µg/m^3	20 µg/m^3	Donovan
	24 hour	65 µg/m^3	58 µg/m^3	136 µg/m^3	50 µg/m^3	Donovan
NO_2	Annual	0.011	0.011	0.010	0.030	Chula Vista
	1 hour	0.057	0.055	0.049	0.100	Chula Vista
CO	8 hour	2.1	1.9	1.9	9.0	San Diego
	1 hour	3.0	2.7	2.6	20.0	San Diego

[1]$PM_{2.5}$ 24-hour NAAQS is defined as the 98th percentile of 3 years of measurements. One exceedance does not indicate a violation of the standard.
Source: www.arb.ca.gov/aqd/aqd.htm; http://www.sdapcd.org/info/reports/5-year-summary.pdf.
Note:
$PM_{2.5}$ = particles are less than 2.5 microns in diameter
PM_{10} = particles are less than 10 microns in diameter
NO_2 = nitrogen dioxide
CO = carbon monoxide
µg/m^3 = microgram per cubic meter
ppm = parts per million

TABLE 2.1-2. *SCREENING-LEVEL THRESHOLDS FOR AIR QUALITY IMPACT ANALYSIS*

Pollutant	*Total Emissions*		
Construction Emissions			
	Lb. per Day		
Respirable Particulate Matter (PM_{10})	100		
Fine Particulate Matter ($PM_{2.5}$)	55		
Oxides of Nitrogen (NOx)	250		
Oxides of Sulfur (SOx)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOCs)[1]	75		
Operational Emissions			
	Lb. Per Hour	Lb. per Day	Tons per Year
Respirable Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	55	10
Oxides of Nitrogen (NOx)	25	250	40
Oxides of Sulfur (SOx)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6
Volatile Organic Compounds (VOC)	---	75	13.7
Toxic Air Contaminant Emissions			
Excess Cancer Risk	1 in 1 million without Toxics Best Available Control Technology (T-BACT) 10 in 1 million with T-BACT		
Non-Cancer Hazard	1.0		

TABLE 2.1-3. *AMBIENT AIR QUALITY STANDARDS*

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1 hour	0.09 ppm (176 μg/m^3)	Ultraviolet Photometry	--	--	Ethylene Chemiluminescence
	8 hour	0.070 ppm (137 μg/m^3)		0.075 ppm (147 μg/m^3)	0.075 ppm (147 μg/m^3)	
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m^3)	--	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm (56 μg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 μg/m^3)	--	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 μg/m^3)		0.100 ppm (188 μg/m^3)	--	
Sulfur Dioxide (SO_2)	24 hours	0.04 ppm (105 μg/m^3)	Ultraviolet Fluorescence	--	--	Pararosaniline
	3 hours	--		--	0.5 ppm (1300 μg/m^3)	
	1 hour	0.25 ppm (655 μg/m^3)		0.075 ppm (196 μg/m^3)	--	
Respirable Particulate Matter (PM_{10})	24 hours	50 μg/m^3	Gravimetric or Beta Attenuation	150 μg/m^3	150 μg/m^3	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 μg/m^3		--	--	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m^3	Gravimetric or Beta Attenuation	12 μg/m^3	15 μg/m^3	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 μg/m^3	--	
Sulfates	24 hours	25 μg/m^3	Ion Chromatography	--	--	--
Lead	30-day Average	1.5 μg/m^3	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 μg/m^3	1.5 μg/m^3	
	3-Month Rolling Average	--		0.15 μg/m^3	0.15 μg/m^3	
Hydrogen Sulfide	1 hour	0.03 ppm (42 μg/m^3)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride	24 hours	0.010 ppm (26 μg/m^3)	Gas Chromatography	--	--	--

ppm= parts per million; μg/m^3 = micrograms per cubic meter; mg/m^3= milligrams per cubic meter
Source: California Air Resources Board, www.arb.ca.gov, 2015, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf

TABLE 2.1-4[1]. *ASSUMED CONSTRUCTION SCHEDULE*

Project Element	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	TOTAL
Technology Park (square feet)		95.625	95,625	95,625	95,625	95,625	95,625	95,625	47,813	47,812	765,000 sq ft
Residential (units)	875	697	337	312	100						3,158 units
Retail (square feet)						78,000					78,000 sq ft
Park (acres)	8	10		9							27 acres

[1]This table provides an assumed phasing for the purpose of the air quality analysis to address emissions from construction on a programmatic level. Emissions are calculated and disclosed on this basis.

TABLE 2.1-5. *MAXIMUM DAILY CONSTRUCTION EMISSIONS BY CONSTRUCTION YEAR*

Construction Year/Phase	VOC (lbs/day)	NO_X (lbs/day)	CO (lbs/day)	SO_2 (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Site Preparation (2016)	5.14	54.71	41.91	0.05	10.75	6.68
Grading (2016)	19.11	179.41	183.22	0.16	16.05	11.36
Total 2016	24.25	234.12	225.13	0.21	26.80	18.04
Grading (2017)	17.93	167.23	174.58	0.16	15.40	10.82
2018	73.86	58.67	108.63	0.22	11.78	5.29
2019	70.55	59.70	106.54	0.22	11.49	5.30
2020	27.52	46.29	72.54	0.13	6.01	3.55
2021	76.95	56.72	105.48	0.23	12.31	5.49
2022	26.25	48.53	74.70	0.14	6.01	3.70
2023	16.60	47.52	69.16	0.12	4.69	3.36
2024	6.54	44.66	61.50	0.10	3.46	2.94
2025	6.53	44.65	61.39	0.10	3.46	2.94
2026	4.32	44.30	60.15	0.09	3.20	2.87
2027	4.32	44.29	60.10	0.09	3.20	2.87
Maximum Daily Emissions	76.95	234.12	225.13	0.22	26.80	18.04
Screening Level Thresholds (SLT)	75	250	550	250	100	55
Significant Impact?	Yes	No	No	No	No	No

Note:
VOCs = volatile organic compounds
NOx = oxides of nitrogen
CO = carbon monoxide
SOx = oxides of sulfur
PM_{10} = respirable particulate matter
$PM_{2.5}$ = fine particulate matter
Lbs = pounds

TABLE 2.1-6. *TOTAL OPERATIONAL EMISSIONS*

	VOCs	NOx	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer, Lbs/day						
Area Sources	126.99	2.98	258.24	0.01	3.66	3.63
Energy Use	1.67	14.52	7.77	0.09	1.16	1.16
Vehicular Emissions	82.41	138.40	780.31	3.13	213.22	59.10
TOTAL	**211.08**	**155.89**	**1,046.32**	**3.23**	**218.04**	**63.89**
Screening-Level Thresholds	75	250	550	250	100	55
Above Screening-Level Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*
Winter, Lbs/day						
Area Sources	126.99	2.98	258.24	0.01	3.66	3.63
Energy Use	1.67	14.52	7.77	0.09	1.16	1.16
Vehicular Emissions	86.93	147.06	820.16	2.97	213.23	59.11
TOTAL	**215.59**	**164.55**	**1,086.17**	**3.08**	**218.05**	**63.90**
Screening-Level Thresholds	75	250	550	250	100	55
Above Screening-Level Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*Yes*
Tons/year						
Area Sources	21.93	0.27	23.23	0.001	0.16	0.16
Energy Use	0.31	2.65	1.42	0.02	0.21	0.21
Vehicular Emissions	14.36	25.74	140.08	0.53	36.62	10.18
TOTAL	**36.59**	**28.66**	**164.72**	**0.54**	**37.00**	**10.55**
Screening-Level Thresholds	13.7	40	100	40	15	10
Above Screening-Level Thresholds?	*Yes*	*No*	*Yes*	*No*	*Yes*	*No*

Note:
VOCs = volatile organic compounds
NOx = oxides of nitrogen
CO = carbon monoxide
SOx = oxides of sulfur
PM_{10} = respirable particulate matter
$PM_{2.5}$ = fine particulate matter
Lbs = pounds

TABLE 2.1-7. *CO "HOT SPOTS" EVALUATION*

Existing plus Project		
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm; Background 2.7 ppm		
Intersection		
	am	*pm*
Otay Mesa Road and La Media Road	3.1	3.1
Otay Mesa Road and Harvest Road	3.0	3.1
Otay Mesa Road and Sanyo Road	3.0	3.0
Otay Mesa Road and Vann Centre Boulevard	2.9	2.9
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm; Background 1.9 ppm		
Otay Mesa Road and La Media Road	2.2	
Otay Mesa Road and Harvest Road	2.2	
Otay Mesa Road and Sanyo Road	2.1	
Otay Mesa Road and Vann Centre Boulevard	2.0	
Cumulative 2020		
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm; Background 2.7 ppm		
Intersection		
	am	*pm*
Otay Mesa Road and La Media Road	2.9	3.0
Otay Mesa Road and Harvest Road	3.1	3.1
Otay Mesa Road and Sanyo Road	3.1	3.2
Otay Mesa Road and Vann Centre Boulevard	3.0	3.0
Airway Road and Sanyo Road	2.9	2.9
Airway Road and Paseo de las Americas	2.9	2.9
Siempre Viva Road and Paseo de las Americas	3.1	3.0
Siempre Viva Road and Enrico Fermi Drive	3.0	2.9
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm; Background 1.9 ppm		
Otay Mesa Road and La Media Road	2.1	
Otay Mesa Road and Harvest Road	2.2	
Otay Mesa Road and Sanyo Road	2.3	
Otay Mesa Road and Vann Centre Boulevard	2.1	
Airway Road and Sanyo Road	2.0	
Airway Road and Paseo de las Americas	2.0	
Siempre Viva Road and Paseo de las Americas	2.2	
Siempre Viva Road and Enrico Fermi Drive	2.1	

TABLE 2.1-8. *DIESEL PARTICULATE EMISSIONS – CONSTRUCTION PHASE*

Construction Phase	Tons of Diesel Particulate
Site Preparation	0.1763
Grading (2016)	0.5509
Grading (2017)	0.6124
2018	0.3478
2019	0.3787
2020	0.3395
2021	0.3687
2022	0.3646
2023	0.2882
2024	0.2466
2025	0.2122
2026	0.2122
2027	0.2122

TABLE 2.1-9. *RISK ASSESSMENT EXPOSURE FACTORS*

Risk Calculation Parameters	Breathing Rate/Body Weight. L/kg-day	Age Sensitivity Factor	Exposure Duration, years	Averaging Time, years	Fraction of Time at Home
Time Period of Exposure, years	**High End BR/BW**	**ASF**	**ED**	**AT**	**FAH**
3rd Trimester	361	10	0.25	70	0.85
0<2	1090	10	2	70	0.85
2<16	745	3	14	70	0.72
16<30	335	1	14	70	0.73
Cancer Potency Factors					
Diesel Particulate	1.10E+00(mg/kg-day)$^{-1}$				

Source: OEHHA 2015
Notes:
mg = milligram
kg = kilogram