SUBCHAPTER 2.2

AIR QUALITY

2.2 Air Quality

Air quality issues were addressed in the 1981 Sycamore Springs EIR and 1983 Hewlett Packard EIR. The 1981 EIR provided information related to air quality monitoring based on data from the Temecula monitoring station. Incremental impacts related to then-proposed project uses associated with vehicles, electricity generation, and wood-burning fireplaces were identified. These effects, as well as those resulting from construction-period dust generation and fumes, were identified as significant but mitigable. The 1983 EIR provided 1979, 1980, and 1981 air quality data for criteria pollutants based on the Escondido monitoring station. Compliance analysis focused on those data with the remainder of text addressing projected pollutant generation based on the mix of uses proposed (manufacturing, residential, research, etc.). Significant project-direct, as well as a significant contribution to cumulative/regional, air quality impacts were identified in 1983.

Project-specific pollutant generation varies by type of proposed use. The uses proposed in 1981 (a large-scale mobile-home park and golf course) and 1983 (mixed residential, commercial uses, and large-scale light industrial/manufacturing complex) would generate quantities and types of pollutants that would differ from those generated under the current Project, which proposes a different mix of multi-family residential, general commercial, and limited impact industrial uses.

Since certification of the 1981 and 1983 documents, the importance of construction-period emissions, as well as some additional categories of pollutant emissions (e.g., particulate matter less than 2.5 microns in diameter [$PM_{2.5}$]), has become better understood. Even more recently, the issue of climate change/greenhouse gases (GHGs) has been incorporated into baseline adequacy requirements (refer to Section 3.1.1, Climate Change). A new analysis, therefore, has been prepared based on current County guidelines and a new Air Quality Analysis Report for Campus Park West (HELIX 2013b). The report is included in Appendix C of this EIR.

2.2.1 Existing Conditions

2.2.1.1 *Regional Meteorology/Climate*

The Project site is located in the San Diego Air Basin (SDAB). The climate of San Diego County is characterized by hot, dry summers and mild, wet winters and is dominated by a semi-permanent, high-pressure cell located over the Pacific Ocean. Wind monitoring data recorded at the Gillespie Field Airport Station indicates that the predominant wind direction in the vicinity of the project site is from the west. Average wind speed in the vicinity is approximately 5.9 miles per hour (2.6 meters per second). The annual average temperature in the project area is approximately 55 degrees Fahrenheit (ºF) during the winter and approximately 74ºF during the summer. Total precipitation in the project area averages approximately 16.2 inches annually. Precipitation occurs mostly during the winter and relatively infrequently during the summer (Western Regional Climate Center 2012).

The atmospheric conditions of the SDAB contribute to the region's air quality problems. Due to its climate, the SDAB experiences frequent temperature inversions. Typically, temperature decreases with height. Under inversion conditions, however, temperature increases as altitude increases. Temperature inversions prevent air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere, creating a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and nitrous oxides react under strong sunlight, creating smog. Light, daytime winds, predominately from the west, further aggravate the condition by driving the air pollutants inland, toward the foothills.

High air pollution levels in coastal communities of San Diego often occur when polluted air from the South Coast Air Basin, particularly Los Angeles, travels southwest over the ocean at night, and is brought onshore into San Diego by the sea breeze during the day. Smog transported from the Los Angeles area is a key factor on more than 50 percent of the days San Diego exceeds clean air standards. Ozone and precursor emissions are transported to San Diego during relatively mild Santa Ana weather conditions, although during strong Santa Ana weather conditions, pollutants are pushed far out to sea and miss San Diego. When smog is blown in from the SDAB at ground level, the highest O_3 concentrations are measured at coastal and near-coastal monitoring stations. When the transported smog is elevated, coastal sites may be passed over, and the transported ozone is measured further inland and on the mountain slopes.

2.2.1.2 *Air Pollutants of Concern*

Federal and state laws regulate air pollutants emitted into the ambient air by stationary and mobile sources. These regulated air pollutants are known as "criteria air pollutants" and are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Secondary pollutants form in the air when primary pollutants react or interact. Criteria pollutants are defined by state and federal law as a risk to the health and welfare of the general public. Specific descriptions of health effects for each of the following air pollutants are in Appendix C.

- **Ozone**. Ozone is formed when volatile organic compounds (VOCs) and oxides of nitrogen (NO_X), both by-products of fuel combustion, react in the presence of ultraviolet light.

- **Carbon Monoxide**. Carbon Monoxide (CO) is a product of fuel combustion; the main source of CO in the SDAB is from motor vehicle exhaust.

- **Nitrogen Dioxide**. 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.

- **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. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, fuel combustion, tire and brake wear, construction operations and windblown dust.

- **Sulfur Dioxide**. 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.

- **Lead**. Lead (Pb) in the atmosphere occurs as particulate matter. Lead 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.

- **Sulfates**. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur.

- **Hydrogen Sulfide**. Hydrogen sulfide (H_2S) is a colorless gas formed during bacterial decomposition of sulfur-containing organic substances.

- **Vinyl Chloride**. Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas 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.

- **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. These particles in the atmosphere would obstruct the range of visibility. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze.

The public's exposure to toxic air contaminants (TACs) is another environmental health issue in California. 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. The Health and Safety Code (§39655, subd. (a).) defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Federal Act (42 United States Code [USC] Section 7412[b]) is a TAC; these substances are controlled under a different regulatory process than criteria pollutants. Under state law, the California Environmental Protection Agency (CalEPA), acting through the California Air Resources Board (CARB), is authorized to identify a substance as a TAC if it determines the substance meets the Health and Safety Code definition above.

2.2.1.3 *Regulatory Setting*

Federal and State Regulations and Standards

At the federal level, the U.S. Environmental Protection Agency (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 National Ambient Air Quality Standards (NAAQS), which identify concentrations of airborne pollutants below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for criteria pollutants (specifically, ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead). 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.

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The state agency responsible for coordination of state and local air pollution control programs is the CARB, which established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California Clean Air Act of 1988 (CCAA), and also has established CAAQS for additional pollutants, including sulfates, H_2S, vinyl chloride and visibility-reducing particles.

CARB also is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program and the State Implementation Plan (SIP) with input from local agencies. The San Diego Air Pollution Control District (SDAPCD) has developed its input to the SIP, which includes the SDAPCD's plans and control measures for attaining the ozone NAAQS. SDAPCD submitted an air quality plan to USEPA in 2007; the plan demonstrated how the 8-hour ozone standard would be attained by 2009. Despite best efforts, SDAB did not meet the ozone NAAQS in 2008 and 2009, and the SDAPCD is currently revising their air quality plan. 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 CARB, and the emissions and reduction strategies related to mobile sources are considered in the Regional Air Quality Strategy (RAQS) and SIP.

On July 26, 2007, CARB adopted vehicle regulations to reduce diesel emissions from heavy-duty diesel equipment (CARB 2007a). The regulation requires any person who owns or operates off-road diesel equipment to apply exhaust retrofits to capture pollutants and to quickly re-power heavy polluting fleets with newer, cleaner engines. The compliance date for large fleets (greater than 5,000 hp) was originally scheduled for March 2010. As of February 2010, some of the provisions have been identified as currently unenforceable. CARB is still working toward achieving the stated commitments, however, and it is assumed that this or a similarly effective regulation will be in place during Project construction.

Local Regulations and Standards

Areas that do not meet the NAAQS or CAAQS for a particular pollutant are considered to be "non-attainment areas" for that pollutant. CARB 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 local air district 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 SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations for San Diego County.

The SDAPCD and San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County RAQS was initially adopted in 1991, and was updated in 1995, 1998, 2001, 2004 and 2009. The local RAQS, in combination with those from all other California non-attainment areas with serious (or worse) air quality problems, is submitted to the CARB, which develops the SIP.

The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the County as part of the development of the County's General Plan, and by cities within the County. As such, projects that propose development that is consistent with, or less dense than, the growth anticipated by the general plans would be consistent with the RAQS. If a project proposed development greater than that anticipated in a general plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality.

In addition, SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material causing nuisance to a considerable number of persons or endangers the comfort, health or safety of any person. Rule 55 prohibits construction activity that would discharge fugitive dust emissions into the atmosphere beyond the property line. Finally, Rule 67 prohibits the use of architectural coatings (i.e., paints) that would exceed VOC content limits specified for each coating category in the rule.

Air Basin Attainment Status

Federal Attainment

On April 30, 2012, the SDAB was classified as a marginal nonattainment area for the 8-hour NAAQS for ozone. The SDAB is an attainment area for the NAAQS for all other criteria pollutants. The SDAB currently falls under a national "maintenance plan" for CO, following a 1998 redesignation as a CO attainment area (SDAPCD 2010).

State Attainment

The SDAB is currently classified as a non-attainment area under the CAAQS for ozone (serious non-attainment), PM_{10} and $PM_{2.5}$ (CARB 2009).

Each nonattainment area must submit a SIP outlining the combination of local, state, and federal actions and emission control regulations necessary to bring the area into attainment as expeditiously as practicable. Then, even after the nonattainment area attains the air quality standard, it will remain designated a nonattainment area unless and until the state submits a formal request for redesignation to attainment to the USEPA. The request must include a "maintenance" plan demonstrating that the area will maintain compliance with that NAAQS for at least 10 years after USEPA redesignates the area to attainment.

The SDAPCD is now requesting redesignation of San Diego County to attainment of the 1997 ozone NAAQS. Because the region attained the standard in 2011, and this request for redesignation to attainment is being submitted prior to the June 2013 SIP submittal due date, those Moderate area SIP requirements will not apply after USEPA redesignates San Diego County to attainment for the 1997 ozone NAAQS. Instead, the Maintenance Plan included in this SIP submittal will fulfill that SIP submittal requirement (SDAPCD 2012). In addition, the SDAPCD is currently drafting its *Ozone Redesignation Request and Maintenance Plan*, which calls for the SDAB to attain the 1997 federal 8-hour ozone NAAQS. As of September 12, 2012, the SDAPCD has released a working draft *Ozone Redesignation Request and Maintenance Plan* for public review.

A more detailed discussion of the redesignation request and maintenance plan is provided in Appendix C. Refer to Table 2 in the appendix for a summary of the region's attainment status for all applicable criteria pollutants.

2.2.1.4 *Background Air Quality*

Table 2.2-1, Ambient Air Quality Standards, presents a summary of the adopted ambient federal and state air quality standards that are used to determine attainment or non-attainment.

The SDAPCD operates a County-wide network of air monitoring stations to measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and NAAQS. The nearest ambient monitoring stations to the Project site are the Escondido East Valley Parkway station and the San Diego 12th Avenue station (which is the closest station that measures SO_2). There is no ambient monitoring station in the Fallbrook or other nearby areas of the Project site. Because both the Escondido East Valley Parkway and San Diego 12th Avenue monitoring stations are located in areas where there is substantial traffic congestion, it is likely that pollutant concentrations measured at those monitoring stations are higher than concentrations that would be observed or measured in the Project area, and would thus provide a conservative estimate of background ambient air quality.

In particular, concentrations of CO at the Escondido monitoring station tend to be among the highest in the SDAB due to the fact that the monitor is located along East Valley Parkway in a congested area in downtown Escondido. The station sees higher concentrations of CO than have historically been measured elsewhere in San Diego County, and the background data are not likely to be representative of background ambient CO concentrations at the Project site due to the site's location in a less developed area.

Ambient concentrations of pollutants over the last five years are presented in Table 2.2-2, Ambient Background Concentrations – San Diego Monitoring Stations. The federal 8-hour ozone standard was exceeded at the Escondido monitoring station 3 times in 2007, 13 times in 2008, 1 time in 2009, 3 times in 2010, and 2 times in 2011. The federal 24-hour $PM_{2.5}$ standard was exceeded 11 times in 2007, 3 times in 2008, 2 times in both 2009 and 2010, and 3 times in 2011. The 1-hour state ozone standard was exceeded nine times in 2008 at the Escondido monitoring station, zero times in 2007 and 2009, two times in 2010, and one time in 2011. The 8-hour state ozone standard was exceeded 5 times in 2007, 23 times in 2008, 9 times in 2009, 5 times in 2010, and 2 times in 2011. The Escondido monitoring station measured exceedances of the state 24-hour PM_{10} standard two times in 2007, one time in both 2008 and 2009 and not once in 2010 and 2011. The annual PM_{10} and $PM_{2.5}$ standards were exceed in most years. The data from the monitoring stations indicate that air quality is in attainment of all other federal and state NO_2, CO and SO_2 standards.

2.2.2 Analysis of Project Effects and Determination as to Significance

The following air quality analysis does not make a distinction between on- and off-site Project effects because emissions attributable to such impacts would occur within the SDAB regardless of their location. With regard to operational emissions, the analysis generally evaluates the worst-case of the two land use scenarios. If there are substantive differences between **Scenarios 1** and **2**, both land use scenarios are analyzed.

2.2.2.1 *Conformance to the RAQS*

Guideline for the Determination of Significance

The Proposed Project would have a potentially significant environmental impact if it would:

1. Conflict with or obstruct the implementation of the San Diego RAQS and/or applicable portions of the SIP.

Guideline Source

Guideline No. 1 is taken from the County Guidelines for Determining Significance – Air Quality (March 19, 2007).

Analysis

As noted above, consistency with the RAQS and SIP is determined by evaluating consistency of a project with growth anticipated in the relevant General Plan. As noted in Section 2.2.1.3, if a project proposes development that is greater than anticipated in the relevant General Plan and

SANDAG's growth projections upon which the RAQS is based, the project potentially would conflict with the RAQS and SIP, and further analysis would be warranted to determine if the project and surrounding projects exceed the growth projections used in the RAQS and SIP for the specific subregional area. Also, projects that are consistent with the SIP rules (i.e., the federally approved rules and regulations adopted by the SDAPCD) are consistent with the SIP.

The current RAQS and SIP are based on projections for residential, commercial, industrial and recreational land uses contained in the previous County General Plan that was in place at the time the RAQS were adopted in 2009. Implementation of the Project would result in fewer residential dwelling units and increased commercial and industrial development than assumed in the previously adopted County General Plan for the North County East Major Statistical Area, in the Fallbrook Subregional Area. Specifically, the total number of dwelling units for residential land uses is proposed to decrease from 486 units assumed in the Hewlett Packard Campus Park Specific Plan (SP-83-01) approved in 1983 to 283 units. The total number of acres for the commercial retail and industrial office land uses is proposed to increase from 10.5 acres of commercial land uses to 52.4 acres (with a maximum of 503,500 s.f. [**Scenario 1**] to 513,500 s.f. [**Scenario 2**]) of general commercial and 12.9 acres (with a maximum of 120,000 s.f.) of industrial office land uses. Both of these proposed commercial land uses, however, are less than the 2.5 million square feet approved for the commercial land uses at the Project site under the prior General Plan. Regardless, since the Project proposes commercial and industrial development greater than that anticipated in the previous General Plan (even though residential development would be less), further analysis is warranted.

As noted above, the Project proposes up to 283 residential dwelling units. The Project's projected growth of 283 dwelling units, when added to the cumulative housing units projected for the Fallbrook Subregional Area, based on the cumulative projects identified on Table 1-4 of this EIR, totals approximately 3,379 units. The total cumulative housing projected for the Fallbrook Subregional Area for 2030 according to SANDAG projections is an additional 9,630 DU. Based on information regarding development projects currently proposed within the Project cumulative study area, the Project and surrounding projects would result in less residential growth than SANDAG's 2030 projected growth for the Fallbrook Subregional Area.

The Project proposes 52.4 (**Scenario 1**) to 53.6 (**Scenario 2**) acres of general commercial uses, and 12.6 acres of limited impact industrial uses regardless of scenario. The Project's projected size of the commercial retail and light industrial area would be greater than in the previously-adopted General Plan, which anticipates 10.5 acres of commercial land uses. Development proposed by implementation of the proposed Project would be required to be consistent with the emission reduction strategies 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. The Project also would be required to comply with all applicable rules and regulations adopted by the SDAPCD.

As previously mentioned, the SDAPCD is currently drafting its *Ozone Redesignation Request and Maintenance Plan*, which calls for the SDAB to attain the 1997 federal 8-hour ozone NAAQS (SDAPCD 2012). As part of that draft document, SDAPCD will outline the County's contribution to the *Eight-Hour Ozone Attainment Plan* (i.e., SIP) for the 2008 8-hour NAAQS for ozone, and the Plan will outline strategies and measures to reduce emissions of ozone precursors. The SIP strategies mainly focus on stationary sources through adoption of rules by the SDAPCD, and on mobile sources through adoption of transportation control measures. According to the 2011 General Plan, Goal COS-13 regarding land use development implements policies designed to reduce emissions of criteria pollutants while protecting public health (County 2011). These policies include the following:

- COS-13.1 **Design and Construction of New Development**. Require new development design and construction methods to minimize impacts to air quality.

- COS-13.2 **Reduction of Vehicular Trips**. Encourage future development to reduce vehicular trips by utilizing compact regional and community-level development patterns.

- COS-13.3 **Villages and Rural Villages**. Encourage new development to reduce air pollution by incorporating a mixture of uses within Villages and Rural Villages that encourage people to walk, bicycle, or use public transit.

- COS-13.4 **Minimize Air Pollution**. Minimize land use conflicts that expose people to significant amounts of air pollution.

The Project has been developed to include smart growth concepts which cluster residential uses around services and jobs and help to reduce the average vehicle miles traveled (VMT) for the average commuter. The Project Traffic Impact Analysis by Linscott, Law and Greenspan (LLG 2013) assumes that the combined mixed uses of Campus Park West, Campus Park and Meadowood would reduce trips by 30 percent (an internal capture rate). Buses would also serve the Project area, further reducing vehicle trips and serving to reduce mobile emissions. In addition, the emissions estimates calculated for the Proposed Project assumed that dust control measures (i.e., watering three times per day, soil stabilizers, sweeping) during Project construction would comply with strategies in RAQS (SDAPCD 2009), as well as SDAPCD Rule 55, for attaining and maintaining the air quality standards and minimizing construction effects on regional air quality. Construction of the Project would therefore not conflict with or obstruct the implementation of the RAQS or applicable portions of the SIP.

Because the Project would have less residential development, addresses several RAQS control measures for operation and construction, and addresses the General Plan goals that are relevant to the Project site through clustering uses to reduce VMT, the Project would be consistent with the RAQS and SIP. Impacts would be **less than significant.**

When the RAQS are updated in the future, they will incorporate the land use designation for the Project site contained in the current General Plan or the proposed General Plan Amendment, whichever is in place at the time of the revisions. Therefore, the Project ultimately would be consistent with the emissions projections in the RAQS.

2.2.2.2 *Conformance to Federal and State Ambient Air Quality Standards*

Guideline for the Determination of Significance

The Proposed Project would have a potentially significant environmental impact if it would:

2. Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation, as follows:

   a. Ozone Precursors: The Project would result in emissions that exceed 250 pounds per day (lbs/day) of NO_X, or 75 lbs/day of VOCs.
   b. Carbon Monoxide: The Project would result in emissions of carbon monoxide of 550 lbs/day, and when totaled with the ambient concentrations would exceed a 1-hour concentration of 20 parts per million (ppm) or an 8-hour average of 9 ppm.
   c. Fine Particulate Matter: The Project would result in emissions of $PM_{2.5}$ that exceed 55 lbs/day.
   d. Particulate Matter: The Project would result in emissions of PM_{10} that exceed 100 lbs/day and increase the ambient PM_{10} concentration by 5 micrograms per cubic meter (5.0 $\mu g/m^3$) or greater at the maximum exposed individual.

Guideline Source

Guideline No. 2 is taken from the County Guidelines for Determining Significance – Air Quality (March 19, 2007).

Analysis

The County recognizes the SDAPCD's established screening level thresholds for air quality emissions (Rules 20.1 et seq.) as screening-level thresholds for land development projects. As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 for the preparation of Air Quality Impact Assessments (AQIA). The County has also adopted the South Coast Air Quality Management District's (SCAQMD's) screening threshold of 55 lbs/day or 10 tons per year as a significance threshold for $PM_{2.5}$. The screening thresholds used in the following analysis are included in Table 2.2-3, Screening-level Thresholds for Air Quality Impact Analysis.

Project Construction

Modeling Assumptions

Construction activities associated with the Project would create diesel emissions, and would generate emissions of dust. In general, emissions from diesel-powered equipment contain more NO_X, oxides of sulfur (SO_X), and particulate matter than gasoline-powered engines. However, diesel-powered engines generally produce less CO and less reactive organic gases than do gasoline-powered engines. Standard construction equipment includes dozers, rollers, scrapers, backhoes, loaders, paving equipment, delivery/haul trucks, and so on. Emissions associated with construction of the Project were calculated using the California Emission Estimator Model (CalEEMod) assuming that construction would generally begin in January 2015 and last until 2025. This results in conservative (greatest impact) projections, as construction activities have been compressed into the first two thirds of what might actually be a 15-year buildout. Results of the modeling are presented in Appendix C and summarized below.

Under the first potential phasing option (Option 1), construction activities are assumed to occur in three separate phases (i.e., Phase 1, Phase 2, and Phase 3); as the specific tasks to be completed daily during each phase would not be exactly comparable, the worst case construction day for each phase was chosen for the purpose of the air quality analysis. For purposes of calculating construction emissions, construction activities have been broken into several distinct stages of activity, as follows:

<u>Phase 1 Construction Activities</u>. Phase 1 construction activities would include mass grading of the entire 116.5-acre Project site.

<u>Phase 2 Construction Activities</u>. Phase 2 construction activities would involve the utility installation at the Project site. This would include all the elements necessary to support developed uses on site, such as widening of SR-76, road connections to Pala Mesa Drive, off-site potable water and sewer pipelines if not already in place, one to two potential pump stations and the sewer main in Pankey Road. Detention basins also would be completed during this phase.

These efforts are anticipated to take between 6 months and a year, regardless of whether **Scenario 1** or **Scenario 2** of the Proposed Project is implemented, for a total of one year to 18 months for grading and infrastructure.

<u>Phase 3 Construction Activities</u>. <u>A conservative approach (assuming operations during construction) was analyzed. A likely scenario for</u> Phase 3 construction activities would include the following:

- Vertical construction to generally trend south to north, as described in Section 1.2.2.6 of this EIR. The analysis anticipated that the commercial parcels south of SR-76 would be developed first (PAs 4 and 5), the general commercial retail area north of SR-76 (PA 2) would be developed second, the residential area (PA 3) would be developed third, and the light industrial/office area (PA 1) would be developed last, as described in Section 1.2.2.6.

Phase 3 is anticipated to take 10 to 15 years regardless of whether **Scenario 1** or **Scenario 2** of the Proposed Project is implemented.

The following four options were selected in the CalEEMod model: mass site grading, building construction, paving, and architectural coatings. Grading activity would be substantially balanced, meaning that no significant quantity of soil would be transported off site for disposal nor would soil be transported on site for use in construction activities.

The main source of NO_X and VOC emissions during construction are emissions from heavy construction equipment and architectural coating, respectively. In accordance with County PDS requirements, the Project would require the entire construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and/or CARB-certified Tier 4 equipment. For off-road construction equipment, all applicable off-road diesel equipment would use engines compliant with USEPA's Tier 4 emissions standards for non-road diesel equipment. Emissions were estimated based on phasing and equipment data assumed for the Project and the respective emission factors from OFFROAD2007 data module in CalEEMod model. Specifically, CARB requirements note that all off-road diesel-powered construction equipment greater than 50 hp is required to meet the Tier 4 emission standards, where available, and any associated emissions control devices are required to achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. In addition, the Project would utilize low-VOC coatings in accordance with SDAPCD Rule 67.0 requirements. With use of the construction fleet retrofit and/or repower and use of low-VOC coatings, the Project would minimize emissions to the extent feasible. Fugitive dust (including visible dust) would be controlled in accordance with SDAPCD Rule 55 requirements to use water, soil stabilizers, and other methods.

Under the other phasing option (Option 2), Phase 1 grading activities would include the commercial parcels south of SR-76, the commercial parcel north of SR-76 and west of Pankey Road, and Pankey Road and Pala Mesa Drive. The remainder of the site could be graded following vertical construction activities in these areas. During the Phase 1 (Option 2), mass grading and backbone infrastructure activities may occur or overlap on any single peak day during the construction period.

Impacts

As previously noted, construction emissions were estimated using the CalEEMod Version 2011.1.1 (SCAQMD 2011) and construction equipment estimates were from Project Design Consultants and default values in the model. Table 2.2-4, Grading (Option 1) and Backbone Infrastructure Construction Emissions, provides a summary of the Phase 1 and 2 construction emission estimates. Table 2.2-5, Grading (Option 2) and Backbone Infrastructure Construction Emissions, provides a summary of the construction emission estimates for Phase 1 (Option 2).

As noted above, it was assumed that dust control measures (watering a minimum of three times daily) would be employed to reduce emissions of fugitive dust during site grading. The resultant emissions from the combined Phase 1 and Phase 2 activity are compared to the daily emission thresholds to determine significance. As shown in Tables 2.2-4 and 2.2-5, with application of USEPA Tier 4 equipment, CARB diesel particulate filter devices, SDAPCD Rule 55 and best management practices to control emissions of fugitive dust, emissions of all criteria pollutants, including PM_{10} and $PM_{2.5}$, would be below the daily thresholds during construction.

For structure construction associated with Phase 3, development of the residential, commercial, and limited impact industrial land uses would occur in sequential order as described in Section 1.2.2.6, Project Phasing, of this report. None of these construction phases would overlap, although operations would overlap with some of the construction periods, as discussed below under *Project Operations*. The resultant emissions from structure construction for the various PAs are compared to the daily emission thresholds to determine significance in Table 2.2-6, Commercial Development (PAs 4 and 5) Construction Emissions, Table 2.2-7, Mixed-Use and Commercial Development (PA 2) Construction Emissions, Table 2.2-8, Residential Development (PA 3) Construction Emissions, and Table 2.2-9, Limited Impact Industrial Development (PA 1) Construction Emissions. The Phase 2 construction emissions were estimated and are presented herein based on the overall project implementation schedule (i.e., PAs 4 and 5, PA 2, PA 3 and PA 1).

The structure construction emissions estimates indicate that with the use of USEPA Tier 4 equipment and CARB diesel particulate filter devices, and application of SDAPCD Rule 55 and best management practices to control emissions of fugitive dust, emissions of all criteria pollutants, including PM_{10} and $PM_{2.5}$, during each stand-alone construction phase would be below the screening-level thresholds and construction impacts would be **less than significant**. If, however, general commercial (in PAs 4 and 5) are in place and operational during construction of the mixed-use core and general commercial uses (in PA 2), impacts would combine, as discussed under Project Operations. Similar, if PAs 2, 4, and 5 are operational while multi-family residential (PA 3) is constructed, impacts would combine.

Project Operations

Modeling Assumptions

The main operational impacts associated with the Project would be traffic related; impacts associated with area sources such as energy use, landscaping, and the use of fireplaces at the residences also would occur.

Based on the TIA, at full buildout **Scenario 1** would generate 36,206 average daily trips (ADT) associated with the residential, mixed-use core and commercial, and limited impact industrial uses. This ADT does not reflect the 30 percent internal capture rate reduction assumed by LLG in Appendix D (LLG Engineers 2013). The air quality modeling used the gross trip generation rate to reflect the worst-case daily emission conditions. To estimate emissions associated with Project-generated traffic, the EMFAC2007 emission program (CARB 2007b) inside the CalEEMod model was used. Equipment emission factors representing the state-wide vehicle mix for emission analysis years 2015 through 2025 were used to estimate emissions. Based on the results of the model for subsequent years, emissions would decrease on an annual basis from 2015 onward due to phase-out of higher polluting vehicles and implementation of more stringent emission standards. Default vehicle speeds, trip rates, trip lengths, trip purpose, and trip type percentages for each land use type were applied in the CalEEMod model. All residential units were assumed to have natural gas fireplaces. Area source emissions, including emissions from energy use, fireplaces, landscaping, and maintenance use of architectural coatings, were calculated using the CalEEMod model.

Results of the modeling are presented in detail in Appendix C and summarized below.

Near-term Operational Impacts

Operational emission calculations were conducted for the five planning areas using the CalEEMod model; model outputs are provided in Attachment A to Appendix C. The resultant emissions from operations of the various PAs are individually compared to the daily emission thresholds to determine significance in Table 2.2-10, Commercial Development (PAs 4 and 5) Operational Emissions, Table 2.2-11, Mixed-Use and Commercial Development (PA 2) Operational Emissions, Table 2.2-12, Residential Development (PA 3) Operational Emissions, and Table 2.2-13, Light Industrial Development (PA 1) Operational Emissions. As shown in these tables, emissions of all criteria pollutants during operation of PA 1, 3, 4, and 5 would be below the daily thresholds. However, operational emissions for PA 2 would exceed the thresholds for VOC, CO, and PM_{10} and Project implementation would result in a **significant impact**. **(Impact AQ-1)**

Because the Project would be phased over a period of 10 or more years, it was assumed that peak construction of mixed-use core/general commercial (PA 2) and operation of the general commercial development south of (PAs 4 and 5) would overlap, as would peak construction for commercial development (PAs 2, 4 and 5) and residential operations (PA 3), and then all PAs to the south during construction of PA 1. Because the operational phasing would be the same under both land use scenarios, the construction-operations overlap would occur regardless of which scenario would be implemented, although the extent of impact would be affected by which scenario is implemented. The combined (construction plus operational) emissions are compared for both **Scenarios 1** and **2** with the daily emission thresholds in Table 2.2-14, Combined Commercial Operations plus Mixed-use Core/Commercial Construction Emissions, Table 2.2-15, Combined Mixed-use/Commercial and Commercial Operations plus Residential Construction Emissions, and Table 2.2-15, Combined Mixed-use/Commercial, Commercial and Light Industrial Operations plus Residential Construction Emissions, to evaluate the worst-case condition with regard to daily air pollutant emissions. As shown in the tables, should long-term operations of the Proposed Project combine with latter phases of near-term construction, air pollutant emissions would exceed the screening level thresholds for all pollutants, except for NO_X, SO_2 and $PM_{2.5.}$

Although the Project incorporates some features designed to reduce the number and distance of the Project-related trips and minimize operational emissions associated with energy and water usage, there are no feasible mitigation measures to reduce emissions from the remaining Project-related traffic. Therefore, impacts from emissions for the combined construction and operational phases in the near-term would be **significant. (Impact AQ-2)**

Long-term Operational Impacts

The model was run for the conservative build-out year of 2025. The results of the emission calculations, in pounds per day, are summarized in Table 2.2-17, Total Operational Emissions 2025, along with emissions associated with area sources and a comparison with the screening level thresholds.

Based on projected emissions associated with long-term Project operations, including all five planning areas, the emissions of VOCs, CO, and PM_{10} due to Project related traffic would be above screening level thresholds in 2025. Although emission levels would decrease over time with phase-out of older vehicles and implementation of increasingly stringent emission controls, long-term operational impacts for VOCs, CO, and PM_{10} would be **significant. (Impact AQ-3)**

CO Hot Spots

Because the CO emissions associated with the Project in both near-term and long–term scenarios were estimated to be above the screening-level thresholds, an analysis was conducted in accordance with Caltrans guidance to evaluate whether these emissions would cause a ground-level exceedance of the NAAQS or CAAQS for CO. Locally high concentrations of CO due to traffic are known as CO "hot spots." The Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol (Caltrans 1998) was followed to determine whether a CO "hot spot" is likely to form due to Project-generated traffic. In accordance with the Protocol, CO "hot spots" are typically evaluated when: (a) the level of service (LOS) of an intersection or roadway decreases to a 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 (LLG Engineers 2013) evaluated the level of Service (LOS) at 38 intersections in the Project vicinity for the Existing, Existing + Project, and Existing + Project + Cumulative, conditions. The CO "hot spots" would be possible at intersections that would operate in future years at LOS E or F with or without Project traffic. Based on the traffic analysis, the Project would degrade LOS at the following 20 intersections:

- E. Mission Road at Old Highway 395
- Mission Road at I-15 SB Ramps
- Mission Road at I-15 NB Ramps
- Reche Road at Old Highway 395
- Stewart Canyon Road at Old Highway 395
- Pala Mesa Road at Old Highway 395
- SR-76 (Pala Road) at E. Vista Way
- SR-76 (Pala Road) at N. River Road
- SR-76 (Pala Road) at Olive Hill Road
- SR-76 (Pala Road) at S. Mission Road
- SR-76 (Pala Road) at Via Monserate Road
- SR-76 (Pala Road) at Gird Road
- SR-76 (Pala Road) at Sage Road
- SR-76 (Pala Road) at Old Highway 395
- SR-76 (Pala Road) at I-15 Southbound Ramps
- SR-76 (Pala Road) at I-15 Northbound Ramps
- SR-76 (Pala Road) at Pankey Road
- SR-76 (Pala Road) at Rice Canyon Road

- SR-76 (Pala Road) at Couser Canyon Road
- Dulin Road at Old Highway 395

To conservatively analyze CO hot spots, CALINE4 modeling was conducted for the intersections identified above. The results are presented in Appendix C. The predicted CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS for CO; therefore, no exceedances of the CO standard are predicted, and the Project would not cause or contribute to a violation of the air quality standard. Furthermore, traffic impacts would be mitigated to less than significant levels and emissions of CO would continue to decrease with increasingly stringent vehicular emission standards and phase-out of older vehicles. Impacts of CO hot spots would be **less than significant**.

2.2.2.3 *Cumulatively Considerable Net Increase of Criteria Pollutants*

Guideline for the Determination of Significance

The Proposed Project would have a potentially significant environmental impact if it would:

3. Result in a cumulatively considerable net increase of any criteria pollutant for which the SDAB is non-attainment under an applicable federal or state ambient air quality standard (including emissions which exceed the screening-level thresholds for ozone precursors listed in Table 2.2-3).

    a. Construction Phase (Direct): A project that has a significant direct impact on air quality with regard to emissions of PM_{10} $PM_{2.5}$, NO_X, and/or VOCs, would also have a significant cumulatively considerable net increase.

    b. Construction Phase (Cumulative): 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 County guidelines identified in Subsection 2.2.2.2.

    c. Operational Phase: A project that does not conform to the RAQS and/or has a significant direct impact on air quality with regard to operational emissions of PM_{10} $PM_{2.5}$, NO_X, and/or VOCs, would also have a significant cumulatively considerable net increase.

    d. Operational Phase: Projects that cause road intersections to operate at or below LOS E (analysis only required when the addition of peak-hour trips from the proposed project and the surrounding projects exceeds 2,000) and create a CO "hot spot" create a cumulatively considerable net increase of CO.

Guideline Source

Guideline No. 3 is taken from the County Guidelines for Determining Significance – Air Quality (March 19, 2007).

Analysis

The SDAB is considered a non-attainment area for the NAAQS for ozone and the CAAQS for ozone, PM_{10} and $PM_{2.5}$. For the non-attainment pollutants, including the ozone precursors (NO_X and VOCs), if emissions exceed the thresholds shown in Table 2.2-3, the Project could have a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

Project Construction

As discussed in Section 2.2.2.2, Project emissions of VOCs, NO_X, CO, ~~and~~ PM_{10} and $PM_{2.5}$ during construction would be below the screening level thresholds. Direct construction impacts would be **less than significant**.

Reviews of the air quality data for the proposed Campus Park and Meadowood Draft EIRs show that air quality impacts were found to result in cumulatively considerable net increases in emissions. For Meadowood, diesel emissions during construction and on-site operations related to PM_{10} and VOC were both identified as cumulatively significant. Net increases in PM_{10} and $PM_{2.5}$, as well as NO_X also were found to constitute a cumulatively considerable contribution for Campus Park. With the potential for construction activities occurring concurrently at the Proposed Project as well as neighboring Campus Park and Meadowood, cumulative construction projects in the area would result in a cumulatively considerable net increase in ~~CO,~~ VOCs, NO_X, PM_{10} and $PM_{2.5}$. The cumulative construction impact would be **significant. (Impact AQ-4)**

Project Operations

The Project would be designed to exceed current Title 24 energy efficiency standards and would thus result in lower emissions than non-energy efficient developments. The Project, along with all other planned and reasonably foreseeable projects within the Fallbrook Subregional Area, was evaluated as not exceeding the growth projections in the SANDAG growth forecasts for the area and being consistent with the RAQS and SIP (Section 2.2.2.1). The emissions resulting from the combined construction and operation scenarios were projected to exceed the screening level thresholds for VOCs ~~NO_X,~~ and PM_{10}, ~~and $PM_{2.5}$,~~ however. Also, emissions of VOCs and~~,~~ PM_{10}~~, and $PM_{2.5}$~~ would exceed the significance thresholds for Project operations at full build-out. The Project cumulative impacts with regard to operational emissions of VOCs~~,~~ ~~NO_X,~~ and PM_{10} ~~and $PM_{2.5}$~~ would be **significant. (Impact AQ-5)**

Although total operational CO emissions would exceed the thresholds, CO "hot spots" modeling discussed in Section 2.2.2.2 indicated that traffic congestion at those intersections experiencing a direct Project impact would not result in exceedance of the CO standard. As demonstrated through CALINE modeling conducted on the Existing + Project + Cumulative Projects condition, the predicted cumulative CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS as shown in Attachment A of Appendix C and, therefore, the Project's contribution to cumulative CO hot spots impacts would be **less than significant**.

2.2.2.4 *Impacts to Sensitive Receptors*

Guidelines for the Determination of Significance

The Proposed Project would have a potentially significant environmental impact if it would:

4. Expose sensitive receptors to substantial pollutant concentrations as follows:

   a. The project places sensitive receptors near CO "hot spots" or creates CO "hot spots" near sensitive receptors.
   b. Project implementation would result in exposure to TACs resulting in a maximum incremental cancer risk greater than 1 in 1 million without application of Toxics-Best Available Control Technology (T-BACT) or a health hazard index greater than one.

Guideline Source

Guideline No. 4 is taken from the County Guidelines for Determining Significance – Air Quality (March 19, 2007). (The County's significance thresholds are consistent with the SDAPCD's Rule 1210 requirements for stationary sources.)

Analysis

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* (2003), as 24 hours per day, 7 days per week, 365 days per year, for 70 years.

Unlike carcinogens, it is believed that there is a threshold level of exposure to most noncarcinogens below which they will not pose a health risk. CalEPA and OEHHA have developed reference exposure levels (RELs) for noncarcinogenic TACs that are health-conservative estimates of the levels of exposure at or below which health effects are not expected. The noncancer health risk due to exposure to a TAC is assessed by comparing the estimated level of exposure to the REL. The comparison is expressed as the ratio of the estimated exposure level to the REL, called the hazard index (HI).

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. For the purpose of CEQA analysis, the County definition of "sensitive receptors" includes residences (County 2007).

CO Hot Spots

As discussed in Section 2.2.2.2, operational impacts would not result in CO "hot spots" because all intersections would be mitigated to LOS D or better at the conservatively modeled buildout year of 2025, and this impact would be **less than significant**.

Toxic Air Contaminants

There are three carcinogenic TACs that constitute the majority of the known health risk from motor vehicle traffic: diesel particulate matter (DPM) from trucks, and benzene and 1,3-butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000 to 20,000 per day), DPM represents about 70 percent of the potential cancer risk from the vehicle traffic. Therefore, DPM was the focus of the health risk evaluation conducted for the Project, the details of which are presented in Appendix C.

Project Construction

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 has the potential to result in adverse health impacts. The amount of diesel particulate varies with the Project schedule and construction phasing. As noted above, detailed information regarding the construction schedule is not available at this time; therefore, it was conservatively assumed that all construction phases using heavy equipment would be completed within a ten-year period during Project modeling.

Maximum diesel particulate concentration was calculated by the SCREEN3 computer program. The construction vehicle mix modeled used CalEEMod default assumptions. Because the unit risk factor is based on 70 years (25,550 days) of exposure for 24 hours per day, 365 days per year, the results of the analysis were scaled to account for exposure for the phase-by-phase construction duration, as shown in the calculation below.

Risk = Excess cancer risk for 70 years x (days of construction/25,550 days)

The assessment resulted in a cancer risk of 0.253 in one million, or less than one in one million. Construction impacts from exposure to TACs would be **less than significant**.

Project Operations

A health risk evaluation was conducted to assess the potential for illness due to exposure to diesel exhaust particulate matter based on Part IV of the *Air Toxics Hot Spots Program Risk Assessment Guidelines*. Maximum diesel particulate concentration was calculated by the SCREEN3 computer program. Vehicular traffic may result in minor amounts of TACs. The high-end excess cancer risk was calculated based on guidance from the OEHHA (2003), using the 80th percentile exposure assumptions for inhalation risks (CARB 2003). The risks were calculated based on 70 years of exposure. The maximum excess cancer risk associated with exposure to diesel particulates from Project-generated trips was estimated to be 0.259 in one million. Operational impacts from exposure to TACs from Project-related traffic would be **less than significant**.

The issue of proximity of residential land use to heavily traveled roadways (I-15 in the case of the Project) is also of concern. CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) provides CARB recommendations for the siting of new sensitive land uses (including schools and residences) near freeways. A comparison of total cancer risk and cancer risk from DPM emissions in rural and urban areas shows that cancer risk associated with elevated levels of diesel particulates decreases rapidly within the first 300 feet to 450 feet from the edge of a roadway. Consequently, CARB recommended new sensitive land uses (including schools and residential units) be sited at least 500 feet from freeways. Since most of the Project area adjacent to the freeway is proposed to be limited impact industrial and community shopping center uses, it is highly unlikely that sensitive receptors (residential units), which would be located more than 500 feet downwind, would experience any significant cancer risk directly associated with vehicle emissions from the I-15 freeway. The operational impacts of land use in relation to generation of TACs would be **less than significant**.

2.2.2.5 *Odor Impacts*

Guideline for the Determination of Significance

The Proposed Project would have a potentially significant environmental impact if it would:

5. Not be an agricultural, commercial or an industrial activity subject to SDAPCD standards, and as a result of implementation would either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons or the public.

Guideline Source

Guideline No. 5 is taken from the County Guidelines for Determining Significance – Air Quality (March 19, 2007).

Analysis

Project Construction

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 would be **less than significant**.

Project Operations

According to the County's Zoning Ordinance, Section 6318, "all commercial and industrial uses shall be so operated as to not emit matter causing unpleasant odors which are perceptible by the average person at or beyond any lot line of the lot containing said uses." In general, this ordinance applies to commercial and industrial land uses following development. The residential development itself would not be a source of odor impacts. According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting activities, refineries, landfills, dairies, and fiberglass molding operations. None of these land uses is proposed for the Project. While neighborhood commercial uses could have operations that result in odor emissions such as dry cleaners, restaurants, and manicure facilities, these facilities are not considered land uses that are sources of nuisance odors (SCAQMD 1993).

The only potential objectionable odor source for the Project would be the potential sewage pump stations. Pump stations are small facilities with controlled piping. Routine construction controls any odor associated with the facility. Specific to the larger pump station located at SR-76 and Pankey Road, the 10 percent design report specified an odor control mechanism. The sewage pump station is designed to pump out wastewater several times per hour. The system would also include chemical feed addition at the pump station to minimize odors. A back-up chemical injection system would be included for further odor control redundancy. The system would be equipped with two redundant pumps that would allow for backup operation of the pumps in the event that one pump is out of service. The combination of chemical treatment coupled with pumps to keep sewage moving rather than sitting in the pipes would result in adequate attenuation of localized odor. The 2011 certified Final EIR for Campus Park found less than significant impacts. No change is proposed to that finding. The much smaller facility located adjacent to I-15 and Old Highway 395 would have similar, but lesser, effect.

The Project is therefore not anticipated to generate any objectionable odors affecting a substantial number of people from its overall operations. The odor impact for Project operations would be **less than significant**.

2.2.3 Cumulative Impact Analysis

With regard to past and present projects, the background ambient air quality, as measured at the monitoring stations maintained and operated by the APCD, measures the concentrations of pollutants from existing sources. Past and present Project impacts are, therefore, included in the background ambient air quality data. The projects listed in Table 1-4, Cumulative Projects, are planned or reasonably foreseeable, and, as such, are subject to CEQA. The locations of all cumulative projects are provided in Figure 1-28. For the purpose of nonattainment pollutants, the cumulative study area would be the entire air basin; however, contributions from individual projects on basin-wide nonattainment pollutants cannot be determined through modeling analyses.

In analyzing cumulative impacts for air quality, specific evaluation must occur regarding a project's contribution to the cumulative increase in pollutants for which the SDAB is listed as "non-attainment" for the CAAQS and/or NAAQS. A project that has a significant impact on air quality with regard to emissions of PM_{10}, $PM_{2.5}$, NO_X, and/or VOCs, as determined by the screening criteria outlined above, would have a significant cumulative effect. In the event direct impacts from the project are less than significant, a project still may have a cumulatively considerable impact on air quality if the <u>construction-period</u> emissions from the project, in combination with the emissions from other proposed, or reasonably foreseeable, future projects are in excess of screening levels identified above. The text below addresses each of the thresholds relative to cumulative contribution.

Cumulative growth would be within the range projected by SANDAG, and the Project was found to be consistent with the RAQS and SIP. Growth projected for the proposed plus cumulative projects would not result in a cumulatively considerable contribution and these impacts would be **less than significant**.

The planned or reasonably foreseeable projects were accounted for in the Traffic Impact Analysis (LLG 2013). As such, cumulative projects were considered in the evaluation of CO hot spots. Based on the CO hot spots evaluation, cumulative impacts associated with CO ~~hot spots~~ would be **less than significant**.

As discussed in Section 2.2.2.2, the near-term emissions of VOCs~~, NO_X, CO,~~ and PM_{10} due to Project construction when it would overlap with Project operations were identified as significant (**Impact AQ-1**). These emissions would add cumulatively to emissions from other projects, and this cumulative impact would be **significant**. **(Impacts AQ-4 and 6)**

Operational emissions would be phased in over time; however, operational emissions for one of the mixed-use/commercial development in PA 2 would exceed the thresholds for VOC~~, CO~~ and $PM_{10.}$ The combination of these emissions with the operational emissions of the other projects in the area has the potential to cause a cumulative impact that would be considered **significant**. (**Impact AQ-2**)

Also as discussed in Section 2.2.2.2, the long-term emissions of VOCs~~, CO,~~ and PM_{10} due to Project-related traffic in 2030 and accelerated to 2025 as part of the conservative air quality impacts assessment were identified as significant (**Impact AQ-3**). These emissions would add cumulatively to vehicle emissions from other projects, and this cumulative impact would be **significant**. (**Impacts AQ-5 and 7**)

The effects of objectionable odors are typically localized to the immediate surrounding area specific to each Project site. The Project's odor contributions were found to be less than significant. Certified Final EIRs for Campus Park and Meadowood document that odor impacts from those adjacent projects also would be less than significant. Contributions to odor impacts would not be considerable and impacts would be **less than significant**.

2.2.4 Significance of Impacts Prior to Mitigation

The following significant impacts related to air quality would occur under Project implementation:

Impact AQ-1 Near-term Project operational emissions of VOCs, CO, and PM_{10} for PA 2 would exceed the significance thresholds.

Impact AQ-2 Near-term Project emissions of VOCs, CO, and PM_{10} for the combined construction and operational phases would exceed the significance thresholds.

Impact AQ-3 Long-term total Project operational emissions of VOCs, CO, and PM_{10} from traffic in 2025 would exceed the significance thresholds.

Impact AQ-4 With the potential of construction activities occurring concurrently at the proposed Project as well as neighboring Campus Park and Meadowood, cumulative construction projects in the area would result in a cumulatively considerable net increase in ~~CO,~~ VOCs, NO_X, PM_{10} and $PM_{2.5}$.

Impact AQ-5 The cumulatively considerable net increases of the non-attainment criteria pollutants ~~(CO,~~ VOCs~~, NO_X,~~ and PM_{10}~~, and $PM_{2.5}$)~~ during the near-term when construction and operation emissions are assumed to combine would exceed the significance thresholds. ~~Cumulatively considerable e~~Emissions of VOCs~~, NOx, CO,~~ and PM_{10}~~, and $PM_{2.5}$~~ would exceed the significance thresholds for Project operations at full build-out in 2025, and therefore be cumulatively considerable.

Impact AQ-6 Near-term Project emissions of the non-attainment criteria pollutants VOCs, NO_X, ~~CO,~~ PM_{10} and $PM_{2.5}$ for the combined construction and operational phases added cumulatively to emissions from other projects would exceed the significance thresholds.

Impact AQ-7 Long-term Project operational emissions of the non-attainment criteria pollutants VOCs, NO_X, CO, PM_{10} and $PM_{2.5}$ from traffic in 2025 added cumulatively to emissions from other projects would exceed the significance thresholds. Because the Project would result in a direct impact associated with VOC and PM_{10} emissions, the Project's contribution to impacts associated with these pollutants would be cumulatively considerable.

2.2.5 Mitigation

2.2.5.1 *Mitigation for Direct Significant Impacts*

Measures to reduce construction emissions are required by the SDAPCD Rule 55 - Fugitive Dust Control and, as discussed in Section 2.2.2.2 and listed in Table 1-3, are included as Project Design Features. These measures constitute BMPs for dust control, diesel particulates, and construction equipment emissions. With the implementation of the fugitive dust control measures, the Project construction impacts alone are less than significant.

The Project's operational emissions are mainly associated with vehicular traffic from Project-related vehicle trips, and although the project has been designed to capture 30 percent of its trips through the co-location of uses and to minimize its use of energy and water through implementing project design features that exceed the Title 24 standards, there are no feasible mitigation measures to reduce these emissions since their major source is traffic. Vehicular emissions would decrease over time with phase-out of older vehicles and implementation of increasingly stringent emission controls, so future vehicle emissions would continue to decrease over time, but Project impacts on air quality that involve operational traffic emissions would remain significant. Impacts associated with vehicle emissions would be unmitigable.

As described in Section 1.2.3 (Table 1-3), the Project would implement a number of design features that would reduce emissions of criteria air pollutants during operation. The following mitigation measure shall be implemented to further reduce area source emissions of VOCs during project operation:

MM AQ-1 Future tenants shall implement a Low-VOC Consumer Products Educational Program through the provision of educational materials (such as a display case, kiosk, or brochures) ~~to provide information~~ regarding the use of Low-VOC paints and consumer products in a prominent area accessible to residents and employees.

2.2.5.2 *Mitigation for Cumulative Significant Impacts*

In addition to design measures noted above for direct impacts (which would also help to reduce associated cumulative impacts), the following mitigation measures shall be implemented to further reduce Project contributions to construction emissions to the extent feasible (with the following measures to be placed as notes on all construction plans and implemented during construction of each Project phase):

MM AQ-4a All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentation, and CARB operating permit shall be provided at the time of mobilization of each applicable unit of equipment. The above standards/ specifications shall be met unless one of the following circumstances exists and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement;
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the proposed Project, but the application process is not yet approved, or the application has been approved, but funds are not yet available; or
- A contractor has ordered a control device for a piece of equipment planned for use on the proposed Project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the proposed Project has the controlled equipment available for lease.

MM AQ-4b All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on site or to transport materials to and from the site shall comply with 2010 emission standards, where available. In addition, all on-road trucks shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified USEPA rating, BACT documentation, and CARB or SDAPCD operating permit shall be provided at the time of mobilization of each applicable unit of equipment. The above standards/ specifications shall be met unless the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement;
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the proposed Project, but the application process is not yet approved, or the application has been approved, but funds are not yet available; or
- A contractor has ordered a control device for a piece of equipment planned for use on the proposed Project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the proposed Project has the controlled equipment available for lease.

MM AQ-4c The following measures, at minimum, shall be part of the contractor dust control plan:

- Contractors shall apply approved nontoxic chemical soil stabilizers to all inactive construction areas or replace groundcover in disturbed areas;
- Construction contractors shall provide temporary wind fencing around sites being graded or cleared;
- Trucks hauling dirt, sand, or gravel shall be covered or shall maintain at least two feet of freeboard in accordance with Section 23114 of the California Vehicle Code;
- During wet conditions, construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads or wash off tires of vehicles and any equipment leaving the construction site; and
- Trucks hauling materials such as debris or fill shall be fully covered while operating off the property site.

MM AQ-4d The following types of measures shall be required on construction equipment (including on-road trucks):

- Use diesel oxidation catalysts and catalyzed diesel particulate traps.
- Maintain equipment according to manufacturers' specifications.
- Restrict idling of construction equipment to a maximum of five minutes when not in use.

- Install high-pressure fuel injectors on construction equipment vehicles.

2.2.6 Conclusion

Emissions of criteria pollutants were found to exceed significance thresholds for various Project scenarios. In all of the significant Project construction and operational impact scenarios, the thresholds for criteria pollutants VOCs~~,~~ and PM_{10}, ~~and/or $PM_{2.5}$,~~ for which the SDAB is in non-attainment, and CO, for which the SDAB is in attainment, were exceeded. ~~For several other scenarios, the threshold for criteria pollutant NO_X, for which the SDAB is in non-attainment, and CO, for which the SDAB is in attainment, also were exceeded.~~

Measures that would be incorporated into the Project description to reduce emissions associated with construction are listed in Table 1-3. A number of additional requirements to reduce cumulative construction emissions are identified above as Mitigation Measures AQ-4a through AQ-4d. Although Project-related contributions to Impact AQ-4 would cease when Project construction is completed, it is considered significant and unmitigated in the near-term.

Mitigation measure AQ-1 was identified to help reduce operation VOC emissions. The measure requires posting of educational materials relative to low-VOC consumer products in publicly accessible areas. These educational materials are readily available from CARB. Commercial lessees would be required as part of their lease agreements to obtain them and post them in employee lunch rooms and/or work areas. The on-site residential area (mixed uses within PA 2) also would post such information in an accessible common space area (e.g., mail delivery location). These requirements are specified in the Specific Plan, which applies to all development in the Project. The noted operational emissions from vehicles and the use of aerosols and paints (over which the Project has no control) would constitute a temporary but significant and unmitigable impact after initial occupation of PA 2. Over the long-term, impacts related to operational emissions from vehicles would reduce due to the phase-out of older vehicles and increasingly stringent vehicle emission standards. Nonetheless, these effects would remain significant and unmitigable in the near-term for Impact AQ-1 in PA 2 because no other mitigation is available and because personal use of low-VOC products cannot be enforced.

The primary sources of criteria pollutant impacts are automobile trips associated with near-term and long-term operations of the Proposed Project, and Project construction (when it would overlap with Project operations). Although the Project incorporates design features to reduce Project trips and minimize operational emissions associated with energy and water usage, there are no feasible mitigation measures to reduce emissions associated with the remaining near-term Project-related traffic. Vehicular emissions would decrease over time with phase-out of older vehicles and implementation of increasingly stringent emission controls, so future vehicle emissions would continue to decrease over time, but Project impacts on air quality that involve operational traffic emissions would remain significant.

Cumulatively considerable net increases of criteria pollutant emissions for which the SDAB is in non-attainment (VOCs, NO_X, ~~CO,~~ PM_{10} and $PM_{2.5}$) ~~emissions~~ during Project construction, when combined with emissions associated with construction of the nearby Campus Park and Meadowood projects, would result in significant cumulative air quality impacts. Similarly, cumulatively considerable net increases in these same criteria pollutants would occur both during the combined construction and operations scenarios; and for the pollutants VOC and PM_{10} during Project operations at full buildout, resulting in significant cumulative air quality impacts.

~~Mitigation measure AQ-1 was identified to help reduce operation VOC emissions, although the associated air quality operational Impact AQ-1 would remain unmitigable.~~

In addition, air quality operational Impacts AQ-2, AQ-3, AQ-5, AQ-6, and AQ-7 also would be unmitigable, as described below. ~~and a Statement of Overriding Considerations would be required.~~

No feasible mitigation measures are currently available beyond mitigation measures and Project design features already incorporated into the Project to address: (1) the Project combined construction and operational emissions; (2) the construction and operational emissions of the Project in combination with construction emissions of adjacent cumulative projects; or (3) identified long-term cumulative operational phase pollutant emissions. Following completion of construction activities, daily operational emissions would reduce over time due to the phase-out of older vehicles and increasingly stringent vehicle emission standards. Even with implementation of Project design features and Mitigation Measures AQ-1 and AQ-4a through AQ-4d, however, combined construction and operational effects would remain significant and unmitigated in both the near- and long-term.

This is because the emissions are primarily related to vehicle use. Project-related vehicle volumes are primarily determined by the limited industrial and commercial uses proposed for the site, which have been specifically identified for the Project site in the County General Plan. Consistent with smart growth principles, the location of these uses adjacent to the I-15 and SR-76 interchange and these busy travelways support consolidation of work and commercial opportunities next to primary roadways and existing population rather than allowing for continued expansion of such services into undeveloped portions of the County. It has also allowed the Project to assume a 30 percent on-site capture rate (i.e., 30 percent of trips associated with the Project are anticipated to stay within the quadrant rather than flowing to off-site destinations to the north, west and south). Although the Project-specific analyses focus on trips associated with proposed uses (number of trips drawn to Project uses) rather than modification of existing travel patterns (number of trips rendered shorter or unnecessary by provision of Project uses at this interchange); it is anticipated that the Project would provide limited impact industrial and general commercial uses to the community as a whole. The location of these uses at this interchange may eliminate need to work or shop at further distances from area residences. The Project would therefore be expected to shorten existing trips made by off-site users that currently travel to Escondido, Temecula, and other points north, south and west for similar work opportunities or services. This would constitute an improvement relative to reductions in vehicle-related emissions associated with those longer trips.

Table 2.2-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 $\mu g/m^3$)		0.075 ppm (147 $\mu g/m^3$)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		-		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	15 $\mu g/m^3$		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		-	-	-
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 $\mu g/m^3$)	Gas Phase Chemiluminescence	0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	Gas Phase Chemilumi-nescence
	1-Hour	0.18 ppm (470 $\mu g/m^3$)		0.100 ppm (see footnote 8)	None	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm (80 $\mu g/m^3$)	-	Spectro-photometry (Pararo-saniline Method)
	24-Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (365 $\mu g/m^3$)	-	
	3-Hour	-		-	0.5 ppm (1300 $\mu g/m^3$)	
	1-Hour	0.25 ppm (655 $\mu g/m^3$)		-	-	-
Lead	30-Day Average	1.5 $\mu g/m^3$	Atomic Absorption	-	-	-
	Calendar Quarter	-		1.5 $\mu g/m^3$	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 $\mu g/m^3$		
Visibility Reducing Particles	8-Hour	Extinction coefficient of 0.23 kilometers – visibility of ten miles or more (0.7 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape		No Federal Standards		
Hydrogen Sulfide	1-Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			
Vinyl Chloride	24-Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chromatography			

[1] 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.

[2] National standards (other than ozone, 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 eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact USEPA for further clarification and current federal policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

[7] Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

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

[9] Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

[10] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

[11] The CARB 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.

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

ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter
Source: CARB June 4, 2013

Table 2.2-2
AMBIENT BACKGROUND CONCENTRATIONS
SAN DIEGO MONITORING STATIONS

Air Pollutant	2007	2008	2009	2010	2011
Ozone – Escondido East Valley Parkway					
Max 1 Hour (ppm) Days > CAAQS (0.09 ppm)	0.094 0	0.116 9	0.093 0	0.105 2	0.098 1
Max 8 Hour (ppm) Days > NAAQS (0.075 ppm) Days > CAAQS (0.070 ppm)	0.077 3 5	0.098 13 23	0.080 1 9	0.084 3 5	0.089 2 2
Particulate Matter (PM_{10}) – Escondido East Valley Parkway					
Max Daily ($\mu g/m^3$) Days > NAAQS (150 $\mu g/m^3$) Days > CAAQS (50 $\mu g/m^3$)	68.0 0 2	84.0 0 1	74.0 0 1	42 0 0	40 0 0
Nitrogen Dioxide (NO_2) – Escondido East Valley Parkway					
Annual Max ($\mu g/m^3$) Days > NAAQS (20 $\mu g/m^3$)	26.8 1	24.6 1	24.6 1	20.9 1	18.8 0
Particulate Matter ($PM_{2.5}$) – Escondido East Valley Parkway					
Max Daily ($\mu g/m^3$) Days > NAAQS (35 $\mu g/m^3$)	151.0 11	44.0 0	78.4 0	48.4 2	67.7 3
Annual Max ($\mu g/m^3$) Days > NAAQS (12 $\mu g/m^3$) Days > CAAQS (15 $\mu g/m^3$)	13.3 0 0	12.4 0 0	10.5 0 0	12.2 0 1	12.2 0 1
Max 1 Hour (ppm) Days > CAAQS (0.18 ppm)	0.072 0	0.081 0	0.073 0	0.064 0 0	0.062 0 0
Annual Max (ppm) Days > NAAQS (0.053 ppm) Days > CAAQS (0.030 ppm)	0.016 0 0	0.018 0 0	0.016 0 0	0.014 0 0	0.013 0 0
Carbon Monoxide (CO) – Escondido East Valley Parkway					
Max 8 Hour (ppm) Days > NAAQS (9 ppm) Days > CAAQS (9.0 ppm)	3.19 0 0	2.81 0 0	3.24 0 0	2.46 0 0	2.20 0 0
Max 1 Hour (ppm) Days > NAAQS (35 ppm) Days > CAAQS (20 ppm)	5.7 0 0	5.2 0 0	4.6 0 0	3.9 0 0	3.5 0 0
Sulfur Dioxide (SO_2) – Downtown San Diego Beardsley Street					
Max Daily Measurement (ppm) Days > NAAQS (0.14 ppm) Days > NAAQS (0.04 ppm)	0.006 0 0	0.007 0 0	0.006 0 0	0.002 0 0	0.003 0 0

Source: www.arb.ca.gov (all pollutants except 1-hour CO and annual maximum for PM_{10}, $PM_{2.5}$, and NO_2)
www.epa.gov/air/data/monvals.html (1-hour CO, and annual maximums for PM_{10}, $PM_{2.5}$, and NO_2)
Abbreviations: > = exceed; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality; Standard Mean = Annual Arithmetic Mean
* No Data / Insufficient Data

Table 2.2-3
SCREENING-LEVEL THRESHOLDS FOR AIR QUALITY IMPACT ANALYSIS

Pollutant	Total Emissions		
Construction Emissions			
	lbs/day		
Respirable Particulate Matter (PM_{10})	100		
Fine Particulate Matter ($PM_{2.5}$)	55		
Oxides of Nitrogen (NO_X)	250		
Oxides of Sulfur (SO_X)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOCs)	75		
Operational Emissions			
	lbs/hour	**lbs/day**	**tons per year**
Respirable Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	55	10
Oxides of Nitrogen (NO_X)	25	250	40
Oxides of Sulfur (SO_X)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6
Volatile Organic Compounds (VOCs)	---	75	13.7
Toxic Air Contaminant Emissions			
Excess Cancer Risk	1 in 1 million 10 in 1 million with T-BACT		
Non-cancer Hazard	1.0		

Source: SDACPD Rule 20.2 and Rule 1210

Table 2.2-4
GRADING (OPTION 1) AND BACKBONE INFRASTRUCTURE CONSTRUCTION EMISSIONS (lbs/day)

		VOC	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Analysis Year	**Scenario**	**lbs/day**					
2015	1	20.36	43.35	330.05	0.71	17.88	8.93
2015	2	20.36	43.35	330.05	0.71	17.88	8.93
Screening-Level Thresholds		75	250	550	250	100	55
Exceedance?		No	No	No	No	No	No

Notes:

1. Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. USEPA Tier 4 off-Road equipment and diesel particulate filters were assumed to be utilized.
3. Fugitive dust measures were applied to control PM_{10} and $PM_{2.5}$ dust emissions.

Source: HELIX 2013b

Table 2-2.5
GRADING (OPTION 2) AND BACKBONE INFRASTRUCTURE CONSTRUCTION EMISSIONS (lbs/day)

		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Analysis Year	**Scenario**	**lbs/day**					
2015	1	20.42	43.63	336.30	0.72	26.88	14.07
2015	2	20.42	43.63	336.30	0.72	26.88	14.07
Screening-Level Thresholds		75	250	550	250	100	55
Exceedance?		No	No	No	No	No	No
OPTION 2 – ESTIMATED CONSTRUCTION EMISSIONS MASS GRADING							
2020	1 and 2	6.69	14.97	114.13	0.23	3.53	1.64
Screening-Level Thresholds		75	250	550	250	100	55
Exceedance?		No	No	No	No	No	No

Notes:
1. Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. USEPA Tier 4 off-Road equipment and diesel particulate filters were assumed to be utilized.
3. Fugitive dust measures were applied to control PM_{10} and $PM_{2.5}$ dust emissions.

Source: HELIX 2013b

Table 2.2-6
COMMERCIAL DEVELOPMENT (PAs 4 AND 5) CONSTRUCTION EMISSIONS (lbs/day)

		VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Analysis Year	**Scenario**	**lbs/day**					
2016	1	40.08	24.88	21.76	0.04	2.07	1.74
2016	2	41.04	24.88	21.76	0.04	2.07	1.74
2017	1	40.05	2.23	2.26	0.00	0.28	0.18
2017	2	41.00	2.23	2.26	0.00	0.28	0.18
Screening-Level Thresholds		75	250	550	250	100	55
Exceedance?		No	No	No	No	No	No

Notes:
1. Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. USEPA Tier 4 off-Road equipment and diesel particulate filters were assumed to be utilized.
3. Fugitive dust measures were applied to control PM_{10} and $PM_{2.5}$ dust emissions.

Source: HELIX 2013b

Table 2.2-7
MIXED-USE AND COMMERCIAL DEVELOPMENT (PA 2)
CONSTRUCTION EMISSIONS (lbs/day)

		VOC	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Analysis Year	**Scenario**	**lbs/day**					
2017	1 & 2	15.53	66.37	151.58	0.32	13.21	3.55
2018	1 & 2	15.18	64.22	148.34	0.32	13.15	3.09
2019	1 & 2	37.55	62.39	145.58	0.32	13.10	3.04
2020	1 & 2	37.53	3.68	16.49	0.03	1.67	0.12
2021	1 & 2	37.51	10.66	92.69	0.18	2.07	0.45
2022	1 & 2	6.12	10.63	92.14	0.18	2.07	0.45
Screening-Level Thresholds		75	250	550	250	100	55
Exceedance?		No	No	No	No	No	No

Notes:
1. Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. USEPA Tier 4 off-Road equipment and diesel particulate filters were assumed to be utilized.
3. Fugitive dust measures were applied to control PM_{10} and $PM_{2.5}$ dust emissions.

Source: HELIX 2013b

Table 2.2-8
RESIDENTIAL DEVELOPMENT (PA 3)
CONSTRUCTION EMISSIONS (lbs/day)

		VOC	**NO_X**	**CO**	**SO2**	**PM10**	**PM2.5**
Year	**Scenario**	**lbs/day**					
2021	1 & 2	4.30	14.87	65.29	0.13	3.03	0.47
2022	1 & 2	24.64	14.73	64.85	0.13	3.03	0.47
Screening-Level Thresholds		75	250	550	250	100	55
Exceedance?		No	No	No	No	No	No

Notes:
1. Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. USEPA Tier 4 off-Road equipment and diesel particulate filters were assumed to be utilized.
3. Fugitive dust measures were applied to control PM_{10} and $PM_{2.5}$ dust emissions.

Source: HELIX 2013b

Table 2.2-9
LIMITED IMPACT INDUSTRIAL DEVELOPMENT (PA 1)
CONSTRUCTION EMISSIONS (lbs/day)

		VOC	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Year	**Scenario**	**lbs/day**					
2023	1 & 2	71.18	20.42	31.74	0.08	3.67	1.21
2024	1 & 2	71.16	1.32	2.92	0.01	0.52	0.08
Screening-Level Thresholds		75	250	550	250	100	55
Exceedance?		No	No	No	No	No	No

Notes:
1. Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. USEPA Tier 4 off-Road equipment and diesel particulate filters were assumed to be utilized.
3. Fugitive dust measures were applied to control PM10 and PM2.5 dust emissions.

Source: HELIX 2013b

Table 2.2-10
COMMERCIAL DEVELOPMENT (PAs 4 AND 5)
OPERATIONAL EMISSIONS (lbs/day)

Source	**VOC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Scenario 1						
Area	2.09	0.00	0.00	0.00	0.00	0.00
Energy	0.04	0.34	0.28	0.00	0.03	0.03
Mobile	19.07	31.65	146.52	0.20	21.63	1.41
TOTAL	**21.20**	**31.99**	**146.80**	**0.20**	**21.66**	**1.44**
Screening-Level Thresholds	75	250	550	250	100	55
Scenario 1 Exceedance?	No	No	No	No	No	No
Scenario 2						
Area	2.14	0.00	0.00	0.00	0.00	0.00
Energy	0.04	0.34	0.29	0.00	0.03	0.03
Mobile	24.74	40.59	188.65	0.25	26.81	1.76
TOTAL	**26.92**	**40.93**	**188.94**	**0.25**	**26.84**	**1.79**
Screening-Level Thresholds	75	250	550	250	100	55
Scenario 2 Exceedance?	No	No	No	No	No	No

Notes: Emissions were calculated for both summer and winter months, and the highest value is shown here.
Source: HELIX 2013b

Table 2.2-11
MIXED-USE CORE AND COMMERCIAL DEVELOPMENT (PA 2)
OPERATIONAL EMISSIONS (lbs/day)

Source	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Scenarios 1 and 2						
Area	34.10	0.03	2.93	0.00	0.04	0.04
Energy	0.05	0.45	0.30	0.00	0.03	0.03
Mobile	76.12	137.68	605.51	1.29	146.21	8.55
TOTAL	**110.27**	**138.16**	**608.74**	**1.29**	**146.28**	**8.62**
Screening-Level Thresholds	75	250	550	250	100	55
Exceedance?	**Yes**	No	**Yes**	No	**Yes**	No

Notes: Emissions were calculated for both summer and winter months, and the highest value is shown here.
Source: HELIX 2013b

Table 2.2-12
RESIDENTIAL DEVELOPMENT (PA 3)
OPERATIONAL EMISSIONS (lbs/day)

Source	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Scenarios 1 and 2						
Area	6.65	0.24	20.72	0.00	0.30	0.30
Energy	0.15	1.26	0.54	0.01	0.10	0.10
Mobile	8.03	14.73	65.36	0.17	19.60	1.10
TOTAL	**14.83**	**16.23**	**86.62**	**0.18**	**20.00**	**1.50**
Screening-Level Thresholds	75	250	550	250	100	55
Exceedance?	No	No	No	No	No	No

Notes: Emissions were calculated for both summer and winter months, and the highest value is shown here.
Source: HELIX 2013b

Table 2.2-13
LIMITED IMPACT INDUSTRIAL DEVELOPMENT (PA 1)
OPERATIONAL EMISSIONS (lbs/day)

Source	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Scenarios 1 and 2						
Area	9.90	0.00	0.00	0.00	0.00	0.00
Energy	0.07	0.60	0.50	0.00	0.05	0.05
Mobile	8.40	15.23	67.94	0.19	21.77	1.22
TOTAL	**18.37**	**15.83**	**68.44**	**0.19**	**21.82**	**1.27**
Screening-Level Thresholds	75	250	550	250	100	55
Exceedance?	No	No	No	No	No	No

Notes: Emissions were calculated for both summer and winter months, and the highest value is shown here.
Source: HELIX 2013b

Table 2.2-14
COMBINED COMMERCIAL OPERATIONS PLUS
MIXED-USE CORE/COMMERCIAL CONSTRUCTION EMISSIONS (lbs/day)

			VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Scenario 1								
Planning Area(s)	**Year**	**Category**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**
PA 4 & 5	2018	Operational	21.20	31.99	146.80	0.20	21.66	1.44
PA 2	2018	Construction	15.18	64.22	148.34	0.32	13.15	3.09
		TOTAL	**36.38**	**96.21**	**295.14**	**0.52**	**34.81**	**4.53**
Screening-Level Thresholds			75.00	250.00	550.00	250.00	100.00	55.00
Scenario 1 Exceedance?			No	No	No	No	No	No
Scenario 2								
Planning Area(s)	**Year**	**Category**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**	**lbs/day**
PA 4 & 5	2018	Operational	26.92	40.93	188.94	0.25	26.84	1.79
PA 2	2018	Construction	15.18	64.22	148.34	0.32	13.15	3.09
		TOTAL	**42.10**	**105.15**	**337.28**	**0.57**	**39.99**	**4.88**
Screening-Level Thresholds			75.00	250.00	550.00	250.00	100.00	55.00
Scenario 2 Exceedance?			No	No	No	No	No	No

Notes:
1. Peak Daily Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. Total for Peak Daily Operational Emissions includes Area, Energy and Mobile sources (see Attachment A in Appendix C for details).

Source: HELIX 2013b

Table 2.2-15
COMBINED MIXED-USE CORE/COMMERCIAL, COMMERCIAL OPERATIONS PLUS RESIDENTIAL CONSTRUCTION EMISSIONS (lbs/day)

			VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Planning Area (s)	**Year**	**Category**	**lbs/day**					
Scenario 1								
PA 4 & 5	2018	Operational	21.20	31.99	146.80	0.20	21.66	1.44
PA 2	2021	Operational	110.27	138.16	608.74	1.29	146.28	8.62
PA 3	2021	Construction	4.30	14.87	65.29	0.13	3.03	0.47
		Total	**135.77**	**185.02**	**820.83**	**1.62**	**170.97**	**10.53**
Screening-Level Thresholds			75.00	250.00	550.00	250.00	100.00	55.00
Scenario 1 Exceedance?			**Yes**	No	**Yes**	No	**Yes**	No
Scenario 2								
PA 4 & 5	2018	Operational	26.92	40.93	188.94	0.25	26.84	1.79
PA 2	2021	Operational	110.27	138.16	608.74	1.29	146.28	8.62
PA 3	2021	Construction	4.30	14.87	65.29	0.13	3.03	0.47
		Total	**141.49**	**193.96**	**862.97**	**1.67**	**176.15**	**10.88**
Screening-Level Thresholds			75.00	250.00	550.00	250.00	100.00	55.00
Scenario 2 Exceedance?			**Yes**	No	**Yes**	No	**Yes**	No

Notes:
1. Peak Daily Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. Total for Peak Daily Operational Emissions includes Area, Energy and Mobile sources.

Source: HELIX 2013b

Table 2.2-16
COMBINED MIXED-USE CORE/COMMERCIAL, COMMERCIAL AND LIMITED IMPACT INDUSTRIAL OPERATIONS PLUS RESIDENTIAL CONSTRUCTION EMISSIONS (lbs/day)

			VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Planning Area(s)	**Year**	**Category**	**lbs/day**					
Scenario 1								
PA 4 & 5	2018	Operational	21.20	31.99	146.80	0.20	21.66	1.44
PA 2	2021	Operational	110.27	138.16	608.74	1.29	146.28	8.62
PA 3	2023	Operational	14.83	16.23	86.62	0.18	20.00	1.50
PA 1	2023	Construction	86.81	10.33	34.14	0.08	3.21	0.38
		Total	**233.11**	**196.71**	**876.30**	**1.75**	**191.15**	**11.94**
Screening-Level Thresholds			75.00	250.00	550.00	250.00	100.00	55.00
Scenario 1 Exceedance?			**Yes**	No	**Yes**	No	**Yes**	No

Table 2.2-16 (cont.)
COMBINED MIXED-USE CORE/COMMERCIAL, COMMERCIAL AND LIMITED IMPACT INDUSTRIAL OPERATIONS PLUS RESIDENTIAL CONSTRUCTION EMISSIONS (lbs/day)

			VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Planning Area(s)	**Year**	**Category**	**lbs/day**					
Scenario 2								
PA 4 & 5	2018	Operational	26.92	40.93	188.94	0.25	26.84	1.79
PA 2	2021	Operational	110.27	138.16	608.74	1.29	146.28	8.62
PA 3	2023	Operational	14.83	16.23	86.62	0.18	20.00	1.50
PA 1	2023	Construction	86.81	10.33	34.14	0.08	3.21	0.38
		TOTAL	**238.83**	**205.65**	**918.44**	**1.80**	**196.33**	**12.29**
Screening-Level Thresholds			75.00	250.00	550.00	250.00	100.00	55.00
Scenario 2 Exceedance?			**Yes**	No	**Yes**	No	**Yes**	No

Notes:
1. Peak Daily Emissions were calculated for both summer and winter months, and the highest value is shown here.
2. Total for Peak Daily Operational Emissions includes Area, Energy and Mobile sources.

Source: HELIX 2013b

Table 2.2-17
TOTAL OPERATIONAL EMISSIONS 2025 (lbs/day)

Source	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Scenario 1						
Area	52.94	0.27	23.65	0.00	0.81	0.81
Energy	0.30	2.64	1.62	0.02	0.21	0.21
Mobile	93.25	163.44	710.30	1.78	199.76	11.46
TOTAL	**146.49**	**166.35**	**735.57**	**1.80**	**200.78**	**12.48**
Screening-Level Thresholds	75	250	550	250	100	55
Scenario 1 Exceedance?	**Yes**	No	**Yes**	No	**Yes**	No
Scenario 2						
Area	54.25	0.27	23.65	0.00	0.81	0.81
Energy	0.30	2.65	1.63	0.02	0.21	0.21
Mobile	97.45	170.25	764.05	1.82	204.66	11.78
TOTAL	**152.00**	**170.25**	**738.91**	**1.84**	**205.68**	**12.80**
Screening-Level Thresholds	75	250	550	250	100	55
Scenario 2 Exceedance?	**Yes**	No	**Yes**	No	**Yes**	No

Note: Emissions were calculated for both summer and winter months, and the highest value is shown here.
Source: HELIX 2013b