CAMPUS PARK WEST PROJECT

# APPENDIX C

## AIR QUALITY ANALYSIS REPORT

PDS2005-3813-05-001(SPA); PDS2005-3800-05-003(GPA);
PDS2005-3600-05-005(REZ); PDS2005-3100-5424(TM);
Log No. PDS2005-3910-05-02-009(ER);
State Clearinghouse No. 2009061043

*for the*

## FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

June 18, 2014

# CAMPUS PARK WEST PROJECT

# AIR QUALITY ANALYSIS REPORT

GPA05-003, SPA05-001, REZ05-005,
TM 5424, ER 05-02-009

July 2013

*Lead Agency*:


**COUNTY OF SAN DIEGO**
**PLANNING AND DEVELOPMENT SERVICES**
5201 Ruffin Road, Suite B
San Diego, CA 92123

# Air Quality Analysis Report

for the

# Campus Park West Project

**GPA 05-003,**
**SPA 05-001,**
**REZ 05-005,**
**TM 5424,**
**ER 05-02-009**

Prepared for:

**County of San Diego**

On behalf of:
**Pappas Investments**
2020 L Street, Fifth Floor
Sacramento, CA 95814


Prepared by:
**HELIX Environmental Planning, Inc.**
7578 El Cajon Blvd., Suite 200
La Mesa, CA 91942

Michael Slavick

County of San Diego
Approved Air Quality Consultant


July 2013

# TABLE OF CONTENTS

# TABLE OF CONTENTS (cont.)

**SECTION** **PAGE**



**ATTACHMENTS (To Be Provided on CD)**

# TABLE OF CONTENTS (cont.)

## LIST OF FIGURES



## LIST OF TABLES

# TABLE OF CONTENTS (cont.)

## LIST OF TABLES (cont.)

# Glossary of Terms and Acronyms

| | |
|---|---|
| ADT | average daily trips |
| ANFO | ammonium nitrate/fuel oil |
| AQIA | Air Quality Impact Assessment |
| | |
| CAA | Clean Air Act (Federal) |
| CAAQS | California Ambient Air Quality Standard |
| CalEPA | California Environmental Protection Agency |
| CALINE4 | California Line Source Dispersion Model (Version 4) |
| Caltrans | California Department of Transportation |
| CARB | California Air Resources Board |
| CEQA | California Environmental Quality Act |
| CCAA | California Clean Air Act |
| cf | cubic feet |
| CO | carbon monoxide |
| County | County of San Diego |
| cy | cubic yards |
| | |
| DPM | diesel particulate matter |
| | |
| ft | feet |
| | |
| GHG | greenhouse gas |
| g/L | grams per liter |
| | |
| $H_2S$ | hydrogen sulfide |
| HAP | hazardous air pollutants |
| HI | hazard index |
| | |
| I-15 | Interstate 15 |
| ITS | Intelligent Transportation Systems |
| | |
| lbs | pounds |
| LOS | level of service |
| | |
| m | meters |
| $mg/m^3$ | milligrams per cubic meter |
| mph | miles per hour |
| $\mu g/m^3$ | micrograms per cubic meter |
| | |
| NAAQS | National Ambient Air Quality Standard |
| NO | nitrogen oxide |
| NOx | oxides of nitrogen |
| $NO_2$ | nitrogen dioxide |

## **Glossary of Terms and Acronyms** (cont.)

| | |
|---|---|
| OEHHA | California Office of Environmental Health Hazard Assessment |
| | |
| Pb | lead |
| PDS | Department of Planning and Development Services |
| $PM_{2.5}$ | fine particulate matter (particulate matter with an aerodynamic diameter of 2.5 microns or less |
| $PM_{10}$ | respirable particulate matter (particulate matter with an aerodynamic diameter of 10 microns or less |
| ppb | parts per billion |
| ppm | parts per million |
| PVC | polyvinyl chloride |
| | |
| RAQS | San Diego County Regional Air Quality Strategy |
| REL | reference exposure levels |
| | |
| SANDAG | San Diego Association of Governments |
| SCAQMD | South Coast Air Quality Management District |
| SDAB | San Diego Air Basin |
| SDAPCD | San Diego County Air Pollution Control District |
| sf | square feet |
| SIP | State Implementation Plan |
| $SO_X$ | oxides of sulfur |
| $SO_2$ | sulfur dioxide |
| SR-76 | State Route 76 |
| | |
| TACs | Toxic Air Contaminants |
| T-BACT | Toxics Best Available Control Technology |
| TIF | Traffic Impact Fee |
| | |
| USEPA | United States Environmental Protection Agency |
| | |
| VMT | vehicle miles traveled |
| VOCs | volatile organic compounds |

# EXECUTIVE SUMMARY

This report presents an assessment of potential air quality impacts associated with the proposed Campus Park West Project. The evaluation addresses the potential for air pollutant emissions during construction and after full buildout of the Project, including an assessment of the potential for carbon monoxide (CO) “hot spots” to form due to traffic associated with the Proposed Project.

The Proposed Project would result in emissions of air pollutants during both the construction phase and operational phase of the Project. Construction emissions would include emissions associated with fugitive dust, heavy construction equipment and construction workers commuting to and from the site. Construction activities may occur in three phases, which would occur sequentially at six separate land uses designations within the planning areas for the Project site. Under this option, the first construction phase focuses on overall site grading and second phase would involve the backbone utility infrastructure installation. The third construction phase addresses “vertical” development of the structures proposed by the Project. Alternatively, project grading could occur in two phases, with the second phase of grading occurring following vertical development of a portion of the Project. Fugitive dust control measures are incorporated into the Project design to reduce particulate matter with an aerodynamic diameter of 10 and 2.5 microns or less ($PM_{10}$/$PM_{2.5}$). With the implementation of the fugitive dust control measures, the impact associated with the phased construction activities is less than significant.

For the operational analysis, two design scenarios were evaluated for the project site. The main operational emissions associated with the Project would include impacts associated with traffic, as well as area sources such as energy use, landscaping, and the use of consumer products. Emissions of CO, volatile organic compounds (VOCs) and $PM_{10}$ would exceed the screening-level thresholds for Project operations. During the construction of the next phase, the prior phase is assumed to be in operation. The maximum emissions associated with both construction and operations would exceed the significance criteria for oxides of nitrogen ($NO_x$), VOC, CO, and $PM_{10}$. Therefore, a significant impact on the ambient air quality would occur during operation of the Proposed Project.

The cumulative impacts from several projects will cause an increase in VOC, CO, NOx, $PM_{10}$ and $PM_{2.5}$ pollutants which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. The cumulative impact scenario considers other projects proposed within the area defined for air quality that have the potential to contribute to cumulatively considerable impacts. As a result, emissions from Proposed Project construction and operational activities would make a cumulatively considerable contribution to a cumulative significant impact for VOC, CO, $NO_x$, $PM_{10}$, and $PM_{2.5}$ emissions under CEQA.

Because localized traffic impacts at nearby intersections would be mitigated to below a level of significance, no exceedances of the CO standard would occur and the Project would not result in a significant impact for CO. Also, because the Project would not exceed the growth projections in the San Diego Association of Governments (SANDAG) growth forecasts for the Fallbrook

Subregional Area, as discussed in Section 4.1.2, the Project would not result in an exceedance of the Ozone standard and impacts associated with potential interference with the Regional Air Quality Strategy (RAQS) would be less than significant.

Screening health risk assessments were conducted for construction and operations periods for toxic air contaminants. Both construction and operational effects were found to be less than significant.

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

# 1.0 INTRODUCTION

## 1.1 PURPOSE OF THE REPORT

This report presents an assessment of potential air quality impacts associated with the proposed Campus Park West, which includes an evaluation of existing conditions in the Project vicinity, an assessment of potential impacts associated with Project construction, and an evaluation of Project operational impacts. The analysis of impacts is based on state and federal ambient air quality standards and impacts are assessed in accordance with the guidelines, policies, and standards established by the County of San Diego (County) and the San Diego Air Pollution Control District (SDAPCD). Project compatibility with the adopted air quality plan for the area is also assessed. Measures are recommended, as required, to reduce potentially significant impacts.

This air quality assessment includes an examination of tailpipe emissions from vehicles on Interstate 15 (I-15), State Route 76 (SR-76) and Pankey Road. Diesel particulate matter (DPM) emissions are also considered. The assessment also includes an analysis of the potential for carbon monoxide (CO) hot spots at locations within the vicinity of the Proposed Project resulting from nearby traffic, as well as a discussion of potential ozone effects.

## 1.2 PROJECT LOCATION AND DESCRIPTION

The Project site is located in the unincorporated portion of the County in the community of Fallbrook, approximately 7 miles southeast of the Fallbrook town center and 46 miles north of downtown San Diego (Figure 1) in the northeast and southeast corners of the I-15/SR-76 interchange. The site consists of non-contiguous parcels separated by Pankey Road, SR-76, and Shearer Crossing (Figure 2), with approximately 85 percent of the site located north of SR-76 and approximately 15 percent located south of SR-76. The western edge of the northern area of the property is bordered by I-15 (Figure 2).

The parcels are situated south or west of several planned projects: Palomar College Campus, Campus Park and Meadowood. The Proposed Project seeks a General Plan Amendment, Specific Plan Amendment, Rezone, and Tentative Map, for the development of a mixed-use residential/retail community consisting of multi-family residential units, shopping center, office space, limited industrial units, and supporting infrastructure on the approximately 116.5-acre site. Specifically, this could include 503,500 square feet (sf) of commercial, a mixed use development (including specialty retail, up to 35 residential units, and office), 248 residential units and 120,000 sf of limited impact industrial office space.

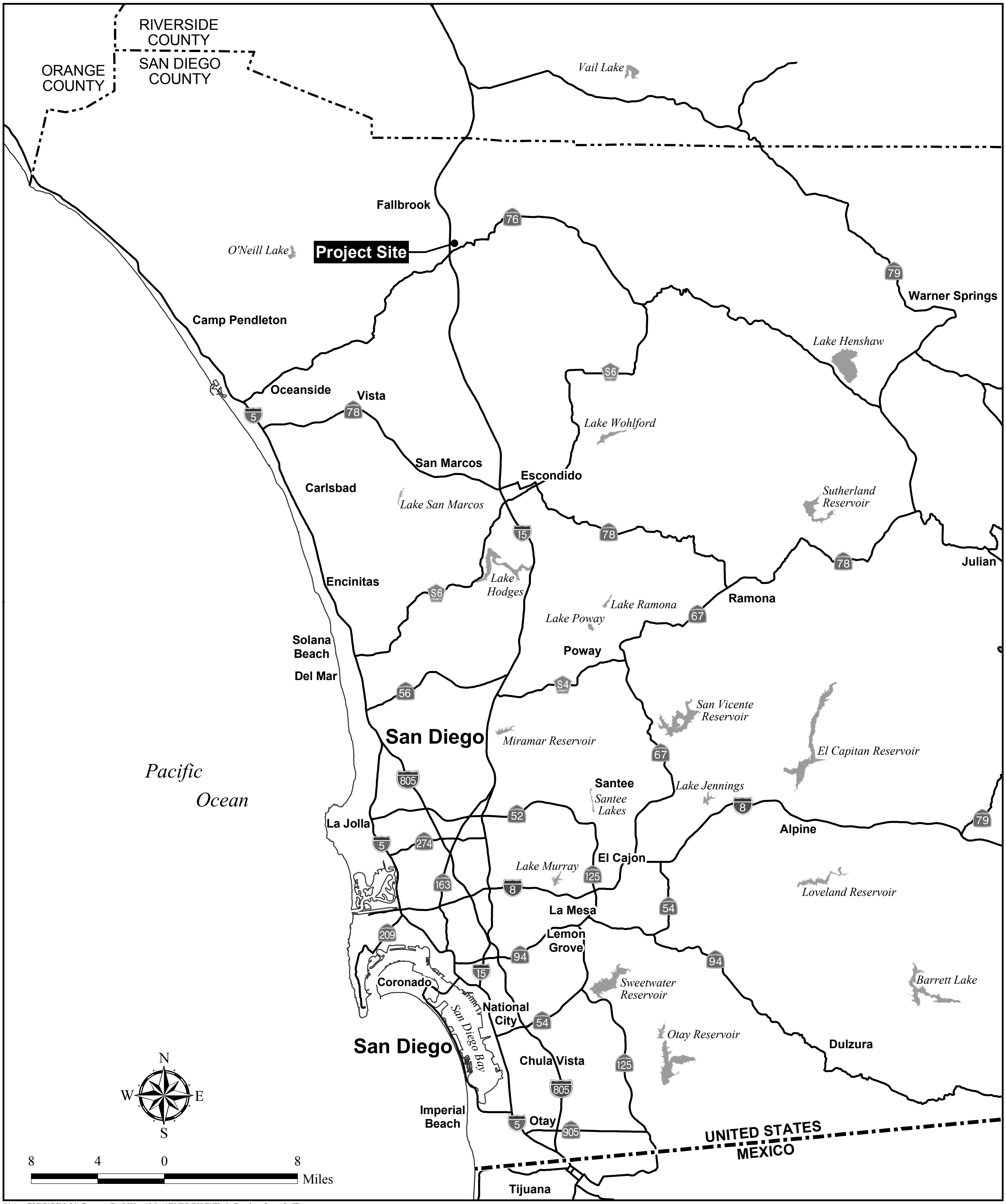
Two design scenarios are being evaluated for the property. Scenario 1 assumes that the project will abut right-of-way owned by Caltrans in its existing configuration. The uses would be divided into six Planning Areas (PAs). Limited impact industrial uses (approximately 120,000 sf of light industrial/office space on four lots) would be located within PA 1 on 12.6 acres of land in the northern portion of the Project site, north of Pala Mesa Drive. PA 2 would consist of general commercial uses with a mixed-use core, and would be sited on approximately 46.1 acres in the southwestern portion of the site north of SR-76 and west of Pankey Road. PA 3 would be dedicated to multi-family residential development and includes a total of 248 units on 12.4 acres of land, in the southeastern portion of the site north of SR-76 and east of Pankey Road. PAs 4 and 5, south of SR-76, would total 6.3 acres, and contain approximately 27,500 SF (9,000 sf and 18,500 sf in PAs 4 and 5, respectively) of commercial space. The mixed-use core integrated into PA 2 would contain commercial and office space, as well as up to 35 multi-family residences. Three homeowner association-maintained lots (approximately 1.4 acres) would contain manufactured slopes, landscaped areas, and drainage facilities. Four biological open space lots would total approximately 31 acres. In addition to the on-site uses, the Proposed Project would require the construction of on- and off-site infrastructure improvements associated with roads, water, and sewer.

Scenario 2 differs from Scenario 1 in that it assumes that Caltrans would release current right-of-way that is no longer planned for potential SR-76 widening (based on recent improvements to SR-76 in conjunction with projected traffic volumes). The potential for this to occur, and the subsequent inclusion of the decertified property into the Proposed Project is one design option. Under that scenario, the project could purchase that decertified right-of-way and the project would designate that additional acreage as general commercial. Decertified Caltrans right-of-way north of SR-76 would remain undeveloped except for a project monument sign to identify the entrance to Campus Park West.

Decertified right-of-way south of SR-76 (1.2 acres) would be incorporated into PA 5 and developed with an additional 10,000 sf of General Commercial (a new total of 513,500 sf of General Commercial, and a new total of 28,500 sf General Commercial for PA 5) uses.

Each of the land uses and design elements discussed below would be the same, regardless of whether Scenario 1 or Scenario 2 is approved by decision makers. As indicated above, the difference would relate only to acreage, with an associated amount of additional ground disturbance and development square footage.

Figure 1 provides a location map of the Project, and Figure 2 provides an aerial photograph of the Project site.



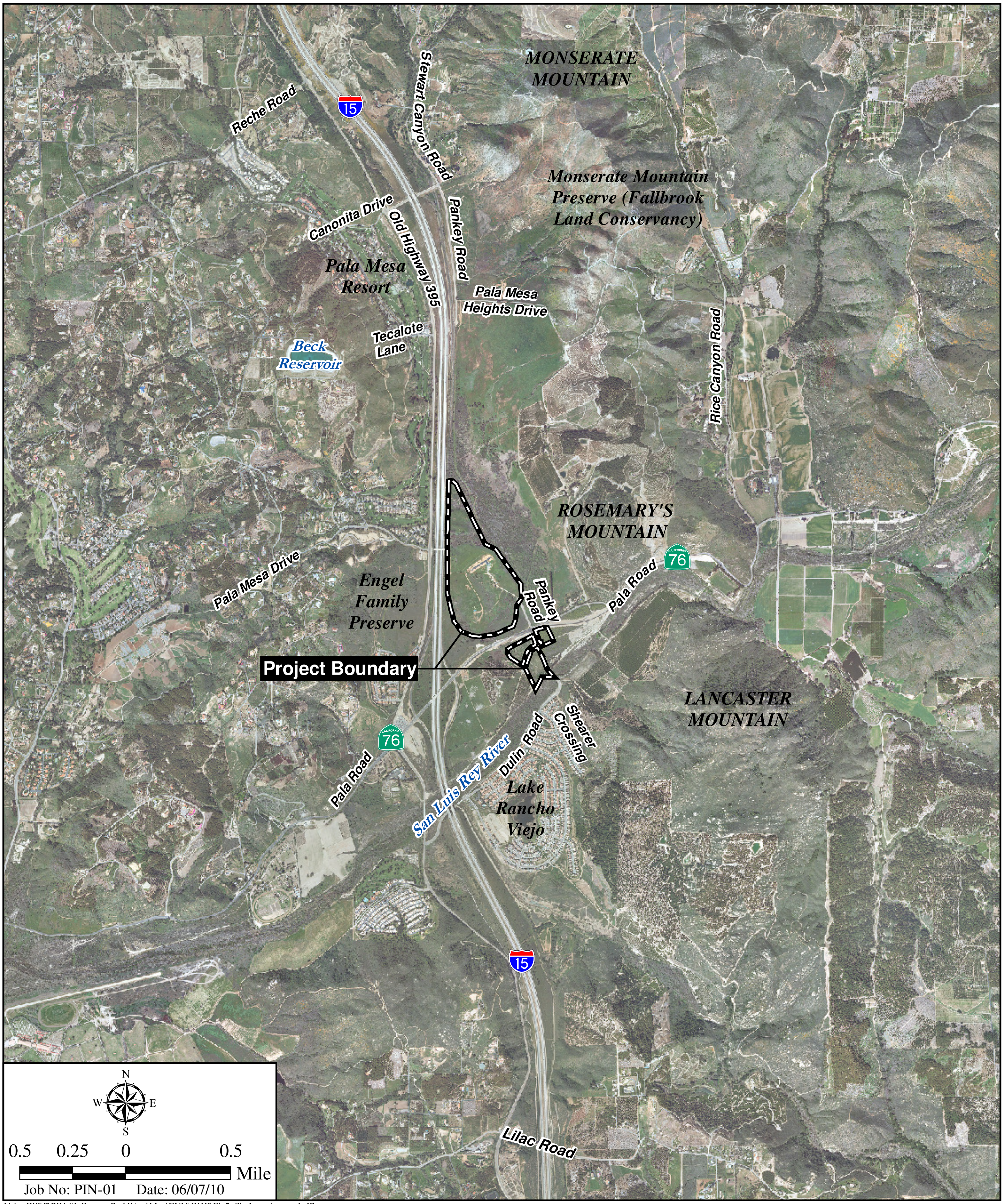

I:\ArcGIS\P\PIN-01 CampusParkWest\Map\ENV\GHG\Fig1_Regional.mxd -JP

# Regional Location Map

CAMPUS PARK WEST

HELIX

Figure 1




I:\ArcGIS\P\PIN-01 CampusParkWest\Map\ENV\GHG\Fig2_SiteLocation.mxd -JP

# Project Site Location Map

CAMPUS PARK WEST

HELIX

Figure 2

**Project Design Features and Construction Best Management Practices**

The following measures would be incorporated during Project construction in compliance with SDAPCD Rule 55 - Fugitive Dust Control, which states that no dust and/or dirt shall leave the property line. The dust control measures include the following:

- **Inactive Construction Areas.** Apply non-toxic soil stabilizers according to manufacturers' specification to all inactive construction areas or replace groundcover in disturbed areas. Hydroseeding will be applied to graded residential and commercial lots.
- **Exposed Stockpiles.** Enclose, cover, water three times daily, if necessary, or apply non-toxic soil stabilizers according to manufacturers' specification to exposed stockpiles.
- **Active Site Areas.** Water active site areas three times daily during grading, as necessary.
- **Hauling.** Cover all haul trucks hauling dirt, sand, soil, or other loose materials or maintain two feet of freeboard.
- **Adjacent Roadways.** Sweep streets at the end of the day if visible soil material is carried onto adjacent public paved roads.
- **Unpaved Roads and Parking/Staging Areas.** Apply water three times daily or non-toxic soil stabilizers according to manufacturers' specification to all unpaved roads and parking or staging areas if required. Apply paving, chip sealing or chemical stabilization of internal roadways after completion of grading.
- **Speed Limit.** Limit traffic speeds on unpaved areas.
- **Disturbed Areas.** When active construction ceases on the site, replace ground cover as quickly as possible.
- **Sweepers.** Use sweepers or water trucks to remove "track-out" at any point of public street access.
- **High winds.** The grading contractor will suspend all soil disturbance activities when winds exceed 25 miles per hour (mph) or when visible dust plumes emanate from a site; disturbed areas will be stabilized if construction is delayed.

Further, in accordance with County Planning and Development Services (PDS) requirements, the Project would require the entire construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, and/or diesel particulate filters with CARB certified Tier 4 equipment.

In addition, the Project would utilize low-VOC coatings in accordance with SDAPCD Rule 67.0 requirements. Based on the County Air Quality Guidelines (2007) for estimating the VOC emissions from VOC contents of the paints, Table 2, *Coating Sales-Weighted Averages*, presents the list of VOC content of the paint coatings of up to 150 grams per liter. With use of the construction fleet Tier 4 and low-VOC coatings, the Project would minimize emissions to the extent feasible.

The Proposed Project incorporates the following Design Features that would minimize mobile and stationary air pollutant emissions during operation:

- The Project site has been designed with a balance of uses including residential, commercial, limited industrial, and open space within close proximity (0.25-mile) to encourage walking and other non-automobile modes of transport between uses and to minimize external (off-site) trips by including local opportunities for employment and shopping for goods and services.

- The Project site maximizes access to transit lines to accommodate bus travel, and to provide lighted shelters at transit access points.
- Streets have been designed to maximize pedestrian access to transit stops.
- The landscape plan includes trees that provide shading of buildings and parking lots, and includes native drought-resistant plants (ground covers, shrubs and trees).
- Flat roofs on non-residential structures will include a white or silver cap sheet to reduce energy demand.
- Building design will include roof anchors and pre-wiring to allow for the installation of photovoltaic systems and/or participate in SDG&E incentive programs for energy efficient development where feasible.
- Preferential parking for carpools will be included to accommodate carpools and vanpools in employment areas (e.g. commercial, business-professional uses).
- All truck loading and unloading docks will be equipped with one 110/208 volt power outlets for every two-dock doors. Signs will be posted stating "Diesel trucks are prohibited from idling more than five minutes and trucks requiring auxiliary power shall connect to the 110/208-volt outlets to run auxiliary equipment."

In addition, the following measures will be incorporated into the design for residential uses:

- Electrical outlets will be installed on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment. Installation of a gas outlet in the rear of residential buildings will be required for the use of outdoor cooking appliances, such as gas burning barbeques.
- Installation of low nitrogen oxide ($NO_x$) hot water heaters will be required.
- Notices will be provided to homebuyers of incentive and rebate programs available through SDG&E or other providers that encourage the purchase of electric landscape maintenance equipment.
- Only natural-gas fireplaces will be permitted in residential uses.

The following measure will be incorporated into the design for commercial uses:

- Two conductive/inductive electric vehicle charging stations will be provided in a commercial land use space. Signage prohibiting parking for non-electric vehicles in the designated parking spaces will be installed.

## 1.3 AIR QUALITY ASSESSMENT

This air quality assessment includes a discussion of applicable significance criteria and analysis methodologies outlined in the County of San Diego's "Guidelines for Determining Significance—Air Quality" guidance document. Based on this guidance document, this assessment evaluates the short-term construction-period and long-term operational period impacts to localized and regional air quality that would result with development of the proposed Project.

# 2.0 EXISTING CONDITIONS

## 2.1 EXISTING SETTING

The Project site is located in northern San Diego County in the community of Fallbrook. The San Luis Rey River runs south of the Project site, I-15 borders a portion of the site to the west. Surrounding lands to the north, east and southwest are currently undeveloped or planned to be developed.

## 2.2 CLIMATE AND METEOROLOGY

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. However, under inversion conditions, 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 $NO_2$ 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. During the fall and winter, air quality problems are created due to CO and $NO_2$ emissions. High $NO_2$ levels usually occur during autumn or winter, on days with summer-like conditions. Air quality recorded at the Alpine monitoring station is particularly affected by the inversion layer because the inversion sits at 2,000 feet above sea level. The monitoring station in Alpine is also at 2,000 feet. Thus, air quality at the Alpine monitoring station is generally the worst in the county (SDCAPCD 2008).

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. $O_3$ and precursor emissions are transported to San Diego during relatively mild Santa Ana weather conditions. However, 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. Figure 3 provides a graphic representation of the prevailing winds in the Project vicinity, as measured at the SDAPCD's Escondido Monitoring Station (the closest meteorological monitoring station to the site). The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

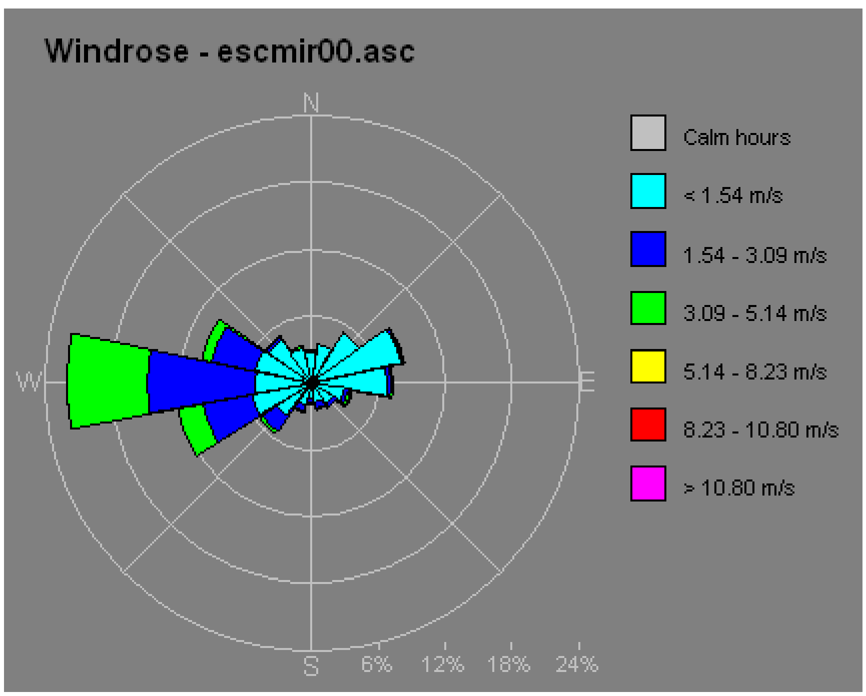



**Figure 3. Wind Rose – Escondido Monitoring Station**

### 2.2.1 <u>Air Pollutants of Concern</u>

#### Criteria Air Pollutants

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 standards. Primary standards are set of limits based on human health. Another set of limits intended to prevent environmental and property damage is called secondary standards. Criteria pollutants are defined by state and federal law as a risk to the health and welfare of the general public.

The following specific descriptions of health effects for each air pollutant associated with Project construction and operation are based on U.S. Environmental Protection Agency (USEPA; 2007) and California Air Resources Board (CARB; 2009a).

Ozone. Ozone is considered a photochemical oxidant, which is a chemical that 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. Ozone is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to ozone.

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

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

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

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. Generally, the highest concentrations of $SO_2$ are found near large industrial sources. $SO_2$ is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to $SO_2$ can cause respiratory illness and aggravate existing cardiovascular disease.

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

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

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

Vinyl Chloride. Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants and hazardous waste sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.

Visibility-Reducing Particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. 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.

**Toxic Air Contaminants**

The public's exposure to toxic air contaminants (TACs) is a significant 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 Clean Air Act (42 USC Sec. 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

> Cancer Risk. One of the primary health risks of concern due to exposure to TACs is the risk of contracting cancer. The carcinogenic potential of TACs is a particular public health concern because it is currently believed by many scientists that there is no "safe" level of exposure to carcinogens; that is, any exposure to a carcinogen poses some risk of causing cancer. Health statistics show that one in four people will contract cancer over their lifetime, or 250,000 in one million, from all causes, including diet, genetic factors, and lifestyle choices.

> Noncancer Health Risks. 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 the California Office of Environmental Health Hazard Assessment (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).

## 2.3 REGULATORY SETTING

Air quality is defined by ambient air concentrations of specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several pollutants (called "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.

## Table 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** | 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 ($PM_{10}$)[8]** | 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 ($PM_{2.5}$)[8]** | 24-Hour | - | - | 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)** | 1-Hour | 20 ppm (23 $mg/m^3$) | Non-Dispersive Infrared Photometry (NDIR) | 35 ppm (40 $mg/m^3$ | - | Non-Dispersive Infrared Photometry (NDIR) |
| | 8-Hour | 9.0 ppm (10 $mg/m^3$) | | 9 ppm (10 $mg/m^3$) | - | |
| | 8-Hour (Lake Tahoe) | 6 ppm (7 $mg/m^3$) | | - | - | - |
| **Nitrogen Dioxide ($NO_2$)[9]** | 1-Hour | 0.18 ppm (339 $\mu g/m^3$) | Gas Phase Chemiluminescence | 0.100 ppm (188 $\mu g/m^3$) | - | Gas Phase Chemiluminescence |
| | Annual Arithmetic Mean | 0.030 ppm (57 $\mu g/m^3$) | | 0.053 ppm (100 $\mu g/m^3$) | Same as Primary Standard | |
| **Sulfur Dioxide ($SO_2$)[10]** | 1-Hour | 0.25 ppm (655 $\mu g/m^3$) | Ultraviolet Fluorescence | 75 ppb (196 $\mu g/m^3$) | - | Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method |
| | 3-Hour | - | | - | 0.5 ppm (1300 $\mu g/m^3$) | |
| | 24-Hour | 0.04 ppm (105 $\mu g/m^3$) | | 0.14 ppm (365 $\mu g/m^3$) (for certain areas)[9] | - | |
| | Annual Arithmetic Mean | - | | 0.030 ppm (80 $\mu g/m^3$) (for certain areas)[9] | - | |
| **Lead[11,12]** | 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 $\mu g/m^3$ | | |

## Table 1 (cont.)
## 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] |
| **Visibility Reducing Particles[13]** | 8-Hour | See footnote 13 | Beta Attenuation and Transmittance through Filter Tape | **No Federal Standards** | | |
| **Sulfates** | 24-Hour | 25 $\mu g/m^3$ | Ion Chromatography | | | |
| **Hydrogen Sulfide** | 1-Hour | 0.03 ppm (42 $\mu g/m^3$) | Ultraviolet Fluorescence | | | |
| **Vinyl Chloride[11]** | 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 calender year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA 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 ARB 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 EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

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

[9] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 and 0.100 ppm, respectively.

[10] On June 2, 2010, a new 1-hour $SO_2$ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-hour average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 $SO_2$ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971standards remain in effect until implementation plans to attain or maintain the 2010 standards have are approved.

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

[12] The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[13] In 1989, the ARB converted both the general statewide 10-mile visibility standards and the Lake Tahoe 20-mile visibility standard to instrumental equivalents, which are “extinction of 0.23 per kilometer” and “extinction of 0.07 per kilometer” for the statewide and Lake Tahoe Air Basin standards, respectively.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; $mg/m^3$ = milligrams per cubic meter

Source: CARB June 4, 2013

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The CARB has 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. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant. 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). The SDAB is currently classified as a nonattainment area under the CAAQS for ozone (serious nonattainment), $PM_{10}$, and $PM_{2.5}$ (CARB 2009d). As of September 2012, no changes have been made to the information above.

Each nonattainment area must submit a "State Implementation Plan" (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 to EPA a formal request for redesignation to attainment. The request must include a "maintenance" plan demonstrating that the area will maintain compliance with that NAAQS for at least 10 years after EPA redesignates the area to attainment. A brief summary of the redesignation request and maintenance plan is provided below (SDAPCD 2012).

**1-Hour Ozone Standard**. San Diego County was designated nonattainment for the 1-hour ozone standard on March 3, 1978. The region attained the 1-hour ozone standard in 2001, based on 1999-2001 air quality data. The District prepared and ARB submitted to EPA a redesignation request and maintenance plan in 2002, and EPA redesignated San Diego County to attainment for the 1-hour ozone standard on July 28, 2003.8 EPA subsequently revoked the 1-hour ozone standard on June 15, 2005,9 after issuing area designations for the more health-protective 1997 8-hour ozone NAAQS. However, the EPA-approved 1-hour ozone Maintenance Plan remains in effect as the applicable ozone SIP until EPA approves a subsequent ozone SIP submittal (i.e., the Maintenance Plan herein) (SDAPCD 2012).

**1997 8-Hour Ozone Standard**. The region was designated nonattainment for the 1997 8-hour ozone NAAQS, effective June 15, 2004, based on ozone air quality measurements over the 2001-2003 three-year period.10 At that time, EPA did not further "classify" the region as "marginal," "moderate," "serious," "severe," or "extreme" nonattainment pursuant to section 181 of the CAA. Instead, EPA relied on CAA provisions in section 172 that do not require classifications and declared San Diego County (and other regions that had attained the former 1-hour ozone NAAQS but violated the 8-hour standard) to be only "basic" (unclassified) nonattainment areas. Basic areas are allowed some flexibility in their air quality attainment plans, whereas classified areas are subject to more prescriptive regulatory requirements. In June 2007, the District submitted a SIP revision fulfilling the requirements EPA had established for a basic nonattainment area.

However, EPA did not take action to approve that 2007 SIP submittal because, also in June 2007, a court ruled that EPA must reconsider its implementation methodology and criteria for foregoing nonattainment classifications in affected regions, including San Diego County. In a rulemaking responding to the court remand, EPA classified San Diego County as a Moderate ozone nonattainment area for the 1997 ozone standard, effective on June 13, 2012. According to the EPA rulemaking, a SIP submittal addressing Moderate ozone nonattainment area control requirements would be due in June 2013. Nevertheless, the District is already implementing even more stringent $NO_x$ and VOC emission control rules that had been required because the area was previously classified as a Serious nonattainment area for the former 1-hour ozone standard. Those Serious area controls remain in place pursuant to the existing 1-hour ozone Maintenance Plan, and are similarly retained in the proposed Maintenance Plan herein for the 1997 8-hour ozone NAAQS.

The District 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 EPA 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).

**2008 8-Hour Ozone Standard**. EPA designated and classified San Diego County as a marginal ozone nonattainment area for the 2008 ozone standard, effective on July 20, 2012, based on 2009-2011 ozone data. Redesignation to attainment of the 1997 standard, if approved, would not affect the region's marginal nonattainment status for the 2008 standard (SDAPCD 2012).

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 prepared the *Ozone Redesignation Request and Maintenance Plan*, with a request for re-designation to attainment/maintenance. On December 6, 2012, the California Air Resources Board (CARB) approved the *Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County* for submittal to U.S. EPA as a SIP revision. On December 20, 2012, the U.S. EPA initiated its adequacy review of the plan and posted the document for a 30-day public review period that closed January 22, 2013. On March 25, 2013, the U.S. EPA approved the redesignation to the 1997 eight hour ozone attainment/maintenance plan.

On May 21, 2012, the U.S. EPA designated the San Diego air basin as a non-attainment area for the new 2008 Eight-Hour Ozone standard and classified it as a marginal area with an attainment date of December 31, 2015. This designation became effective on July 20, 2012.

The CARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The CARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the CAAQS. The CARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a nonattainment 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 Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis. The RAQS was initially adopted by the SDAPCD on June 30, 1992, and amended on March 2, 1993, in response to CARB comments. SDAPCD further updated the RAQS Revisions on December 12, 1995; June 17, 1998; August 8, 2001; July 28, 2004; and April 22, 2009. The local RAQS, in combination with those from all other California nonattainment areas with serious (or worse) air quality problems, is submitted to the CARB, which develops the California State Implementation Plan (SIP). The 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, 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 RAQS and SIP.

The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of the County's General Plan. As such, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development that is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the 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.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for ozone.

Table 1 presents a summary of the ambient air quality standards adopted by the federal and California CAAs.

The current attainment status (Table 2) for San Diego County is as follows:

| Table 2<br>FEDERAL AND STATE AIR QUALITY DESIGNATION | | |
|---|---|---|
| **Criteria Pollutant** | **Federal Designation** | **State Designation** |
| $O_3$ (1-hour) | (No federal standard) | Nonattainment |
| $O_3$ (8-hour) | Nonattainment | Nonattainment |
| CO | Maintenance | Attainment |
| $PM_{10}$ | Unclassifiable | Nonattainment |
| $PM_{2.5}$ | Attainment | Nonattainment |
| $NO_2$ | Attainment | Attainment |
| $SO_2$ | Attainment | Attainment |
| Lead | Attainment | Attainment |
| Sulfates | (No federal standard) | Attainment |
| Hydrogen Sulfide | (No federal standard) | Unclassifiable |
| Visibility | (No federal standard) | Unclassifiable |

Source: SDCAPCD 2012

## 2.4 BACKGROUND AIR QUALITY

The SDAPCD operates a network of ambient air monitoring stations throughout the County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. There is no ambient monitoring station in the Fallbrook or other nearby areas of the Project site. The nearest ambient monitoring stations to the Project site are the Escondido East Valley Parkway station, and the San Diego 12$^{th}$ Avenue station (which is the closest station that measures $SO_2$). Because both the Escondido and San Diego 12$^{th}$ 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 3. Air quality has shown improvement in the SDAB such that the 1-hour state ozone standard was not exceeded in 2007 or 2009, but was exceeded nine times in 2008, two times in 2010, and one time in 2011 at the Escondido monitoring station during the period from 2007 through 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 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 Escondido monitoring station measured exceedances of the state 24-hour $PM_{10}$ standard two times in 2007, and one time in both 2008 and 2009. 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.

**Table 3**
**AMBIENT BACKGROUND CONCENTRATIONS**
**SAN DIEGO MONITORING STATIONS**

| Air Pollutant | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|
| **Ozone – Escondido East Valley Parkway** | | | | | |
| Max 1 Hour (ppm) | 0.094 | 0.116 | 0.093 | 0.105 | 0.098 |
| Days > CAAQS (0.09 ppm) | 0 | 9 | 0 | 2 | 1 |
| Max 8 Hour (ppm) | 0.077 | 0.098 | 0.080 | 0.084 | 0.089 |
| Days > NAAQS (0.075 ppm) | 3 | 13 | 1 | 3 | 2 |
| Days > CAAQS (0.070 ppm) | 5 | 23 | 9 | 5 | 2 |
| **Particulate Matter ($PM_{10}$) – Escondido East Valley Parkway** | | | | | |
| Max Daily (µg/m$^3$) | 68.0 | 82.0 | 73 | 42 | 40 |
| Days > NAAQS (150 µg/m$^3$) | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (50 µg/m$^3$) | 2 | 1 | 1 | 0 | 0 |
| Highest Annual Average (µg/m$^3$) | 26.7 | 24.6 | 24.9 | 20.9 | 18.8 |
| Exceed CAAQS (20 µg/m$^3$) | 1 | 1 | 1 | 1 | 0 |
| **Particulate Matter ($PM_{2.5}$) – Escondido East Valley Parkway** | | | | | |
| Max Daily (µg/m$^3$) | 126.2 | 44.0 | 64.9 | 48.4 | 67.7 |
| Days > NAAQS (35 µg/m$^3$) | 11 | 3 | 2 | 2 | 3 |
| Highest Annual Average (µg/m$^3$) | 13.3 | 12.4 | 13.4 | 12.2 | 12.2 |
| Exceed NAAQS (15 µg/m$^3$) | 0 | 0 | 0 | 0 | 0 |
| Exceed CAAQS (12 µg/m$^3$) | 1 | 1 | 1 | 1 | 1 |
| **Nitrogen Dioxide ($NO_2$) – Escondido East Valley Parkway** | | | | | |
| Max 1 Hour (ppm) | 0.072 | 0.081 | 0.073 | 0.064 | 0.062 |
| Days > NAAQS (0.10 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (0.18 ppm) | 0 | 0 | 0 | 0 | 0 |
| Highest Annual Average (ppm) | 0.016 | 0.018 | 0.016 | 0.014 | 0.013 |
| Exceed NAAQS (0.053 ppm) | 0 | 0 | 0 | 0 | 0 |
| Exceed CAAQS (0.030 ppm) | 0 | 0 | 0 | 0 | 0 |
| **Carbon Monoxide (CO) – Escondido East Valley Parkway** | | | | | |
| Max 8 Hour (ppm) | 3.19 | 2.81 | 3.24 | 2.46 | 2.20 |
| Days > NAAQS (9 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (9.0 ppm) | 0 | 0 | 0 | 0 | 0 |
| Max 1 Hour (ppm) | 5.2 | 5.6 | 4.4 | 3.9 | 3.5 |
| Days > NAAQS (35 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (20 ppm) | 0 | 0 | 0 | 0 | 0 |
| **Sulfur Dioxide ($SO_2$) – Downtown San Diego Beardsley Street** | | | | | |
| Max Daily Measurement (ppm) | 0.006 | 0.007 | 0.006 | 0.002 | 0.003 |
| Days > NAAQS (0.14 ppm) | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (0.04 ppm) | 0 | 0 | 0 | 0 | 0 |

Abbreviations: > = exceed; ppm = parts per million; µg/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
Source: www.arb.ca.gov (all pollutants except 1-hour CO)
http://www.epa.gov/airdata/ (1-hour CO)

# 3.0 SIGNIFICANCE CRITERIA AND ANALYSIS METHODOLOGIES

## 3.1 SIGNIFICANCE CRITERIA

The County (2007) has approved guidelines for determining significance based on Appendix G.III of the State California Environmental Quality Act (CEQA) Guidelines, which provide guidance that a project would have a significant environmental impact if it would:

1. Conflict with or obstruct the implementation of the San Diego RAQS or applicable portions of the SIP;
2. Result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation;
    a. Result in emissions that exceed 250 pounds per day (lbs/day) of $NO_X$, or 75 lbs/day of VOCs.
    b. Result in emissions of carbon monoxide of 550 lbs/day, and when totaled with the ambient concentrations will exceed a 1-hour concentration of 20 parts per million (ppm) or an 8-hour average of 9 ppm.
    c. Result in emissions of $PM_{2.5}$ that exceed 55 lbs/day.
    d. 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.
    e. Result in emissions of VOC, as a precursor to ozone, that exceed 75 lbs/day.
3. Result in a cumulatively considerable net increase of $PM_{10}$ or exceed quantitative thresholds for ozone precursors, $NO_x$ and VOCs;
4. Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations;
    a. Place sensitive receptors near CO "hotspots" or creates CO "hotspots" near sensitive receptors.
    b. 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 or a health hazard index greater than one would be deemed as having a potentially significant impact.
5. Create objectionable odors affecting a substantial number of people.

The County recognizes the SDAPCD's established screening level thresholds for air quality emissions (Rules 20.1 *et seq.*) for land development projects. As stated above, projects that propose development that is consistent with the growth anticipated by the general plans and SANDAG's growth forecasts would be consistent with the RAQS and SIP. 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. Thus, projects would be required to conform with measures adopted in the RAQS (including use of low-VOC architectural coatings, use of low-$NO_x$ water heaters, and compliance with rules and regulations governing stationary sources) and would also be required to comply with all applicable rules and regulations adopted by the SDAPCD.

To determine whether a project would (a) result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation, or (b) result in a cumulatively considerable net increase of $PM_{10}$ or exceed quantitative thresholds for ozone precursors, oxides of $NO_X$ and VOCs, project emissions may be evaluated based on the quantitative emission thresholds established by the SDAPCD. 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 (AQIAs). The County recommends use of 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 $PM_{2.5}$.

For CEQA purposes, these screening criteria can be used as numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality. The screening thresholds are included in Table 4.

**Table 4**
**SCREENING-LEVEL THRESHOLDS FOR AIR QUALITY IMPACT ANALYSIS**

| Pollutant | Total Emissions | | |
|---|---|---|---|
| **Construction Emissions** | | | |
| | **Pounds per Day** | | |
| Respirable Particulate Matter ($PM_{10}$) | 100 | | |
| Fine Particulate Matter ($PM_{2.5}$) | 55 | | |
| Oxides of Nitrogen ($NO_X$) | 250 | | |
| Oxides of Sulfur ($SO_X$) | 250 | | |
| Carbon Monoxide (CO) | 550 | | |
| Volatile Organic Compounds (VOCs) | 75 | | |
| **Operational Emissions** | | | |
| | **Pounds Per Hour** | **Pounds per Day** | **Tons per Year** |
| Respirable Particulate Matter ($PM_{10}$) | --- | 100 | 15 |
| Fine Particulate Matter ($PM_{2.5}$) | --- | 55 | 10 |
| Oxides of Nitrogen ($NO_X$) | 25 | 250 | 40 |
| 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 (VOC) | --- | 75 | 13.7 |
| **Toxic Air Contaminant Emissions** | | | |
| Excess Cancer Risk | 1 in 1 million<br>10 in 1 million with T-BACT | | |
| Non-Cancer Hazard | 1.0 | | |

Source: SDACPD Rule 20.2 and Rule 1210.
T-BACT = Toxics Best Available Control Technology

In the event that emissions exceed these screening-level thresholds, modeling would be required to demonstrate that the Project's total air quality impacts result in ground-level concentrations that are below the NAAQS and CAAQS, including appropriate background levels. For nonattainment pollutants (ozone [with ozone precursors $NO_x$ and VOCs], $PM_{2.5}$ and $PM_{10}$), if emissions exceed the thresholds shown in Table 3, the Project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

In addition to impacts from criteria pollutants, impacts may include emissions of pollutants identified by the state and federal government as TACs or Hazardous Air Pollutants (HAPs). In San Diego County, the PDS identifies an excess cancer risk level of 1 in 1 million or less for projects that do not implement Toxics Best Available Control Technology (T-BACT), and an excess cancer risk level of 10 in 1 million or less for projects that do implement T-BACT. The significance threshold for non-cancer health effects is a health hazard index of one or less. These significance thresholds are consistent with the SDAPCD's Rule 1210 requirements for stationary sources. If a project has the potential to result in emissions of any TAC or HAP which result in a cancer risk of greater than 1 in 1 million without T-BACT, 10 in 1 million with T-BACT, or a health hazard index of one or more, the project would be deemed to have a potentially significant impact.

With regard to evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (Preschool-12$^{th}$ Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Any project that has the potential to directly impact a sensitive receptor located within 1,000 feet and results in a health risk greater than the risk significance thresholds discussed above would be deemed to have a potentially significant impact.

Section 6318 of the County Zoning Ordinance requires all commercial and industrial uses "be operated as not to emit matter causing unpleasant odors which is perceptible by the average person at or beyond any lot line of the lot containing said uses." 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. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

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

## 3.2 METHODOLOGY

The Proposed Project would generate construction-related emissions and operational emissions. The methods used to evaluate construction and operational impacts are described below.

Construction of the Proposed Project would result in the temporary generation of emissions of VOC, $NO_x$, CO, $SO_x$, $PM_{10}$ and $PM_{2.5}$. Emissions would originate from construction equipment exhaust, employee vehicle exhaust, dust from clearing the land, exposed soil eroded by wind, and volatile organic compounds (VOCs) from architectural coating (painting) of building walls and asphalt paving of parking lots. CalEEMod program specifically designates parking areas as a separate land use rather than as a part of an associated land use. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Criteria pollutant and $O_3$ precursor emissions for Project construction activities were calculated using the California Emission Estimator Model (CalEEMod) Version 2001.1.1 computer program as recommended by the County. CalEEMod incorporates CARB's EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions. The EMFAC2011 model is the latest version of the CARB emission factor model for on-road vehicle traffic; however, this model is not available in the CalEEMod Version 2011.1.1. EMFAC2011 was released in end of 2011, after CalEEMod version 2011.1.1 was released. It is expected that the next version of CalEEMod will incorporate the EMFAC2011 emission factors. CalEEMod is designed to model construction emissions for land development projects and allows for the input of project-specific information, such as the number of equipment, hours of operations, duration of construction activities, and selection of emission control measures. The CalEEMod calculations were supplemented by manual calculations where the limitations of the CalEEMod program prevent appropriate representation of a construction activity, such as rock blasting.

Project-generated, long-term regional area-source and mobile-source emissions of criteria air pollutants and $O_3$ precursors were also modeled using CalEEMod. CalEEMod allows land use selections that include project land use types, sizes, and metric specifics and trip generation rates. Table 5 presents a summary of the land uses data input values for the CalEEMod Model. Area sources include the combustion of natural gas for heating and hot water, engine emissions from landscape maintenance equipment, and VOC emissions from repainting of buildings. URBEMIS also accounts for mobile source emissions associated with vehicle trip generation. Project-specific input was based on general information provided in the project description, the traffic impact analysis prepared for this Project (LLG Engineers 2013), assumptions as described in Section 4.2 below, and default CalEEMod settings for San Diego County in order to estimate reasonable worst-case conditions. Model output data sheets and calculations are included in Attachment A.

| Table 5<br>LIST OF LAND USE, SIZE AND METRIC USED AS INPUTS FOR SCENARIOS 1 AND 2 TO CALEEMOD | | | |
|---|---|---|---|
| **Planning Area (PA)** | **Land Uses** | **Size** | **Metric** |
| PA -1 | Industrial Park | 120 | 1,000 sq ft |
| | Parking Lot | 720 | Spaces |
| PA - 2 | Regional Shopping Center | 476 | 1,000 sq ft |
| | Condo/Townhouse | 35 | Dwelling Units |
| | Parking Lot | 2,526 | Spaces |
| PA - 3 | Condo/Townhouse | 248 | Dwelling Units |
| PA – 4 & 5 | Convenience Market (24 Hour) | 15 | 1,000 sq ft |
| | Gasoline/Service Station | 16 or 32 | Pumps |
| | Fast Food Restaurant with Drive Thru | 7.0 | 1,000 sq ft |
| | Parking Lot | 173 | Spaces |

Note: For the purpose of estimating worst case emissions, Scenario 2 is the addition of another Gasoline Service Station with 16 pumps. A total of 32 pumps is assumed for PAs 4 & 5 in Scenario 2.

*Carbon Monoxide Impacts at Congested Intersections*

Localized increases in CO concentrations from vehicle congestion at intersections affected by development were modeled using the California Department of Transportation (Caltrans) CALINE4 line source dispersion model (Benson 1989). CO concentrations at intersections with level of service (LOS) E or F near the vicinity of the Project site were estimated using CALINE4. LOS is a measure of traffic delay, rated A-F, with F indicating the worst delay.

*Health Risks from Diesel Particulate Matter*

To evaluate whether Project construction could pose a significant impact to nearby sensitive receptors, a health risk evaluation of diesel PM was conducted using the EPA SCREEN3 model. 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,* as 24 hours per day, 7 days per week, 365 days per year, for 70 years. Diesel exhaust particulate matter would be emitted during construction due to the operation of heavy equipment at the site. The EPA's approved air dispersion model, SCREEN3, was used to estimate the downwind impacts at the closest receptors to the construction site. The model was run using worst case meteorological conditions. Risks were estimated using the OEHHA unit risk factor of 3 x 10-4 (μg/m3)-1 for diesel PM, which is an upper-bound cancer risk estimate based on 70 years of exposure. 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 duration of each individual construction phase. Further details relative to the health risk methodology are included in Attachment B.

# 4.0 PROJECT IMPACT ANALYSIS

The proposed Project would result in both construction and operational emissions. Construction emissions include short-term emissions associated with mass grading, infrastructure installation and structure development from the Project. Operational emissions include long-term emissions associated with the Project, including energy usage and traffic, at full Project buildout.

## 4.1 CONFORMANCE TO THE REGIONAL AIR QUALITY STRATEGY

### 4.1.1 Issue Background

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

The RAQS relies on information from CARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions in order to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County. As such, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project proposes development which is less dense than anticipated within the General Plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the County General Plan and SANDAG's growth projections upon which the RAQS is based, the project would be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality. This situation would warrant further analysis to determine if the Proposed Project and the surrounding projects exceed the growth projections used in the RAQS for the specific subregional area.

### 4.1.2 Significance of Impacts Prior to Mitigation

The Project involves a Specific Plan Amendment and General Plan Amendment, and is proposing more intense commercial and industrial development than accounted for in the previous General Plan, Specific Plan and, therefore, the 2009 RAQS. The Project is located in the North County East Major Statistical Area, in the Fallbrook Subregional Area. The current 2009 RAQS are based on projections for residential, commercial, industrial and recreational land uses contained in the County's General Plan that was in place at the time the RAQS were adopted in 2009, Hewlett-Packard Campus Park Specific Plan (SP-83-01), and SANDAG's 2030 Regional Transportation Plan (RTP). In relation to the residential developments, the previous General Plan (prior to 2011), Specific Plan (SP-83-01), and 2030 RTP project greater increases in population (i.e., number of residences and commercial square footages) at buildout than the proposed Project. Implementation of the proposed Project would result in fewer residential dwelling units and increased commercial and industrial developments in the unincorporated area of the County than assumed in the previous General Plan and 2030 RTP.

The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O3. The RAQS relies on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the county as part of the development of their general plans and specific plans.

The Hewlett-Packard Campus Park Specific Plan (SP-83-01), approved in 1983, proposed a research and development/manufacturing facility, with a maximum floor area of 2.5 million square feet, within three clusters of buildings, parking for 5,500 cars and a variety of recreational amenities for use by a maximum of 6,500 employees on 323 acres. The uses proposed for the Campus Park West portion of the Hewlett Packard Specific Plan included the 10.5-acre commercial center and 486 residential units (which includes a 150-unit townhouse project and a 336-unit mobile-home park).

For the proposed Project, the total number of dwelling units for residential land uses is proposed to decrease from 486 units 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 sf) of general commercial and 12.9 acres (with a maximum of 120,000 sf) of industrial office land uses. However, both of these proposed commercial land uses are less than the 2.5 million sf approved for the commercial land uses at the Project site.

While potential conflicts with the RAQS may occur when a proposed development, such as Campus Park West, seeks to change the land use designations which were in effect at the time the RAQS were formulated, the effect on anticipated population is also important. With respect to this second factor, it is important to note that the population of San Diego County has not reached the maximum level assumed by the latest version of the RAQS (2009). The 2030 RTP, which was adopted in 2009 (the same year when the RAQS were last updated) predicted a population for the year 2010 of 3,245,279 in San Diego County. However, according to the California Department of Finance, the population of San Diego County as of July 1, 2011 was 3,131,254. Because the current population in San Diego County has not kept up with the projected population that was used as the basis for the RAQS, the addition of 608 residential units (1,661 residents) to the SDAB (based in part on the Proposed Project) would be accommodated in the regional population forecast used to prepare the 2009 RAQS.

The total cumulative housing projected for the Fallbrook Subregional Area for 2030, according to SANDAG projections used for the 2030 RTP, is an additional 9,630 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 in the Campus Park West Traffic Impact Study (LLG Engineers 2013), totals 3,815 dwelling units, which is below SANDAG's 2030 projected growth for the North County East Major Statistical Area of 54,251 dwelling units, and less than SANDAG's 2030 projected growth of 9,630 dwelling units for the Fallbrook Subregional Area.

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). Soon, 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. The Proposed Project has been developed to include smart growth concepts which clusters residential uses around services and jobs, which in return helps to reduce the average vehicle miles traveled (VMT) for the average commuter. According to the General Plan, Goal COS-13 regarding land use development implements policies designed to reduce emissions of criteria pollutants while protecting public health (County 2011a). 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.

COS-13.5 **Single-Occupancy Vehicles.** Support transportation management programs that reduce the use of single-occupancy vehicles.

COS-13.6 **Low Emission Vehicles.** Encourage the use of low emission vehicles and equipment to improve air quality and reduce greenhouse gas (GHG) emissions.

Future residential units, retail uses and other mixed uses are proposed within the Campus Park West Project. The Traffic Impact Analysis assumes that Campus Park and Meadowood Project's office, retail, and residential uses located within the Proposed Project site study area would reduce trips by 30 percent (internal capture). It should be noted that both the County of San Diego and Caltrans approved this 30 percent internal capture reduction. Buses would also serve the Project area, further reducing vehicle trips. These measures were taken into account for calculating operational emissions reductions. Several Project design considerations would reduce operational emissions and were taken into account for calculating operational emissions. Because the Proposed Project addresses several RAQS control measures and the General Plan goals that are relevant to the Project site, the growth projected for the Campus Park West Project plus cumulative projects would not result in a cumulatively significant impact and the Project would be consistent with the RAQS and SIP.

### 4.1.3 Mitigation Measures and Design Considerations

Because the Project's growth, when added to the projected growth in the Fallbrook Subregional Area, would not exceed the growth projections included by SANDAG in the RAQS and SIP, no mitigation measures are required.

#### 4.1.4 Conclusions

The Campus Park West Project would conform to the RAQS and SIP and would not result in a significant impact.

## 4.2 CONFORMANCE TO FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

### 4.2.1 Construction Impacts

Issue Background

Based on the County Guidelines (2007), construction impacts would be potentially significant if they exceed the quantitative screening-level thresholds for attainment/maintenance pollutants ($NO_2$, $SO_2$ and CO), and would result in a significant impact if they exceed the screening-level thresholds for nonattainment pollutants (ozone precursors and particulate matter).

#### 4.2.1.1 Guidelines for the Determination of Significance

*Would the project construction result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

The SDAPCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related impacts. However, the SDAPCD does specify air quality impact analysis (AQIA) trigger levels for new or modified stationary sources (APCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are exceeded, an AQIA must be performed for the proposed new or modified source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may be used to evaluate the increased emissions that would be discharged to the SDAB from proposed land development projects.

SDAPCD Rule 20.2, which outlines these significance level thresholds (SLT), states that any project "which results in an emissions increase equal to or greater than any of these levels, must:

> demonstrate through an AQIA... that the project will not (A) cause a violation of a State or national ambient air quality standard anywhere that does not already exceed such standard, nor (B) cause additional violations of a national ambient air quality standard anywhere the standard is already being exceeded, nor (C) cause additional violations of a State ambient air quality standard anywhere the standard is already being exceeded, nor (D) prevent or interfere with the attainment or maintenance of any State or national ambient air quality standard."

For projects whose stationary source emissions are below these criteria, no AQIA is typically required, and project-level emissions are presumed to be less than significant.

For CEQA purposes, these SLTs can be used to demonstrate that a project's total emissions (e.g., stationary and fugitive emissions, as well as emissions from mobile sources) would not result in a significant impact to air quality. When project emissions have the potential to approach or exceed the SLTs, additional air quality modeling may need to be prepared to demonstrate that ground-level concentrations resulting from project emissions (with background levels) would be below federal and state ambient air quality standards listed in Table 6.

SDAPCD Rules 20.2 and 20.3 do not have AQIA thresholds for emissions of VOCs and $PM_{2.5}$. The use of the screening level for VOCs specified by the South Coast Air Quality Management District (SCAQMD), which generally has stricter emissions thresholds than SDAPCD's, is recommended for evaluating projects in San Diego County.

In the event that Project emissions exceed these SLTs, specific modeling would be required for $NO_2$, $SO_2$, CO, and lead to demonstrate that the project's ground-level concentrations, including appropriate background levels, do not exceed the NAAQS and CAAQS. For ozone precursors, $PM_{10}$ and $PM_{2.5}$, exceedance of the SLTs results in a significant impact. The reason for this is that the SDAB is currently not in attainment for $PM_{10}$, $PM_{2.5}$, and ground-level ozone. Therefore, unless a project includes design considerations or mitigation measures that would reduce the daily emissions to below the applicable screening levels, the impact for these pollutants (ozone precursors, $PM_{10}$, and $PM_{2.5}$) would be significant, as discussed below.

**Ozone Precursors**
*Would the project result in emissions that exceed 250 lbs/day of $NO_X$, or 75 lbs/day of VOCs?*

**Carbon Monoxide**

- *Would the project result in emissions that exceed 550 lbs/day of CO?*

**Particulate Matter**

- *Would the project result in emissions of $PM_{2.5}$ that exceed 55lbs/day?*
- *Would the project result in emissions of $PM_{10}$ that exceed 100 lbs/day and increase the ambient $PM_{10}$ concentration by 5 .0 $\mu g/m^3$ or greater at any sensitive receptor locations (or maximum exposed individual (MEI), a term commonly used by CARB for sensitive receptors)?*

The ambient air quality standards reflect actual concentrations for each criteria pollutant. However, it is not economically feasible for individual land use projects to model actual concentrations for ozone based on emissions of its precursors due to the complex regional nature of ozone formation in the atmosphere. Therefore, exceedance of the SLTs for $NO_x$ and VOCs would result in a significant impact unless mitigation is incorporated that would reduce the emissions of these pollutants below the level of the screening thresholds.

#### 4.2.1.2 Significance of Impacts Prior to Mitigation

The construction activities associated with the Proposed 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 Proposed Project were calculated using the California Emission Estimator Model (CalEEMod) computer program assuming that construction duration period would begin in January 2015 and last until 2025.

Construction activities are assumed to occur in two separate phases: as the specific tasks to be completed daily during each phase will not be exactly comparable, the worse case construction day for each phase has been chosen for the purpose of this analysis. For the purpose of assessing two mass grading options, separate mass grading options (i.e., Option 1 and Option 2) were analyzed.

Under the first option, Phase 1 would involve the mass grading of the entire Project site area and Phase 2 would involve the utility installation at the Project site. This phase would include the mass grading of the entire site over a four to six month period with 30,000 to 50,000 cy of soil being moved within the Project site per week. Soil removed from the north and central portions of the Project would be used to raise pad elevations above the flood plain in the southern portion of the Project, resulting in balanced grading on site. At any given time, the maximum acreage disturbed would be up to 29 acres per day (i.e., up to 25 percent of the entire 116 acre site). Following the mass grading, backbone infrastructure would be installed. This would consist of all the elements necessary to support developed uses on site, such as construction of Pankey Road, intersection improvements along SR-76, road connections to Pala Mesa Drive, off-site connections to a potable water source and sewer lines to ensure redundancy, the construction of a pump station, and the connection of all utility lines between these facilities and the Project boundary. The sewer main in Pankey Road also would be installed. The detention basins and storm drains in Pankey Road, Pala Mesa Drive, and SR-76 would be completed during this phase.

These efforts, defined as Phase 1 in this report, are anticipated to take between 6 months and a year, regardless of whether Scenario 1 or Scenario 2 is approved, for a total phase of one year to 18 months for grading and infrastructure. For the purposes of environmental review throughout this EIR, assumptions also have been made regarding construction equipment operating during this phase.

Dedication of Project biological open space areas would also occur as a first action during this phase, with concurrent monitoring of construction activities adjacent to any open space set aside.

In order to provide a conservative assessment of potential emissions of criteria pollutants, the worst-case (peak) construction day was analyzed for this phase. This would include the largest possible area graded in a given day, along with the installation of utility lines occurring concurrently on the site.

Once the above construction efforts are completed, vertical construction of buildings could begin. This phase, Phase 3, is anticipated to take 10 to 15 years regardless of whether Scenario 1 or Scenario 2 is approved. Phase 2 would involve the "vertical construction of all of the structures required for the mixed-use, residential, general commercial retail and industrial office development, as well as interior site roads, installation of Project streetscape, etc. Utilities and storm drains within development sites, as well as associated parking areas and landscaping would be implemented concurrently with build out of the specific use areas. Although there is a logical projection of the order of development involving the development of the residential buildings later so as not to subject the residents to potential construction impacts, the specific order of development would be market driven and cannot be specified at this time. This plan anticipates 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 (PA2) would be developed second, the residential area (PA3) would be developed third, and the light industrial/office area (PA1) would be developed last. In order to provide conservative environmental evaluation, the worst-case construction day was analyzed for this phase; Project analyses assume that residents associated with multi-family or mixed-use core portions of the Project would be on site while adjacent Project construction would be ongoing.

Further, it was assumed that peak construction of Phase 3 and operation of the residential and commercial development would overlap. The combined (construction plus operational) emissions are compared with the daily emission thresholds.

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.

SDAPCD Rule 55 prohibits construction or demolition activity that would discharge into the atmosphere beyond the property line dust emissions of 10 percent opacity or greater for a period of 3 minutes in any 60-minute period. Rule 55 also requires minimization of visible roadway dust as a result of active operations that generate fugitive dust. The following standard fugitive dust control measures required as part of grading are incorporated into the Project design and were taken into account when calculating construction emissions:

- All unpaved construction areas shall be sprinkled with water or other acceptable SDAPCD dust control agents a minimum of twice daily during dust-generating activities to reduce dust emissions. Additional watering or acceptable SDAPCD dust control agents shall be applied during dry weather or windy days until dust emissions are not visible.
- Apply soil stabilizers to inactive areas.
- A 15-mile-per-hour speed limit on unpaved surfaces shall be enforced.
- On dry days, dirt and debris spilled onto paved surfaces shall be swept up immediately to reduce resuspension of particulate matter caused by vehicle movement. Approach routes to construction sites shall be cleaned daily of construction-related dirt in dry weather.
- Disturbed areas shall be hydroseeded, landscaped, or developed as quickly as possible and as directed by the County and/or SDAPCD to reduce dust generation.

Although it was assumed that all of the above dust control measures would be implemented, to model the most conservative construction estimates, only application of water during grading was taken into consideration when applying a control efficiency on particulate emissions. Based on the CalEEMod, Version 2011.1.1, the control efficiency for watering three times daily is 61 percent. For conservative purposes, the other control measures were not accounted for in the construction emission calculations.

Construction activities would include the two major phases: (1) site grading, and (2) utility lines installations.

Phase 3, the vertical building construction activities, would consist of the following stages: building construction, architectural coating application, and asphalt paving. It was assumed that the maximum construction activity would occur when these three activities overlap at any given time.

According to the CalEEMod model, emissions from asphalt off-gassing can be estimated by assuming an emission rate of 2.62 lbs/acre of area to be paved. The amount to be paved was estimated to be one acre per day during the paving construction phase.

Coatings used for the Proposed Project would have to conform to the SDAPCD Rule 67, which prohibits the use of architectural coatings (i.e., paints) that would exceed VOC content limits specified for each coating category in the rule. For modeling the Proposed Project's emissions in CalEEMod, conformance with these rules was therefore assumed. According to Rule 67, residential interior coatings must have a VOC content less than or equal to 50 grams per liter (g/L), residential exterior coatings must have a content less than or equal to 100 g/L, and non-residential exterior and interior coatings must have a content less than or equal to 250 g/L.

Construction would require heavy equipment during mass grading, utility installations, building construction and paving. Construction emissions were estimated using the CalEEMod, Version 2011.1.1 (SCAQMD 2011), and construction equipment estimates based on estimates from the Project Design Consultants and default values in the model. Beginning January 1, 2015, CARB requires all off-road equipment greater than 50 hp to comply with the U.S. EPA Tier 4 emission standards and install PM filter devices. For off-road construction equipment, all off-road diesel equipment would use engines compliant with EPA'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. Note that Tier 4 emissions standards for $SO_2$ are based on fuel consumption, and the EPA assumes the same fuel consumption for engines of all tier categories. Therefore, there are no Tier 4 emission reductions as seen in criteria air pollutants, so the $SO_2$ emission factor is essentially the same as Tier 2 and 3 fleet average emission factors.

Table 6 presents a summary of the assumed equipment that would be involved in each stage of construction.

| Table 6<br>CONSTRUCTION STAGES AND EQUIPMENT REQUIREMENTS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Off-road Equipment Type** | **Horsepower** | **Grading** | | **Backbone Infrastructure** | | **Building Construction** | | **Architectural Coatings** | | **Paving** | |
| | | **Pieces** | **Hours** | **Pieces** | **Hours** | **Pieces** | **Hours** | **Pieces** | **Hours** | **Pieces** | **Hours** |
| Aerial Lift | 34 | - | - | - | - | 10 | 8 | 3 | 8 | - | - |
| Air Compressors | 78 | - | - | - | - | 2 | 8 | 1 | 8 | - | - |
| Bore/Drill Rigs | 82 | - | - | 1 | 8 | - | - | - | - | - | - |
| Cement and Mortar Mixers | 9 | - | - | - | - | 2 | 8 | 1 | 8 | 1 | 8 |
| Cranes | 208 | - | - | - | - | 2 | 4 | - | - | - | - |
| Crawler Tractors | 82 | 5 | 8 | - | - | - | - | - | - | 4 | 8 |
| Dumpers/Tenders | 16 | 20 | 4 | - | - | - | - | - | - | 20 | 4 |
| Excavators | 157 | - | - | 3 | 8 | 1 | 4 | - | - | - | - |
| Forklifts | 149 | - | - | 1 | 8 | 4 | 8 | 1 | 8 | - | - |
| Generator Sets | 84 | - | - | - | - | 3 | 8 | - | - | - | - |
| Graders | 162 | 2 | 8 | - | - | - | - | - | - | 1 | 8 |
| Off-Highway Tractors | 160 | 1 | 8 | 1 | 8 | 1 | 8 | - | - | 1 | 4 |
| Off-Highway Trucks | 381 | 10 | 8 | 2 | 8 | - | - | - | - | 1 | 4 |
| Other Construction Equipment | 327 | 2 | 4 | 2 | 4 | 2 | 4 | - | - | 2 | 4 |
| Other General Industrial Equipment | 150 | 1 | 4 | 1 | 4 | 4 | 4 | - | - | - | - |
| Pavers | 89 | - | - | - | - | - | - | - | - | 2 | 8 |
| Paving Equipment | 82 | - | - | - | - | - | - | - | - | 4 | 8 |
| Plate Compactors | 8 | - | - | - | - | 2 | 8 | - | - | 2 | 8 |
| Pressure Washers | 13 | - | - | - | - | 2 | 8 | - | - | - | - |
| Pumps | 84 | - | - | - | - | 1 | 8 | - | - | - | - |
| Rollers | 84 | 2 | 8 | - | - | - | - | - | - | 3 | 8 |

| **Table 6** (cont.)<br>**CONSTRUCTION STAGES AND EQUIPMENT REQUIREMENTS** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Off-road Equipment Type** | **Horsepower** | **Grading** | | **Backbone Infrastructure** | | **Building Construction** | | **Architectural Coatings** | | **Paving** | |
| | | **Pieces** | **Hours** | **Pieces** | **Hours** | **Pieces** | **Hours** | **Pieces** | **Hours** | **Pieces** | **Hours** |
| Rough Terrain Forklifts | 83 | - | - | - | - | 2 | 8 | 1 | 8 | - | - |
| Rubber Tired Dozers | 358 | 12 | 4 | - | - | - | - | - | - | 2 | 4 |
| Rubber Tired Loaders | 87 | 2 | 8 | - | - | - | - | - | - | 2 | 8 |
| Scrapers | 356 | 12 | 8 | - | - | - | - | - | - | - | - |
| Signal Boards | 6 | - | - | - | - | - | - | - | - | - | - |
| Skid Steer Loaders | 37 | 2 | 8 | - | - | 1 | 8 | - | - | 2 | 8 |
| Sweepers/Scrubbers | 88 | - | - | - | - | 1 | 4 | - | - | 1 | 4 |
| Tractors/Loaders/Backhoes | 75 | 2 | 8 | 2 | 8 | 2 | 8 | - | - | 2 | 8 |
| Trenchers | 69 | - | - | 1 | 8 | - | - | - | - | - | - |
| Welders | 46 | - | - | - | - | 8 | 8 | - | - | - | - |

Table 7 provides a summary of the construction emission estimates for Phase 1 (Option 1). 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 assumptions used in this analysis are as follows: Phase 1 construction activities associated with site grading and Phase 2 utility line installations would occur in sequential order. None of the Phase 1 activities would occur or overlap on any single peak day during the construction period. The resultant emissions from the combined Phase 1 and Phase 2 activity are compared to the daily emission thresholds to determine significance.

**Table 7**
**PHASES 1 and 2– ESTIMATED CONSTRUCTION EMISSIONS**
**MASS GRADING (Option 1) AND BACKBONE INFRASTRUCTURE (lbs/day)**

| Analysis Year | Scenario | VOC | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|---|
| 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. EPA 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.

As shown in Table 7, with application of EPA Tier 4 equipment, CARB diesel particulate filter devices, APCD 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 Phase 3 of the Proposed Project, the construction would involve "vertical" building construction. The assumptions used in this analysis are as follows: for both Scenarios, Phase 2 construction activities associated with the development of the 248 residential units, mixed-use commercial, and industrial land uses would occur in sequential order (i.e., no overlap between PAs). None of these Phase 2 activities would occur or overlap on any single peak day during the construction period. The resultant emissions from each Phase 2 activity are compared to the daily emission thresholds to determine significance. Tables 8 through 11 provide a summary of the emission estimates for Phase 3.

| Table 8<br>PHASE 3 – PA 4 & 5 – ESTIMATED CONSTRUCTION EMISSIONS (lbs/day) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis Year** | **Scenario** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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. EPA 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.

| Table 9<br>PHASE 3 – PA 2 – SCENARIOS 1 AND 2 ESTIMATED<br>CONSTRUCTION EMISSIONS (lbs/day) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis Year** | **Scenario** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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. EPA 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.

| Table 10<br>PHASE 3 – PA 3 – SCENARIOS 1 AND 2 ESTIMATED<br>CONSTRUCTION EMISSIONS (lbs/day) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Year** | **Scenario** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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. EPA 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.

| Table 11<br>PHASE 3 – PA 1 – SCENARIOS 1 AND 2 ESTIMATED CONSTRUCTION EMISSIONS (lbs/day) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Year** | **Scenario** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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. EPA 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.

As shown in Tables 8 through 11, emissions of all criteria pollutants during Phase 2 construction would be below the daily thresholds. Construction of the Proposed Project would, therefore, not conflict with the NAAQS or CAAQS, and the construction impact is less than significant.

Table 12 provides a summary of the construction emission estimates for Phase 1 (Option 2). The first part of the mass grading 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 first part of mass grading includes approximately 500,000 cubic yards of cut and fill, which includes approximately 50,000 cubic yards of borrow from the multifamily parcel east of Pankey Road. Soil removed from the area north of SR-76 would be used to raise pad elevations above the floodplain in the southern portion of the project site. During earth-moving operations, grading quantities would be balanced on-site and there would be no need to import or export soil off-site. Construction vehicles would access the site via SR-76, with staging and storage areas located within the proposed grading areas for the project. Since the site is designed to balance, project-related traffic would be restricted to construction workers and supplies for construction. Following the first grading phase, backbone infrastructure would be installed. This would include all necessary elements to support developed uses on site; such as widening, improvement, and signalization of SR-76 and Old Highway 395, installation of a traffic signal at Old Highway 395 and Reche Road, construction of Pankey Road, connections to a potable water source, construction of sewer pump station(s), installation of utility lines, and completion of drainage infrastructure. 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.

The second part of the mass grading plan includes approximately 300,000 cubic yards of cut and fill to complete the grading of the multifamily parcel and the parcels north of Pala Mesa Drive The second part of mass grading would occur after the completion of Planning Area 2, which includes the mixed use commercial and residential parcel north of SR-76 and west of Pankey Road. 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 each phase of activity are compared to the daily emission thresholds to determine significance.

| Table 12<br>OPTION 2 – PHASES 1 AND 2 – ESTIMATED CONSTRUCTION EMISSIONS<br>MASS GRADING (1st Part) AND BACKBONE INFRASTRUCTURE<br>(lbs/day) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Analysis Year** | **Scenario** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 1st Part 2015 | 1 | 20.42 | 43.63 | 336.30 | 0.72 | 26.88 | 14.07 |
| 1st Part 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 (2nd Part) (lbs/day)** | | | | | | | |
| **Analysis Year** | **Scenario** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 2nd Part 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:

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

As shown in Table 12, with application of EPA Tier 4 equipment, CARB diesel particulate filter devices, APCD 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.

#### 4.2.1.3 Mitigation Measures and Design Considerations

The SDAPCD has promulgated a rule (Rule 55) that would require specific reasonably available control measures (RACM) to suppress fugitive dust emissions from construction. However, currently the SDAPCD has no guidelines for mitigating fugitive dust. Regardless, the Applicant shall employ RACMs to reduce the amount of fugitive dust generated from construction of the proposed project. The Project construction plan is projected to include standard dust control measures to reduce generation of fugitive dust during construction. A control efficiency of 50 perfect was assumed to account for soil stabilization, watering of active grading sites, and other dust control practices.

The estimation of construction impacts includes the incorporation of the standard construction emission control measures described in Section 1.2, Project Description. The main source of $NO_x$ and VOC emissions during construction of large projects such as the Campus Park West Project 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, and/or diesel particulate filters with CARB certified Tier 4 equipment.

According to CARB requirements (Fleet Modernization for Construction Equipment. Post-January 1, 2015), all off-road diesel-powered construction equipment greater than 50 hp is required to meet the Tier 4 emission standards, where available. In addition, all construction equipment is required to 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 equipment unit's certified tier specification, BACT documentation, and CARB or SDAPCD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

In addition, the Project would utilize low-VOC coatings in accordance with SDAPCD Rule 67.0 requirements. Based on the County Air Quality Guidelines (2007) for estimating the VOC emissions from VOC contents of the paints, Table 2, Coating Sales-Weighted Averages, presents the list of VOC content of the paint coatings of up to 150 grams per liter. With use of the construction fleet Tier 4 and low-VOC coatings, the Project would minimize emissions to the extent feasible.

#### 4.2.1.4 Conclusions

With design considerations noted above, the results show that construction-related emissions regardless of which land use scenario is selected will be below the level of significance for each Project Planning Area. Therefore, Project criteria pollutants emissions during construction would constitute a less than significant impact on the ambient air quality.

### 4.2.2 Operational Impacts

Based on the County Guidelines (2007), operational impacts would be potentially significant if they exceed the quantitative screening-level thresholds for attainment/maintenance pollutants ($NO_2$, $SO_2$, and CO), and would result in a significant impact if they exceed the screening-level thresholds for nonattainment pollutants (ozone precursors and particulate matter).

#### 4.2.2.1 Guidelines for the Determination of Significance

*Would the project operations result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

**Ozone Precursors**

- *Would the project result in emissions that exceed 250 lbs/day of $NO_X$, or 75 lbs/day of VOCs?*

**Carbon Monoxide**

- *Would the project result in emissions of CO that 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?*

**Particulate Matter**

- *Would the project result in emissions of $PM_{2.5}$ that exceed 55 lbs/day?*
- *Would the project result in emissions of $PM_{10}$ that exceed 100 lbs/day and increase the ambient $PM_{10}$ concentration by 5.0µg/m3 or greater at any sensitive receptor locations?*

The primary operational emissions associated with the Project are CO, $PM_{10}$, and ozone precursors emitted as vehicle exhaust. The effects of CO emissions were evaluated through CO dispersion modeling, while vehicular and area source emissions were evaluated using the CalEEMod model.

#### 4.2.2.2 Significance of Impacts Prior to Mitigation

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

Project-generated traffic was addressed in the Campus Park West Traffic Impact Study (LLG Engineers 2013). Based on the Traffic Impact Study, at full buildout the Project would generate 36,206 average daily trips (ADT). These trips are associated with the residential development, commercial facilities, and industrial facilities. To estimate emissions associated with Project-generated traffic, the EMFAC2007 emission program (CARB 2007a) was used. Equipment emission rates are, therefore, based on California state-wide emissions. For conservative modeling purposes, emission factors representing the vehicle mix for emission analysis years 2015 through 2025 were used to estimate emissions. Based on the results of the EMFAC2007 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 that are taken into account in the EMFAC2007 model. Default vehicle speeds, trip rates, trip lengths, trip purpose, and trip type percentages for each land use type were applied in the CalEEMod model. Based on the Campus Park West Traffic Impact Study, the gross trip generation for the Project was estimated to be 36,206 ADT. The traffic study included an internal capture rate that reduced the gross ADT by 30 percent. However, the air quality modeling used the gross trip generation for the worst case daily emission analysis.

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. Operational emission calculations and CalEEMod model outputs are provided in Attachment A. Tables 13 through 17 present the summary of the operational emissions for Scenarios 1 and 2 for each planning area. Tables 23 and 24 present the summary of the operational emission year 2025 for entire Proposed Project for Scenario 1 and Scenario 2, respectively.

**Table 13**
**PLANNING AREAS 4 AND 5 ESTIMATED 2018 OPERATIONAL EMISSIONS FOR SCENARIO 1 (lbs/day)**

| Category | VOC | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 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 |
| Exceedance? | No | No | No | No | No | No |

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

**Table 14**
**PLANNING AREAS 4 AND 5 ESTIMATED 2018 OPERATIONAL EMISSIONS FOR SCENARIO 2 (lbs/day)**

| Category | VOC | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 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 |
| Exceedance? | No | No | No | No | No | No |

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

**Table 15**
**PLANNING AREA 2 ESTIMATED 2021 OPERATIONAL EMISSIONS FOR SCENARIOS 1 & 2 (lbs/day)**

| Category | VOC | $NO_x$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|---|
| 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 |

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

| Table 16<br>PLANNING AREA 3 ESTIMATED 2023 OPERATIONAL EMISSIONS FOR SCENARIOS 1 & 2 (lbs/day) | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |

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

| Table 17<br>PLANNING AREA 1 ESTIMATED OPERATIONAL EMISSIONS FOR SCENARIOS 1 & 2 (lbs/day) | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |

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

As shown in Tables 13, 14, 16 and 17, emissions of all criteria pollutants during operation for each separate Planning Areas 1, 3, 4, and 5 would be below the daily thresholds. However, Planning Area 2 would exceed the thresholds for VOC, CO, and $PM_{10}$ (Table 14). The implementation of the Proposed Project would be considered a significant impact on air quality.

Due to the lengthy construction period, assumed to occur from 2015 to 2025, operational activities would overlap with construction activities. Therefore, the total Proposed Project emissions were estimated during a period when construction and operational activities substantially overlap. For conservative planning purposes, it would be assumed that peak construction of Phase 2 for Planning Area 2 would overlap with commercial operations of Planning Areas 4 and 5. Likewise, for construction of PA 3 would overlap with commercial and residential operations of PA 2, 4, and 5. Also, for construction of PA 1 would overlap with commercial and residential operations of PA 2, 3, 4, and 5. The combined (construction plus operational) emissions would be compared with the daily emission thresholds. Tables 18 through 23 present the combined total of peak daily construction and operational emissions.

| Table 18<br>PAS 4 & 5 OPERATIONAL AND PA 2 CONSTRUCTION 2018<br>ESTIMATED EMISSIONS FOR SCENARIO 1 (lbs/day) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Planning Area** | **Year** | **Category** | **VOC** | **NOx** | **CO** | **SO2** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| **PA 2, 4 & 5** | **2018** | **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 |
| Exceedance? | | | No | No | No | No | No | No |

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

| Table 19<br>PAS 4 & 5 OPERATIONAL AND PA 2 CONSTRUCTION<br>2018 ESTIMATED EMISSIONS FOR SCENARIO 2 (lbs/day) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Planning Area** | **Year** | **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| **PA 2, 4 & 5** | **2018** | **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 |
| Exceedance? | | | No | No | No | No | No | No |

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

| Table 20<br>PAS 2, 4 & 5 OPERATIONAL AND PA 3 CONSTRUCTION<br>2021 ESTIMATED EMISSIONS FOR SCENARIO 1 (lbs/day) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Planning Area** | **Year** | **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| **PA 2, 3, 4 & 5** | **2021** | **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 |
| Exceedance? | | | Yes | No | Yes | No | Yes | No |

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

| Table 21<br>PAS 2, 4 & 5 OPERATIONAL AND PA 3 CONSTRUCTION<br>2021 ESTIMATED EMISSIONS FOR SCENARIO 2 (lbs/day) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Planning Area** | **Year** | **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| **PA 2, 3, 4 & 5** | **2021** | **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 |
| Exceedance? | | | Yes | No | Yes | No | Yes | No |

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

| Table 22<br>PAS 2, 4 & 5 OPERATIONAL AND PA 3 CONSTRUCTION<br>2023 ESTIMATED EMISSIONS FOR SCENARIO 1 (lbs/day) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Planning Area** | **Year** | **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| **PA 2, 3, 4 & 5** | **2021** | **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 |
| Exceedance? | | | Yes | No | Yes | No | Yes | No |

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

| Table 23<br>PAS 2, 4 & 5 OPERATIONAL AND PA 3 CONSTRUCTION<br>2023 ESTIMATED EMISSIONS FOR SCENARIO 2 (lbs/day) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Planning Area** | **Year** | **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| **PA 2, 3, 4 & 5** | **2021** | **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 |
| Exceedance? | | | Yes | No | Yes | No | Yes | No |

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

The combined construction and operational emissions would exceed the significance thresholds and would, therefore, be significant under CEQA for all pollutants, except for $NO_X$ , $SO_2$, and $PM_{2.5}$.

For the full build-out of the Proposed Project, the results of the emission calculations, in lbs/day, are summarized in Tables 24 and 25, along with emissions associated with area sources and a comparison with the County significance criteria. The CalEEMod model outputs are presented in Attachment A. When the five planning areas are combined as shown in Tables 24 and 25, emissions of criteria pollutants during operation for the entire Proposed Project would exceed the daily thresholds for VOCs, CO, and $PM_{10}$. This air quality impact is considered significant; mitigation measures are required.

| Table 24<br>PAS 1-5 – SCENARIO 1 – ESTIMATED 2025<br>OPERATIONAL EMISSIONS (lbs/day) | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| Exceedance? | Yes | No | Yes | No | Yes | No |

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

| **Table 25**<br>**PAS 1-5 – SCENARIO 2 – ESTIMATED 2025**<br>**OPERATIONAL EMISSIONS (lbs/day)** | | | | | | |
|---|---|---|---|---|---|---|
| **Category** | **VOC** | **$NO_x$** | **CO** | **$SO_2$** | **$PM_{10}$** | **$PM_{2.5}$** |
| 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 |
| Exceedance? | Yes | No | Yes | No | Yes | No |

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

Based on the estimates of the emissions associated with Project operations, the VOC, CO and $PM_{10}$ emissions would be above the screening level thresholds in 2025, and impacts would be significant. Because vehicular emissions decrease over time with phase-out of older vehicles and implementation of increasingly stringent emission controls, future vehicle emissions would continue to decrease over time.

**Traffic Related CO Concentrations (CO Hot Spot Analysis)**

Project-generated vehicle trips would increase traffic volumes at roadway intersections in the site vicinity once the Project becomes operational. During periods of near-calm winds, heavily congested intersections can produce elevated levels of CO that could potentially impact nearby sensitive receptors. Therefore, a CO "hot spot" analysis was conducted to determine whether the Proposed Project would contribute to a violation of the ambient air quality standards for CO at any local intersections.

The *Transportation Project-Level Carbon Monoxide Protocol* (Garza et al. 1997) 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 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. In general, CO "hot spots" would be anticipated near affected intersections because operation of vehicles in the vicinity of congested intersections involves vehicle stopping and idling for extended periods.

Because the CO emissions associated with the Project were estimated to be above the screening-level thresholds for CO, to further evaluate whether the Project would result in a significant impact, additional analysis for criteria pollutants that exceed the screening-level thresholds was conducted. An analysis was conducted in accordance with Caltrans guidance to evaluate whether emissions of CO, which are above the screening-level thresholds in 2025, would cause a ground-level exceedance of the NAAQS or CAAQS for CO.

Projects involving traffic impacts may result in the formation of locally high concentrations of CO, known as CO "hot spots." To verify that the Project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO "hot spots" was conducted. The Traffic Impact Analysis (LLG Engineers 2013) evaluated whether or not there would be a decrease in the level of service at the roadways and/or intersections affected by the Project. The potential for CO "hot spots" was evaluated based on the results of the Traffic Impact Analysis. 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 evaluated 38 intersections, 39 roadway segments, and 3 freeway segments in the Project vicinity to evaluate the LOS for Existing, Existing + Project, Existing + Projects + Cumulative, Year 2030, and Year 2030 + Project. CO "hot spots" would be possible at intersections because intersection traffic is subject to congestion and idling.

Several intersections and roadway segments currently operate at LOS E or better, and would operate in future years at LOS E or F with or without Project traffic. Based on the traffic analysis, the Project would result in a direct significant impact at the following 19 intersections:

1. E. Mission Road at Old Highway 395
2. Mission Road at I-15 SB Ramps
3. Mission Road at I-15 NB Ramps
4. Reche Road at Old Highway 395
5. Stewart Canyon Road at Old Highway 395
6. Pala Mesa Road at Old Highway 395
7. SR-76 (Pala Road) at E. Vista Way
8. SR-76 (Pala Road) at N. River Road
9. SR-76 (Pala Road) at Olive Hill Road
10. SR-76 (Pala Road) at S. Mission Road
11. SR-76 (Pala Road) at Via Monserate Road
12. SR-76 (Pala Road) at Gird Road
13. SR-76 (Pala Road) at Sage Road
14. SR-76 (Pala Road) at Old Highway 395
15. SR-76 (Pala Road) at I-15 Southbound Ramps
16. SR-76 (Pala Road) at I-15 Northbound Ramps
17. SR-76 (Pala Road) at Rice Canyon Road
18. SR-76 (Pala Road) at Couser Canyon Road
19. Dulin Road at Old Highway 395

Table 26 presents a summary of LOS for the 19 identified intersections. Mitigation measures to alleviate traffic congestion have, therefore, been recommended by LLG. For the purpose of assessing the worst-case emissions, the traffic data under the Existing + Project + Cumulative scenario were assumed to occur during the analysis year 2025. The expected Project completion date is assumed to occur in year 2025, when the entire Project operation commences.

**Table 26**
**INTERSECTION LEVEL OF SERVICE SUMMARY**

| Intersection | Existing Conditions | | Existing + Project | | Existing + Project + Cumulative | |
|---|---|---|---|---|---|---|
| | ***am*** | ***pm*** | ***am*** | ***pm*** | ***am*** | ***pm*** |
| 1. E. Mission Road / Old Hwy 395 | C | E | C | E | E | F |
| 2. E. Mission Road / I-15 SB Ramps | C | D | C | D | D | F |
| 3. E. Mission Road / I-15 NB Ramps | C | C | C | D | C | F |
| 9. Reche Road / Old Hwy 395 | D | F | F | F | F | F |
| 10. Stewart Canyon / Old Hwy 395 | B | B | C | C | F | F |
| 13. Pala Mesa Drive / Old Hwy 395 | B | B | B | B | F | F |
| 15. SR 76 / E. Vista Way | D | D | D | D | F | F |
| 16. SR 76 / N. River Road | B | B | B | C | C | E |
| 17. SR 76 / Olive Hill Road | C | E | D | E | F | F |
| 18. SR 76 / S. Mission Road | B | B | B | B | C | E |
| 19. SR 76 / Via Monserate Road | E | F | F | F | F | F |
| 20. SR 76 / Gird Road | A | B | B | B | C | E |
| 21. SR 76 / Sage Road | C | D | D | E | F | F |
| 22. SR 76 / Old Highway 395 | D | D | D | D | F | F |
| 23. SR 76 / I-15 SB Ramps | C | C | C | F | E | F |

**Table 26** (cont.)
**INTERSECTION LEVEL OF SERVICE SUMMARY**

| **Intersection** | **Existing Conditions** | | **Existing + Project** | | **Existing + Project + Cumulative** | |
|---|---|---|---|---|---|---|
| | ***am*** | ***pm*** | ***am*** | ***pm*** | ***am*** | ***pm*** |
| 24. SR 76 / I-15 NB Ramps | C | D | C | F | E | F |
| 35. SR 76 / Rice Canyon Road | B | B | B | B | F | F |
| 36. SR 76 / Couser Canyon Road | B | C | C | C | F | F |
| 38. Dulin Road / Old Highway 395 | C | B | D | B | F | F |

Source: LLG Engineers 2013

California Line Source Dispersion Model (Version 4) (CALINE4) modeling was conducted for the intersections identified above. Modeling was conducted based on the guidance in Attachment C of the Protocol to calculate maximum predicted 1-hour CO concentrations. As recommended in the Protocol, predicted 1-hour CO concentrations were then scaled to evaluate maximum predicted 8-hour CO concentrations using the recommended scaling factor of 0.7 for urban locations.

Traffic volume inputs to the CALINE4 model were obtained from the Traffic Impact Analysis. As recommended in the Protocol, receptors were located at locations that were approximately 3 meters (m) from the mixing zone, and at a height of 1.8 m. For conservative purposes, emission factors from the EMFAC2007 model for the year 2025 were used in the CALINE4 model.

In accordance with the Protocol, it is also necessary to estimate future background CO concentrations in the Project vicinity to determine the potential impact plus background and evaluate the potential for CO "hot spots" due to the Project. The existing maximum 1-hour and 8-hour background concentrations of CO that was measured at the Escondido monitoring station of 5.7 and 3.24 ppm were used to represent future maximum background 1-hour and 8-hour CO concentrations. CO concentrations in the future may be lower as inspection and maintenance programs and more stringent emission controls are placed on vehicles.

The CALINE4 model outputs are provided in Attachment C of this report. Table 27 presents a summary of the predicted CO concentrations (impact plus background) for the intersections evaluated for the Existing plus Cumulative plus Project traffic for the affected intersections. As shown in Table 26, the predicted CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS for CO shown in Table 1 of this report. 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. As shown in Table 27, all impacts, when added to background CO concentrations, would be below the CAAQS for both the 1-hour and 8-hour averaging periods; therefore, the Project would not result in a significant impact for CO.

| Table 27<br>CO "HOT SPOTS" MODELING RESULTS | | | |
|---|---|---|---|
| **Intersection** | **Maximum 1-hour CO Concentration plus Background (ppm) (CAAQS = 20 ppm)** | | **Maximum 8-hour CO Concentration plus Background (ppm) (CAAQS = 9 ppm)** |
| **Horizon Year Conditions With Project (2025)** | | | |
| | ***am*** | ***pm*** | |
| 9. Reche Road/ Old Hwy 395 | 6.9 | 7.0 | 4.2 |
| 13. Pala Mesa Drive/ Old Hwy 395 | 6.6 | 6.9 | 4.0 |
| 23. SR 76/ E. Vista Way | 6.6 | 6.8 | 4.0 |
| 23. SR 76/ Olive Hill Road | 6.7 | 6.9 | 4.1 |
| 23. SR 76/ I-15 SB Ramps | 6.6 | 6.7 | 3.9 |
| 24. SR 76/ I-15 NB Ramps | 6.4 | 6.8 | 4.0 |
| *Exceed CAAQS Standard?* | *No* | *No* | *No* |

Notes:
CALINE4 dispersion model output sheets and EMFAC2007 emission factors are provided in Attachment C.
ppm = parts per million
Peak hour traffic volumes are based on the Traffic Impact Analysis prepared for the Project by LLG Engineers 2013.
Highest 5 yrs SDAPCD (2007-2011) 1-hour ambient background concentration (5.7 ppm) + 2025 modeled CO 1-hour contribution.
Highest 5 yrs SDAPCD 8-hour ambient background concentration (3.2 ppm) + 2025 modeled CO 8-hour contribution.
The State standard for the 1-hour average CO concentration is 20 ppm, and the 8-hour average concentration is 9.0 ppm.

#### 4.2.2.3 Mitigation Measures and Design Considerations

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. As described in Section 1.2, the Project would implement a number of design features that would minimize emissions of criteria air pollutants during operation:

- The Project site has been designed with a balance of uses including residential, commercial, limited industrial, and open space within close proximity (0.25-mile) to encourage walking and other non-automobile modes of transport between uses and to minimize external (off-site) trips by including local opportunities for employment and shopping for goods and services.
- The Project site maximizes access to transit lines to accommodate bus travel, and to provide lighted shelters at transit access points.
- Streets have been designed to maximize pedestrian access to transit stops.
- The landscape plan includes trees that provide shading of buildings and parking lots, and includes native drought-resistant plants (ground covers, shrubs and trees).
- Flat roofs on non-residential structures will include a white or silver cap sheet to reduce energy demand.

- Building design will include roof anchors and pre-wiring to allow for the installation of photovoltaic systems and/or participate in SDG&E incentive programs for energy efficient development where feasible.
- Preferential parking for carpools will be included to accommodate carpools and vanpools in employment areas (e.g. commercial, business-professional uses).
- All truck loading and unloading docks will be equipped with one 110/208 volt power outlets for every two-dock doors. Signs will be posted stating "Diesel trucks are prohibited from idling more than five minutes and trucks requiring auxiliary power shall connect to the 110/208-volt outlets to run auxiliary equipment."

In addition, the following measures will be incorporated into the design for residential uses:

- Electrical outlets will be installed on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment. Installation of a gas outlet in the rear of residential buildings will be required for the use of outdoor cooking appliances, such as gas burning barbeques.
- Installation of low nitrogen oxide (NOx) hot water heaters will be required.
- Notices will be provided to homebuyers of incentive and rebate programs available through SDG&E or other providers that encourage the purchase of electric landscape maintenance equipment.
- Only natural-gas fireplaces will be permitted in residential uses.

The following measure will be incorporated into the design for commercial uses:

- Two conductive/inductive electric vehicle charging stations will be provided in a commercial land use space. Signage prohibiting parking for non-electric vehicles in the designated parking spaces will be installed.

The following mitigation measure will be implemented to further reduce area source emissions of VOCs during project operation:

**MM AQ-1.** ***Low VOC Consumer Products Educational Program***.

Future tenants shall provide educational material (such as a display case, kiosk, or brochures) that provides information regarding the use of Low-VOC paints and consumer products in a prominent area accessible to residents and employees.

With regard to emissions of CO, certain intersections would be mitigated through implementation of traffic improvement projects and Traffic Impact Fee (TIF) program, and would include installing traffic signals (LLG Engineers 2013). Due to reductions in CO emissions over time, CO "hot spots" would not occur at affected intersections. Because 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, CO "hot spots" would not result and no mitigation measures are required for CO.

However, because the Project's operational emissions are mainly associated with vehicular traffic from Project-related vehicle trips, and the Project already incorporates several design features that reduce vehicle trips to the extent feasible, there are no further feasible mitigation measures to reduce emissions to below a level of significance. Therefore, operational criteria air pollutant emissions would remain significant and unavoidable.

#### 4.2.2.4 Significance of Impacts Following Mitigation

Emissions of CO, VOCs, and $PM_{10}$ would exceed the screening-level thresholds for Project operations. Because CO is associated with traffic impacts, an evaluation of the potential for CO "hot spots" was conducted in accordance with Caltrans guidance. Because CO "hot spots" modeling indicated that traffic congestion at those intersections experiencing a direct Project impact would not result in exceedances of the CO standard, the Project would not result in a significant impact for CO. Results show that the State one-and eight-hour standards of 20 ppm and 9 ppm, respectively, would not be exceeded at the selected six intersections. Therefore, none of the intersections are anticipated to significantly contribute to CO ambient concentration impacts.

Because significant impacts would not occur at any of the 6 intersections with the highest traffic volumes, no significant impacts are anticipated to occur at any other 13 locations in the study area where Project traffic would cause unacceptable LOS and the conditions yielding CO hotspots would not be worse than those occurring at the analyzed intersections. Consequently, the receptors that are considered in this analysis would not be significantly affected by CO emissions generated by the net increase in traffic that would occur under the Project. Because the Project does not cause an exceedance or exacerbate an existing exceedance of an ambient air quality standard for CO or any other pollutant, the Proposed Project's localized operational air quality impacts would be less than significant. No mitigation measures are necessary.

Emissions of VOCs, CO, and $PM_{10}$for the full Project buildout, and combined construction and operational emissions would exceed the significance thresholds. Implementation of MM AQ-1 would reduce VOC emissions associated with consumer products to the extent feasible; however, impacts would remain significant and unavoidable.

## 4.3 CUMULATIVELY CONSIDERABLE NET INCREASE OF CRITERIA POLLUTANTS

### 4.3.1 <u>Construction Impacts</u>

Based on the County Guidelines (2007), a project would result in a cumulatively significant impact if the project results in a significant contribution to the cumulative increase in pollutants for which the SDAB is listed as nonattainment for the CAAQS and NAAQS. As discussed in Section 2.0, the SDAB is considered a nonattainment area for the NAAQS for ozone and the CAAQS for ozone, $PM_{10}$, and $PM_{2.5}$.

Cumulatively considerable net increases during the construction phase would typically happen if two or more projects near each other are simultaneously constructing projects. A project that has a significant direct impact on air quality with regard to emissions of CO, $PM_{10}$, $PM_{2.5}$, $NO_X$, or VOCs during construction would also have a significant cumulatively considerable net increase. In the event direct impacts from a proposed project are less than significant, a project may still have a cumulatively considerable impact on air quality if the emissions of concern from the proposed project, in combination with the emissions of concern from other proposed or reasonably foreseeable future projects within a proximity relevant to the pollutants of concern, are in excess of the guidelines identified in Section 3.0.

#### 4.3.1.1 Guidelines for the Determination of Significance

*Would the project construction result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

*Would the project result in emissions that exceed 250 lbs/day of $NO_X$, or 75 lbs/day of VOCs?*

*Would the project result in emissions of $PM_{2.5}$ that exceed 55 lbs/day?*

#### 4.3.1.2 Significance of Impacts Prior to Mitigation

As discussed in Section 4.2.1.4, Project emissions of VOC, $NO_X$, CO, $PM_{10}$ and $PM_{2.5}$ during construction would be below the screening-level thresholds and would result in a less than significant air quality impact. 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 (County 2011b). 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 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, VOC, $NO_X$, $PM_{10}$ and $PM_{2.5}$. This cumulative impact would be significant.

#### 4.3.1.3 Mitigation Measures and Design Considerations

RACM measures for construction are described in Section 1.2. As discussed in that section, implementation of standard construction mitigation measures controlling fugitive dust emissions would minimize the Project's contribution to cumulative air quality impacts from construction activities. The following mitigation measures would be implemented to further reduce construction emissions to the extent feasible.

**MM AQ-2.** ***Fleet Modernization for Construction Equipment.***

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-3. *Fleet Modernization for On-road Trucks.***

All on-road heavy-duty diesel trucks with a 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 EPA 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-4. *Additional Fugitive Dust Controls.***

The following measures, at minimum, must 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 2 feet of freeboard in accordance with Section 23114 of the California Vehicle Code;
- 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-5. *Construction Equipment Best Management Practices*.**

The following types of measures are 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 5 minutes when not in use;
- Install high-pressure fuel injectors on construction equipment vehicles.

Prior to the commencement of any construction activities, the standard construction emission control measures in Section 4.2.1.3 and MM AQ-2 through MM AQ-5 shall be placed as notes on all construction plans, and shall be implemented during construction of each phase of the project to minimize construction emissions. Even after mitigation, construction emissions from the proposed Project and cumulative projects would make a cumulatively considerable and unavoidable contribution to a cumulative significant impact. These mitigation measures shall be completed to the satisfaction of the County of San Diego Planning and Development Services.

During construction, Mitigation Measures MM AQ-2 through MM AQ-5 would lower the peak daily construction cumulative emissions of all criteria pollutants. However, VOC, CO, $PM_{10}$, and $PM_{2.5}$ emissions would remain significant.

### 4.3.1.4 Significance of Impacts Following Mitigation

Project construction would result in a cumulatively considerable net increase in emissions of CO, VOC, $NO_X$, $PM_{10}$ and $PM_{2.5}$. Impacts would remain significant even with design considerations and the inclusion of the above mitigation measures to reduce fugitive dust during construction. Project construction would therefore result in a significant, but temporary, cumulative impact to the ambient air quality that would be unmitigated.

### 4.3.2 Operational Impacts

As discussed above, based on the County Guidelines (2007), a project would result in a cumulatively significant impact if the project results in a significant contribution to the cumulative increase in $NO_X$, VOCs, $PM_{10}$, and $PM_{2.5}$. In accordance with the guidelines, 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 nonattainment pollutants would also have a cumulatively considerable net increase. Also, projects that cause road intersections to operate at or below a LOS E and create a CO "hot spot" create a cumulatively considerable net increase of CO.

#### 4.3.2.1 Guidelines for the Determination of Significance

*Would the project conform to the RAQS and/or have a significant direct impact on air quality with regard to operational emissions of $PM_{10}$, $PM_{2.5}$, $NO_x$, and/or VOCs, which would also have a significant cumulatively considerable net increase in these emissions?*

*Would the project cause road intersections or roadway segments to operate at or below LOS E and create a CO hotspot that would result in a cumulatively considerable net increase of CO?*

#### 4.3.2.2 Significance of Impacts Prior to Mitigation

Although the environmental effects of an individual project may not be significant when that project is considered independently, the combined effects of several projects may be significant when considered collectively. Section 15130(a) of the State CEQA Guidelines requires that an EIR address significant cumulative impacts. According to this section of CEQA, the discussion of cumulative impacts "...need not provide as great a detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness." The discussion should also focus only on significant effects resulting from the project's incremental effects and the effects of other projects. If the environmental conditions would essentially be the same with or without the proposed project's contribution, then it may be concluded that the effect is not significant. According to Section 15130(a)(1), "an EIR should not discuss impacts which do not result in part from the project evaluated in the EIR." The basis for the analysis of cumulative impacts is dependent on the nature of the issue.

Cumulative impact analysis may be conducted and presented by either of two methods: 1) a list of past, present, and probable activities producing related or cumulative impacts; or 2) a summary of projections contained in an adopted general plan or related planning document. The summary approach was utilized for the near-term analysis presented below. The cumulative impacts of past, present and probable future projects that have occurred or will likely occur in the Project site's proximity (known as "cumulative projects") are addressed below.

The Traffic Impact Analysis (LLG Engineers 2013) has identified 19 intersections that would see a cumulatively significant decline in service:

1. E. Mission Road at Old Highway 395
2. Mission Road at I-15 SB Ramps

3. Mission Road at I-15 NB Ramps
4. Reche Road at Old Highway 395
5. Stewart Canyon Road at Old Highway 395
6. Pala Mesa Road at Old Highway 395
7. SR-76 (Pala Road) at E. Vista Way
8. SR-76 (Pala Road) at N. River Road
9. SR-76 (Pala Road) at Olive Hill Road
10. SR-76 (Pala Road) at S. Mission Road
11. SR-76 (Pala Road) at Via Monserate Road
12. SR-76 (Pala Road) at Gird Road
13. SR-76 (Pala Road) at Sage Road
14. SR-76 (Pala Road) at Old Highway 395
15. SR-76 (Pala Road) at I-15 Southbound Ramps
16. SR-76 (Pala Road) at I-15 Northbound Ramps
17. SR-76 (Pala Road) at Rice Canyon Road
18. SR-76 (Pala Road) at Couser Canyon Road
19. Dulin Road at Old Highway 395

While the cumulative emissions could be roughly estimated, the Proposed Project is calculated to have cumulative impacts at 19 intersections, 8 roadway segments and 12 State Route segments. The Project Applicant would pay the appropriate Transportation Impact Fee (TIF), which would mitigate the Project's cumulative impacts. The cumulative intersection impacts are calculated to operate at acceptable levels of service with intersection improvements identified in the Caltrans SR 76 Middle Project (Melrose to South Mission), and through anticipated intersection improvements as part of TIF or Caltrans SR 76 East Project (South Mission to I-15). The cumulative roadway segment impacts on Old Highway 395 are mitigated with widening of Old Highway 395 to 4 lanes as a part of the TIF. The cumulative roadway segment impacts to Reche Road would be mitigated to below a level of significance with the installation of traffic signal at Reche Road/Live Oak Park Road intersection and turn lane improvements proposed as direct Project mitigation. The cumulative State Route segment impacts are calculated to operate at acceptable levels of service with the planned TransNet widening of the SR 76 East segment from 2 to 4 lanes (included in the TIF program), and the future widening of the SR 76 Middle segment to 6 lanes, as called for on the County's currently adopted Circulation Element and SANDAG 2030 RTP in the "Unconstrained" scenario.

As discussed in Section 4.2.2.2, operational emissions would be above the screening-level thresholds. Based on the analysis presented in Section 4.1, the Project would be consistent with the RAQS and SIP. It was demonstrated in Section 4.2.2.2 that operational emissions would result in a significant cumulatively considerable net increase in emissions.

#### 4.3.2.3 Mitigation Measures and Design Considerations

As discussed in Section 4.2.2.3, the Project would be designed to meet or exceed current Title 24 energy efficiency standards and would thus result in lower emissions than non-energy efficient developments. Furthermore, because the Project provides mixed uses, it is designed to reduce trips and trip lengths and to provide occupational opportunities within close proximity to residents. With a balance of land uses including residential, general commercial, limited industrial, and mixed use, the Project would capture trips by providing local opportunities for employment and shopping for goods and services. Campus Park West allows for the flexibility of a range of product types arranged in compact neighborhoods that encourage walking and biking to access goods, services, and jobs as well as the adjacent Palomar College Campus, Campus Park, and Meadowood projects. The incorporation of a mix of land uses would reduce external (off-site) vehicle trips by 30 percent compared to a more conventionally planned (single land use type) project (LLG 2013).

At the region-wide level, implementation of local and regional growth management policies, new technologies (e.g., in vehicle emission control equipment and fuel), and programs to encourage alternative modes of transportation, including public transit and the construction of nearby park-n-ride lots, will reduce cumulative impacts and work toward attaining long-term emissions reductions. The Project implements "Smart Growth" practices which are consistent with SANDAG's Sustainable Communities Strategy goals to reduce automotive use in the San Diego Air Basin.

#### 4.3.2.4 Significance of Impacts Following Mitigation

Even after the incorporation of project design features and MM AQ-1, operational emissions from the proposed Project and other cumulative projects would result in a cumulatively considerable and unavoidable contribution to a cumulative significant air quality impact with respect to VOC, CO, $NO_x$, $PM_{10}$, and $PM_{2.5}$ emissions. No other feasible mitigation measures are available to reduce impacts to a less than significant level.

## 4.4 IMPACTS TO SENSITIVE RECEPTORS

### 4.4.1 Guidelines for the Determination of Significance

*Would the project expose sensitive receptors to substantial pollutant concentrations?*

*Would the project place sensitive receptors near CO "hotspots" or creates CO "hotspots" near sensitive receptors?*

*Would project implementation 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 or a health hazard index greater than 1, and thus be deemed as having a potentially significant impact?*

Air quality regulators typically define "sensitive receptors" as schools, hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purpose of CEQA analysis, the County definition of "sensitive receptors" also includes residences (County 2007). Existing sensitive receptors within ¼ mile of the Project vicinity include several existing residence to the west, southwest, and south. The nearest residences are located in the Dulin Road/Shearer Crossing area in the south, Old Highway 395 and Via Belmonte area in the southwest, and the Pala Mesa Drive and Old Highway 395 area to the west. There are no schools, hospitals, or other sensitive receptors within ¼ mile of the Project site. The two primary emissions of concern for impacts to sensitive receptors are CO and DPM.

An impact is also potentially significant if emission levels exceed the state or federal ambient air quality standards. CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere. CO emissions are the result of the combustion process and, therefore, primarily associated with mobile source emissions (vehicles). CO concentrations tend to be higher in urban areas where there are many mobile-source emissions. CO "hot spots" or pockets where the CO concentration exceeds the NAAQS and/or CAAQS, have been found to occur only at major intersections and roadway segments that operate at or below LOS E. Therefore, any project that would place receptors within 500 feet of a major intersection or roadway segment operating at or below LOS E must conduct a "hot spot" analysis for CO. Likewise, projects that would cause road intersections or roadway segments to operate at or below a LOS E will also have to conduct a CO "hot spot" analysis.

In addition to impacts from criteria pollutants, typical building and roadway construction impacts may include emissions of pollutants identified by the state and federal government as TACs. The Clean Air Act identified 188 pollutants as being air toxics, which are also known as hazardous air pollutants (HAPs. From this list, the USEPA identified a group of 21 as mobile source air toxics (MSATs) in its final rule, *Control of Emissions of Hazardous Air Pollutants from Mobile Sources* (66 FR 17235), in March 2001. From this list of 21 MSATs, the USEPA has identified six MSATs, *benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene*, as being priority MSATs. To address emissions of MSATs, the ARB has issued a number of regulations that will dramatically decrease MSATs through cleaner fuels and cleaner vehicle engine technologies.

In San Diego County, APCD Rule 1210 implements the public notification and risk reduction requirements of State law, and requires facilities with high potential health risk levels to reduce health risks below significant risk levels. In addition, Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs. Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of Toxics-Best Available Control Technology, or an incremental cancer risk greater than 10 in 1 million with application of Toxics-Best Available Control Technology, or a health hazard index (chronic and acute) greater than 1. The human health risk analysis is based on the time, duration, and exposures expected.

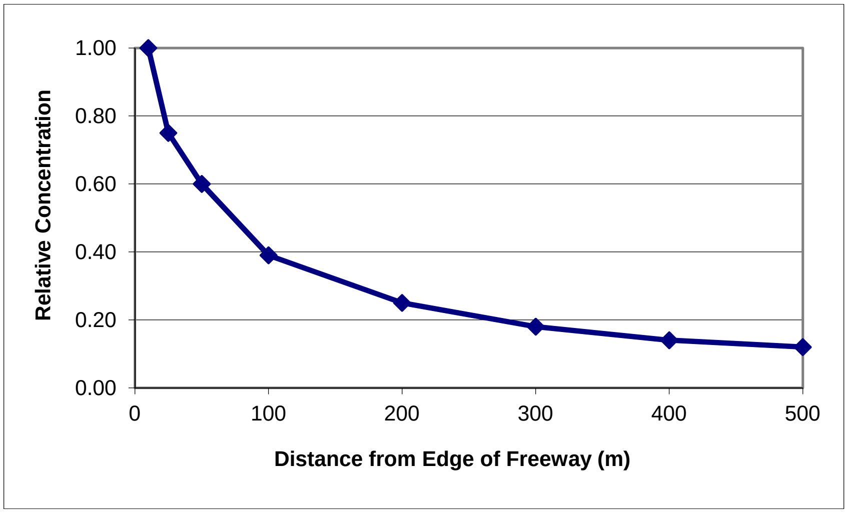
Diesel PM, a TAC, would be emitted during construction due to the operation of heavy equipment at the site. Because diesel PM is considered to be carcinogenic, long-term exposure to diesel exhaust emissions have the potential to result in adverse health impacts. The definition of T-BACT allows for the consideration of environmental, energy, and economic (i.e., cost effectiveness) considerations when determining what technologies would be required for control of TAC emissions. The County of San Diego recommends consideration of alternative diesel fuels and diesel particulate filters as T-BACT. The Project would use low-sulfur fuels during construction per the requirements implemented by the CARB for 15 ppm sulfur diesel.

Installation of particulate filters on construction equipment was also considered; however, as described above, the cost-effectiveness of a control technology can be considered in evaluating whether a particular control technology is considered T-BACT. Because of the costs involved in installing the filters and the short-term emissions reductions that would be achieved during a construction project, installation of particulate filters is not a cost-effective control measure for individual construction projects and would therefore not be T-BACT for this Project.

With use of low-sulfur diesel fuel and idling restrictions to limit idling to less than 15 minutes except as required for startup and midday engine checks, the Project would comply with T-BACT, and the risk would be below the County of San Diego's significance threshold of 10 in 1 million with application of T-BACT. Actual risks are likely to be lower than predicted from the health risk evaluation because construction may require less than one year overall to complete, or individual construction projects may be completed over a longer period of time but with less equipment and emissions required. CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005) provides recommendations for the siting of new sensitive land uses (including schools and residences) near freeways. CARB has performed several air pollution studies, many focused on children. A number of studies identify an association between adverse non-cancer health effects and residents living or children attending school near heavily traveled roadways. There are three carcinogenic TACs that constitute the majority of the known health risk from motor vehicle traffic: 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 will be the focus of the health risk evaluation.

Recent studies have found that close proximity to traffic emissions increases both exposure and the potential for adverse health effects; these include increased respiratory disease and increased mortality (Wilhelm, M. et al. 2003; Kim, J. et al. 2004) and reduced lung function in children (Brunekreef, 1997). These studies found that proximity to traffic was associated with increased risk of low birth weight, increased medical visits for asthma and increased respiratory symptoms in children. Studies conducted near freeways in southern California show that traffic emissions, such as CO, ultra-fine particulates, and black carbon (soot) are several times higher next to freeways than the background concentrations. These concentrations fell to lower levels with increasing distance from the roadway, decreasing about 60 to 80 percent within 100 m (Zhu et al. 2002).

Freeways and busy traffic corridors are defined as traffic volume of over 100,000 vehicles per day in urban areas and 50,000 vehicles per day in rural areas. CARB studies show that air pollution levels can be significantly higher within 500 feet (ft [150 m]) of freeways or busy traffic corridors and then diminish rapidly at further distance from the freeway or busy traffic corridors. Actual concentration of DPM will vary at a particular location depending on traffic volume, vehicle mix, prevailing winds and other variables. The decline in relative concentration of DPM as one moves away from the edge of the freeway is illustrated in Figure 4. The figure shows the predicted decrease in DPM concentration with increasing distance perpendicular to the freeway. These data have been normalized to a receptor located 66 ft (20 m) from the edge of freeway (i.e., at a distance of 66 ft, the receptor is exposed to 100 percent of the diesel particulate matter emissions from the freeway). A downwind distance of 328 ft (100 m) will reduce cancer risk by over 60 percent. If the physical downwind distance is increased to 984 ft (300 m), the relative concentration is reduced over 80 percent.




Source: California Air Resources Board's Diesel Risk Reduction Plan.

**Figure 4. Relative Concentration of Diesel Particulate Matter in Relation to the Distance from the Edge of a Freeway**

From, 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 particulate both decrease rapidly within the first 100 to 150 m from the edge of a roadway (Table 28). Estimated cancer risk from DPM along rural and urban freeways is decreased approximately 70 percent at a distance 150m (492 ft) from the edge of the roadway. Clearly, these data demonstrate that a minimum of 500 ft distance that separates sources of vehicle emissions from nearby receptors is effective in reducing potential cancer risk.

**Table 28**
**CANCER RISKS FROM DIESEL PARTICULATE MATTER AT THE EDGE OF ROADWAYS IN RURAL AND URBAN AREAS**

| Distance from Edge of Roadway (meters) | Diesel Particulate Matter Cancer Risk (in one million) | | Total Cancer Risk (in one million) | |
|---|---|---|---|---|
| | Rural | Urban | Rural | Urban |
| 20 | 475 | 890 | 589 | 1104 |
| 150 | 151 | 277 | 187 | 343 |
| 500 | 86 | 159 | 107 | 197 |

Source: CARB's Diesel Risk Reduction Plan.

Note: To account for gasoline vehicle emissions, the DPM risk was multiplied by 1.24. This represents the relative risk contribution from benzene, 1,3 butadiene, formaldehyde, and acetaldehyde on a basin-wide basis. It is assumed that the vast majority of benzene, 1,3 butadiene, formaldehyde, and acetaldehyde emissions come from on-road gasoline vehicles.

Consequently, CARB recommended, as an advisory measure, a minimum of 500 ft distance for the siting of new sensitive land uses (including schools and residential units) near freeways. However, CARB recognizes that physical separation of the receptors from the pollutant sources is not always reasonable or feasible (e.g., a sequence of land use decisions in urban areas allowed freeway construction through existing neighborhoods).

In order to determine if the nearest proposed sensitive receptor affected by the project is at least 500 feet from the nearest high traffic volume roadway (defined as a freeway, urban roadway with greater than 100,000 vehicles/day, or rural roadway with 50,000 vehicles/day). If the project is outside of the 500 foot distance, then the proposed project meets the ARB guidance distance and no further roadway-related air quality evaluations are recommended under this Protocol.

### 4.4.2 Significance of Impacts Prior to Mitigation

Construction-related Diesel Health Risk

To evaluate whether Project construction could pose a significant impact to nearby sensitive receptors, an evaluation of diesel exhaust particulate matter was conducted. Diesel exhaust particulate matter is known to the state of California to contain carcinogenic compounds. The risks associated with exposure to substances with carcinogenic effects are typically evaluated based on a lifetime of chronic exposure, which is defined in the OEHHA guidelines, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (2003a) as 24 hours per day, 7 days per week, 365 days per year, for 70 years. Diesel exhaust particulate matter would be emitted during construction due to the operation of heavy equipment at the site. Because diesel exhaust particulate matter is considered to be carcinogenic, long-term exposure to diesel exhaust emissions has the potential to result in adverse health impacts.

The HRA was also conducted in accordance with the latest guidance from the California OEHHA. OEHHA identifies four primary steps involved in the risk assessment process: 1. hazard identification, 2. exposure assessment, 3. dose-response assessment, and 4. risk characterization. Thus, this HRA has been prepared consistent with OEHHA/SDAPCD guidance as follows:

1. Estimation of diesel particulate matter (DPM) emissions resulting from the Project operational sources;
2. Air dispersion modeling to predict maximum concentrations of DPM using SDAPCD and OEHHA guidance;
3. Risk assessment approach to predict incremental cancer risks, chronic noncancer, and acute non-cancer health risks, using OEHHA guidance; and
4. Risk characterization and health risk analysis of diesel truck exhaust emissions on-site.

It should be noted that the methods utilized in this HRA are conservative in nature and therefore likely overestimate the potential human health impacts. The analysis assumes that exposed individuals are subject to a constant exposure of associated particulate matter at a particular location for 24 hours per day, 7 days per week, for 70 years (worst-case residential exposure scenario). Therefore, the conservative methodology results in risk estimates that are conservatively protective of individuals living or working in the vicinity of a proposed project.

To assess whether there is a potential for a significant impact associated with exposure to diesel exhaust particulate matter, a health risk evaluation was conducted on the particulate emissions. The amount of diesel particulate varies with the Project schedule and construction phasing. Detailed information regarding the construction schedule is not available at this time; therefore, it was conservatively assumed that all construction activities within each planning area would be completed within a 2- to 3-year period during Project modeling, even though full Project buildout would likely take approximately 10 years. Diesel particulate emissions from heavy equipment for both Project phase were estimated as shown in Table 29 below.

**Table 29**
**DIESEL EXHAUST PARTICULATE EMISSIONS**

| Construction Planning Areas | Diesel Exhaust Particulate Emissions (lbs/day) |
|---|---|
| Phase 1 Site Grading (Option 1) | 25.62 |
| Phase 1 Site Grading (Option 2) | 24.14 |
| Phase 2 Planning Areas 4 & 5 | 1.73 |
| Phase 2 Planning Area 2 | 3.08 |
| Phase 2 Planning Area 3 | 0.45 |
| Phase 2 Planning Area 1 | 0.36 |

Notes: Option 1 includes mass grading of the entire 117-acre site (Planning Areas 1 through 5) and Option 2 includes mass grading of Planning Areas 2, 4, and 5 initially, followed by mass grading of Planning Areas 1 and 3.

Because construction could occur throughout the site, the construction heavy equipment sources were represented as volume sources located within each planning areas throughout the Project site. Emissions were allocated to these sources based on the estimated maximum daily exhaust emission rates during construction. The emission sources were represented as a volume source 10 feet high, with a stack diameter of 6 inches, a stack exit temperature of 300$^{o}$F, and a stack exit velocity of 1 meter/second, which is considered to be a minimum stack velocity. It was assumed that the equipment would operate for eight hours per day, six days per week, up to ten years per planning area.

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 highest results of the analysis were scaled to account for exposure for the ten-year construction duration, as shown in the calculation below.

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

Cancer Risk = Inhalation cancer potency factor (CPF) x Dose-inhalation

Where:

Cancer Risk = Total individual lifetime excess cancer risk defined as the cancer risk a hypothetical individual faces if exposed to carcinogenic emissions from a particular facility; this risk is defined as an excess risk because it is above and beyond the background cancer risk to the population contributed by emission sources not related to the Project; cancer risk is expressed in terms of risk per million exposed individuals.

Dose-inhalation = (Cair x DBR x A x EF x ED) / AT

Where:
Cair = annual average concentration
DBR = daily breathing rate (302 L/kg body weight)
A = inhalation absorption factor (1)
EF = exposure frequency (260 construction days per year)
ED = exposure duration (10 years)
AT = average time period over which the exposure is averaged (25,550 days ~ 70 years).

Cair is the annual average concentration at the closest receptor calculated from SCREEN3 in µg/m3. With the worst-case meteorological condition under SCREEN3, the highest 1-hour DPM concentration value at a residential receptor located 0.5 miles from the project site was calculated to be 0.07494 $\mu g/m^3$.

Because Option 2, Phase 1 grading activities presented the highest DPM concentration, the assessment resulted in a cancer risk of 0. 253 in one million, or less than one in one million, which is the threshold for significance. Therefore, it is determined that the health risk from construction diesel PM emissions would be less than significant.

It should be noted that other agencies use less conservative measures to evaluate potential significance and potential risks. For example, EPA bases risk management decisions for risks between 1 in 1 million and 100 in 1 million on feasibility and cost-effectiveness criteria. EPA indicates that, when cumulative carcinogenic risk based on a reasonable maximum exposure is less than 100 in 1 million and non-cancer hazard is less than 1.0, further action (i.e., risk reduction or cleanup) is not generally warranted unless there are adverse environmental impacts. It is also important to note that the risk assessment assumes that an individual would be present for 24 hours per day, 7 days per week during the entire construction period without ever leaving the receptor location. Actual risks to individuals would likely be lower.

Operation-related Diesel Health Risk

*Health Risk Associated with Traffic*

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 toxic air contaminants (TACs). Allocating the diesel particulate daily trips in accordance to the CalEEMod default vehicle fleet mix for diesel powered vehicles, the total daily emissions of diesel particulate for the Proposed Project were calculated to be 0.098 lbs/day.

For the purpose of estimating the worst case scenario on a single point of the road within the project area, a volume source method was used in the SCREEN3 model. The resultant 1-hour concentration was calculated to be 0.01094 micrograms per cubic meters. The high-end excess cancer risk was calculated based on guidance from the Office of Environmental Health Hazard Assessment (OEHHA 2003a), 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 particulate from Project-generated trips was estimated to be 0.259 in a million, which is below the San Diego County significance threshold of 1 in a million.

Details of the inhalation doses and calculations are included in Attachment B.

*Health Risk Associated with Land Uses*

CARB *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005) provides CARB recommendations for the siting of new sensitive land uses (including residences) near major sources of emissions. CARB's air pollution studies indicate that living close to major sources of emissions may lead to adverse health effects beyond those associated with regional air pollution. There are three carcinogenic TACs that constitute the majority of the known health risk from motor vehicle traffic on the adjacent I-15 freeway: DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. Since most of the Project area adjacent to the freeway would consist of limited industrial and community shopping center, it is highly unlikely that sensitive receptors (residential units for Planning Areas 2 and 3), which are located more than 150 m (500 ft) downwind, would experience any significant cancer risk directly associated with vehicle emissions from the I-15 freeway.

The operational impacts of the land use in relation to generation of TACs would be less than significant.

### 4.4.3 Mitigation Measures and Design Considerations

Because the screening health risk modeling showed that both construction- and operations-period diesel emissions would result in emissions leading to a health risk factor of less than one in one million, no additional design consideration or mitigation is required.

### 4.4.4 Significance of Impacts Following Mitigation

Impacts to sensitive receptors from TACs would be less than significant.

## 4.5 ODOR IMPACTS

### 4.5.1 Guidelines for the Determination of Significance

Based on the County Guidelines (2007), a project would have a significant impact if it would generate objectionable odors or place sensitive receptors next to existing objectionable odors that would affect a considerable number of persons or the public.

APCD Rule 51 (Public Nuisance) and California Health & Safety Code, Division 26, Part 4, Chapter 3, Section 541700, prohibit the emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of the public. Projects required to obtain permits from APCD, typically industrial and some commercial projects, are evaluated by APCD staff for potential odor nuisance and conditions may be applied (or control equipment required), where necessary, to prevent occurrence of public nuisance.

### 4.5.2 Significance of Impacts Prior to Mitigation

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

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. These land uses are not 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 commercial development also may include restaurant uses. Depending on the type of restaurant, some cooking odors may arise from food preparation activities; however, cooking odors are generally not considered objectionable. Furthermore, the restaurant uses generally would be located within the commercial retail development and not in the immediate vicinity of existing or proposed residences. Thus odor impacts, if generated from the restaurant use, would not be significant.

The proposed sewer pump station system is designed to pump out wastewater several times per hour. 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 wastewater 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. Therefore, impacts from sewer pump station odors would be less than significant. The Proposed Project is not anticipated to generate any objectionable odors affecting a substantial number of people. Therefore, the odor impact would be less than significant.

The Project could produce objectionable odors, which would result from VOCs, ammonia, carbon dioxide, $H_2S$, methane, alcohols, aldehydes, amines, carbonyls, esters, disulfides dust and endotoxins from the construction and operational phases. However, these substances, if present at all, would only be in trace amounts (less that 1 $\mu g/m^3$). As a result, no significant air quality odor impacts are expected to affect surrounding receptors. Moreover, the effects of objectionable odors would be localized to the immediate surrounding area and would not contribute to a cumulatively considerable odor. A list of past, present and future projects within the surrounding area were evaluated and none of these projects create objectionable odors.

### 4.5.3 Mitigation Measures and Design Considerations

Because the Project would not generate objectionable odors or place sensitive receptors near existing odor sources that would affect a considerable number of persons or the public, no mitigation measures or additional design considerations are required.

### 4.5.4 Significance of Impacts Following Mitigation

Due to the nature of the development, there are no significant odorous air emissions anticipated from normal operations at the Campus Park West development. Impacts associated with operation of the pump station also would be less than significant.

# 5.0 SUMMARY OF PROJECT DESIGN FEATURES, IMPACTS, AND MITIGATION

In summary, the Proposed Project would result in the emission of air pollutants during the construction and operational phases of the Project. The air quality impact analysis evaluated the potential for adverse impacts to the ambient air quality due to construction and operational emissions. Construction emissions would include emissions associated with fugitive dust, heavy construction equipment and construction workers commuting to and from the site.

According to the SDAPCD Rule 55 - Fugitive Dust Control, it states that no dust and/or dirt shall leave the property line, as follows:

(1) **Airborne Dust Beyond the Property Line:** No person shall engage in construction or demolition activity subject to this rule in a manner that discharges visible dust emissions into the atmosphere beyond the property line for a period or periods aggregating more than 3 minutes in any 60 minute period.

(2) **Track-Out/Carry-Out:** Visible roadway dust as a result of active operations, spillage from transport trucks, erosion, or track-out/carry-out shall:

(i) be minimized by the use of any of the following or equally effective trackout/ carry-out and erosion control measures that apply to the Project or operation:
(a) track-out grates or gravel beds at each egress point,
(b) wheel-washing at each egress during muddy conditions, soil binders, chemical soil stabilizers, geotextiles, mulching, or seeding; and for outbound transport trucks:
(c) using secured tarps or cargo covering, watering, or treating of transported material; and

(ii) be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. If a street sweeper is used to remove any track-out/carry-out, only $PM_{10}$-efficient street sweepers certified to meet the most current South Coast Air Quality Management District Rule 1186 requirements shall be used. The use of blowers for removal of track-out/carry-out is prohibited under any circumstances.

As previously mentioned in Section 1.2, dust control measures that are incorporated into the Project design features, would include but not limited to the following:

- A minimum of three applications of water during grading between dozer/scraper passes – reduces $PM_{10}$ emissions by 61 percent;
- Paving, chip sealing or chemical stabilization of internal roadways after completion of grading – 92.5 percent;
- Use of sweepers or water trucks to remove “track-out” at any point of public street access – reduces $PM_{10}$ emissions by 25 percent;
- Termination of grading if winds exceed 25 mph – not quantified;

- Stabilization of dirt storage piles by chemical binders, tarps, fencing or other erosion control – reduces $PM_{10}$ emissions by 30 percent;
- Hydroseeding of graded residential lots unless lots are developed immediately after grading – reduces $PM_{10}$ emissions by 30 percent; and
- The Project will require the construction fleet to use any combination of diesel catalytic converters, diesel oxidation catalysts, diesel particulate filters and/or utilize CARB/USEPA Certification Tier 4 , or other equivalent methods approved by the CARB.

As previously mentioned in Section 4.3.1.3, mitigation measures MM AQ-2 through MM AQ-5 would further reduce construction emissions to the extent feasible.

The control measures listed above constitute BMPs for dust control, diesel particulate, and construction equipment emissions. With the implementation of the fugitive dust control measures and mitigation measures MM AQ-2 through MM AQ-5 would lower the peak daily construction cumulative emissions of all criteria pollutants. However, VOC, NOx. CO, $PM_{10}$, and $PM_{2.5}$ emissions would remain cumulatively significant.

Operational emissions would be associated with traffic accessing the Campus Park West development, along with area sources such as fireplaces, energy use, consumer products, and landscaping. Based on the evaluation of air emissions, the Project emissions would exceed the screening-level thresholds for VOCs, CO, and $PM_{10}$and would therefore pose a significant impact on the ambient air quality. The project would be designed to exceed current Title 24 standards by 15 percent, and will require the use of natural gas fueled fireplaces, which will reduce emissions from fireplaces and energy use to the extent feasible. Further, implementation of MM AQ-1 would reduce area source emissions from consumer products to the extent feasible.

The Project's operational emissions are mainly associated with vehicular traffic from Project-related vehicle trips. . However, because the Project provides mixed uses, it is designed to reduce trips and trip lengths and to provide occupational opportunities within close proximity to residents. With a balance of land uses including residential, general commercial, limited industrial, and mixed use, the Project would capture trips by providing local opportunities for employment and shopping for goods and services. Campus Park West allows for the flexibility of a range of product types arranged in compact neighborhoods that encourage walking and biking to access goods, services, and jobs as well as the adjacent Palomar College Campus, Campus Park, and Meadowood projects.

The multi-family residential and mixed-use designations would provide housing opportunities for future students and employees in the vicinity, directly addressing the jobs/housing balance issues faced by the County and the residential land shortages identified by SANDAG in their forecasts for the region. The commercial and office space would greatly benefit the County by creating jobs, increasing sales tax revenue, and contributing to other County revenues such as property taxes as wage earners gain purchasing power to buy real estate.

Even with the incorporation of project design features and MM AQ-1, project-level operational emissions from the proposed Project would result in a significant and unavoidable impact.

Project emissions of CO also would exceed screening thresholds. However, because local concentrations of CO would not exceed the NAAQS and CAAQS for CO and traffic impacts at nearby intersections would be mitigated by measures recommended in the Traffic Impact Study to below a level of significance, the Project would not result in a significant impact for CO.

Because the Project would not exceed the growth projections in the SANDAG growth forecasts for the Fallbrook Subregional Area, as discussed in Section 4.1.2, impacts associated with Project potential interference with the RAQS would be less than significant.

Even after mitigation, construction and operational emissions from the proposed Project and other projects would result in a cumulatively considerable and unavoidable contribution to a cumulative significant air quality impact with respect to VOC, NOx, CO, $PM_{10}$, and $PM_{2.5}$ emissions.

Both construction-period and operational health risk effects related to TACs would be less than significant.

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

# 6.0 REFERENCES


Brunekreef, B. et. Al. 1997. *Air Pollution from Truck Traffic and Lung Function in Children Living near Motorways*. Epidemiology Volume 8, Issue 3 pp: 231-321. May.

California Air Pollution Control Officers Association. 1993. *Air Toxics "Hot Spots" Program Risk Assessment Guidelines.*

California Air Resources Board (CARB). 2013. *Ambient Air Quality Standards*. website: http://www.arb.ca.gov/aqs/aaqs2.pdf, June.

2012. *Top 4 Measurements and Days Above the Standard* Available: http:// http://www.arb.ca.gov/adam/welcome.html. Accessed May 2010.

2009a. *ARB Fact Sheet: Air Pollution and Health*. December 2. http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm

2009b. *Almanac Emissions Projection Data* (published in 2009). California Air Resources Board. http://www.arb.ca.gov/app/emsinv/. Accessed October 2009.

2009c. *California State Implementation Plans.* California Air Resources Board. http://www.arb.ca.gov/planning/sip/sip.htm. Accessed September 2009.

2009d. *Area Designations and Maps – 2009*. November.

2007a. EMFAC2007 Emissions Model.

2007b. OFFROAD Emission Factors.

2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. April.

2003. *Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk.* October 9.

2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.

1998. Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Appendix III, Part A, Exposure Assessment.

California Department of Transportation (Caltrans). 1998. Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol.

California Office of Environmental Health Hazard Assessment (OEHHA). 2003a. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* August.

California, State of. 2007. California Air Resources Board Programs. California Air Resources Board Internet Site. http://www.arb.ca.gov/html/programs.html. August 3.

2003b. Hot Spots Analysis and Reporting Program. December 31.

Kim, J., et al, *Traffic-Related Air Pollution Near Busy Roads – the East Bay Children's Respiratory Health Study*. American J. of Respiratory and Critical Care Medicine. 2004. 170: 520-526.

LLG Engineers. 2012. Campus Park West Traffic Impact Analysis (Draft). May 2013.

San Diego, County of. 2011a. *General Plan*. Land Use and Environmental Group, Department of Planning and Land Use, Department of Public Works. August. http://www.sdcounty.ca.gov/dplu/gpupdate.html.

2011b. Meadowood Project Final Environmental Impact Report.

2007. *Guidelines for Determining Significance and Report Format and Content Requirements – Air Quality*. Land Use and Environmental Group, Department of Planning and Land Use, Department of Public Works. March 19.

San Diego County Air Pollution Control District (SDAPCD). 2012. *Proposed Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County*. San Diego, CA. September 12, 2012

2010. *Fact Sheet: Attainment Status*. http://www.sdapcd.org/info/facts/attain.pdf. January.

2009. *Regional Air Quality Strategy Revisions*. http://www.sdapcd.org/planning/2009-RAQS.pdf Accessed in May 2010.

2008. *Five Year Air Quality Summary*. http://www.sdapcd.org/air/reports/smog.pdf Accessed in January 2010.

2007. *Eight-Hour Ozone Attainment Plan for San Diego County*. May.

2004. *2004 Triennial Revision of the Regional Air Quality Strategy for San Diego County*. July 28.

South Coast Air Quality Management District (SCAQMD). 2011. California Emission Estimator Model (CalEEMod) Version 2011.1.1. Released February 2011.

2002. *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions*.

1993. *CEQA Air Quality Handbook*.

United States Environmental Protection Agency (USEPA). 2012. *Final Area Designations and Classification*.

2010a. *Fact Sheet: Proposal to revise the National Ambient Air Quality Standards for Ozone*. January 19. http://www.epa.gov/air/oaqps/eog/course422/ap7a.html#table.

2010b. *Fact Sheet: Final Revisions to the National Ambient Air Quality Standards for Nitrogen Dioxide*. January 22. http://www.epa.gov/air/oaqps/eog/course422/ap7a.html#table.

2010b. *Monitor Values Report.* www.epa.gov/air/data/monvals.html. Accessed January 2010.

2007. *The Effects of Air Pollutants – Health Effects* http://www.epa.gov/air/oaqps/eog/course422/ap7a.html#table.

Industrial Source Complex Short Term Air Dispersion Model.

1996. *Compilation of Air Pollutant Emission Factors* (AP-42), Section 3.1, Gasoline and Diesel Industrial Engines. October.

University of California Davis (UCD). 1997. *Transportation Project-Level Carbon Monoxide Protocol* (*CO Protocol*). Institute of Transportation Studies. 1997.

Western Regional Climate Center, *Western U.S. Climate Summaries*, California, San Diego County (049378), 2012.

Wilhelm, M., et al, *Residential Proximity to Traffic and Adverse Birth Outcomes in Los Angeles County, California, 1964 -1966.* Environmental Health Perspectives. 2002. 111:207-216.

# 7.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

**Preparer:**

Michael Slavick
Joanne Dramko, AICP
Elizabeth Scott
Lisa Capper
Rose Wojnar-Dillon
HELIX Environmental Planning, Inc.
7578 El Cajon Blvd., Suite 200
La Mesa, CA 91942

**Contacts:**

Kristin Blackson
Poonam Boparai
County of San Diego
Planning and Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

THIS PAGE INTENTIONALLY LEFT BLANK