4.4 AIR QUALITY

4.4.1 INTRODUCTION

This section includes a description of existing air quality conditions, a summary of applicable regulations, and analysis of potential short-term and long-term air quality impacts of the proposed Amoruso Ranch Specific Plan (ARSP or Proposed Project).

Reference materials include, in part, the following:

- *City of Roseville General Plan 2025*, as amended June 2015 (City of Roseville, 2015a)
- *Creekview Specific Plan (CSP) Final Environmental Impact Report (EIR)*, April 2011 (City of Roseville, 2011a)
- California Environmental Quality Act (CEQA) Air Quality Handbook (PCAPCD, 2012)
- Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (PCAPCD, 2008a)
- 2012 Triennial Report (PCAPCD, 2013)
- *Traffic Study for the ARSP* (Fehr & Peers, 2016) (Included in **Appendix M**)

These documents listed above are available for review during normal business hours (Monday through Friday 8 a.m. to 5 p.m.) at:

City of Roseville Permit Center
311 Vernon Street
Roseville, CA 95678

One comment letter related to air quality was received in response to the Notice of Preparation (NOP). The letter was submitted by the Placer County Air Pollution Control District (PCAPCD) and provided general recommendations on the methodology for analysis of the project's air quality impacts. No comments relative to odor-generating project-related activities were received in response to the NOP. See **Appendix C** for a copy of the NOP and comments received in response to the NOP.

4.4.2 ENVIRONMENTAL SETTING

The project site is located in the western portion of Placer County, California (western Placer County), which is located within the Sacramento Valley Air Basin (SVAB) and is within the jurisdictional boundaries of the PCAPCD. In addition to western Placer County, the SVAB comprises all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties along with the eastern portion of Solano County. Ambient concentrations of air pollutants are determined by the amount of emissions released by pollutant sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution of air pollutants include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in a region are determined by natural factors such as topography, meteorology, and climate, in addition to the amount and concentration of emissions released by existing air pollutant sources, each of which is discussed separately below.

Topography, Climate, and Meteorology

The SVAB is surrounded by the Coast Range to the west, the Cascade Range to the north, and the Sierra Nevada mountains to the east. The winters are wet and cool and the summers are hot and dry. Over half the total annual precipitation falls during the winter rainy season (November through February), while the average winter temperature is a moderate 49 degrees Fahrenheit (°F). During the summer, daytime temperatures can exceed 100 °F, while the average daytime temperatures from April through October are between 70°F and 90°F with extremely low humidity. The high average summer temperature, combined with very low relative humidity, produces hot, dry summers, which contribute to high ozone concentration during the summer months. Prevailing winds are from the southwest, with secondary winds from the northwest.

Surface or elevated temperature inversions are common in late summer and fall within the SVAB. Surface inversions are formed when the air close to the surface cools more rapidly than the warm layer of air above it. Elevated inversions occur when a layer of cool air is suspended between warm air layers above and below. Both surface and elevated inversions result in air stagnation and higher concentrations of pollutants near ground level. Summer inversions are strong and frequent, but are less troublesome than those that occur in the autumn. Autumn inversions have accompanying light winds that do not provide adequate dispersion of air pollutants.

Air pollutants are often transported into the basin from adjacent air basins such as the San Francisco Bay Area Air Basin (SFBAAB) or the San Joaquin Valley Air Basin (SJVAB). Transported pollutants add to the concentration of pollutants in the region; however, air pollution emissions from within the basin are the most significant sources of high pollution concentration. During the summer a “delta breeze” blows east from the SFBAAB toward the SVAB through the Carquinez Strait. The delta breeze moves Sacramento’s air pollution up toward the north end of the Sacramento Valley and east into the Sierra Nevada foothills.

Ambient Air Quality Standards and Attainment Status

Ambient air quality in the SVAB is affected by pollutants emitted from stationary and mobile sources. Stationary sources are divided into point sources and area sources. Point sources consist of one or more emission sources at a facility from an identified location and are usually associated with manufacturing and industrial processing plants. Area sources are widely distributed and consist of many small emission sources. Area source examples include lawnmowers and other landscape maintenance equipment, natural gas fired water and space heaters, and consumer products such as paints, hairspray, deodorant, and similar products with evaporative emissions. Mobile source emissions are from on- and off-road motor vehicles and include emissions from vehicle tailpipes, evaporative emissions, and fugitive emissions.

Air pollutants emitted by stationary and mobile sources are regulated by federal and state law. Certain regulated pollutants are known as “criteria air pollutants” or “CAPs” and are emitted as primary and secondary pollutants. The CAPs are ground-level ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb).

Primary CAPs are those that are emitted directly from sources. CO, NO_x, SO_2, and most forms of particulate matter (PM_{10} and $PM_{2.5}$) are primary air pollutants. Secondary CAPs are those formed by chemical and photochemical reactions in the atmosphere. Ozone and nitrogen dioxide are the principal secondary pollutants.

The United States Environmental Protection Agency (EPA) has developed National Ambient Air Quality Standards (NAAQS) for the CAPs. Primary standards are designed to protect the public health and secondary standards are intended to protect the public welfare from effects such as visibility reduction, soiling, nuisance, and other forms of damage. At the state level, the California Air Resources Board (CARB) has developed California Ambient Air Quality Standards (CAAQS). The federal and State ambient standards were developed independently, with differing purposes and methods. As a result, the federal and State standards differ in some cases. In general, the CAAQS are more stringent, particularly for ozone and particulate matter (PM_{10} and $PM_{2.5}$), than the federal standards. **Table 4.4-1** shows the NAAQS and CAAQS.

The federal Clean Air Act (CAA; 42 U.S.C. 7401 et seq.) and the California Clean Air Act (CCAA) require all areas of California to be classified as attainment, nonattainment, or unclassified (the term "unclassifiable" is used in the federal CAA) as to their status with regard to the NAAQS and CAAQS . The CAA and CCAA require that EPA or CARB designate portions of the state where the NAAQS or CAAQS are not met, based on air quality monitoring data, as "nonattainment areas." Because of the differences between the national and state standards, the designation of nonattainment areas may be different under the federal and state legislation. Both the CCAA and CAA require local air pollution control districts to prepare air quality attainment plans for pollutants for which the area is designated nonattainment. As shown in **Table 4.4-2,** the SVAB is designated nonattainment for 8-hour ozone and 24-hour $PM_{2.5}$ under the NAAQS and 1- and 8-hour ozone, 24-hour and annual PM_{10}, and annual $PM_{2.5}$ under the CAAQS. The SVAB has been designated as an unclassified or attainment area for all other CAPs.

Criteria Air Pollutants

CARB maintains several ambient air quality monitoring stations within the PCAPCD that provide information on the average concentrations of CAPs in the region. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors. A brief description of the major CAPs and a three-year summary of relevant ambient air quality monitoring data is provided below.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Ozone is a severe eye, nose, and throat irritant. Ozone also attacks synthetic rubber, textiles, plants, and other materials; it causes extensive damage to plants, such as leaf discoloration and cell damage.

TABLE 4.4-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
			Primary	Secondary
Ozone	1 hour	0.09 ppm	NA	Same as Primary
	8 hours	0.07 ppm	0.075 ppm	
Carbon monoxide (CO)	1 hour	20 ppm	35 ppm	NA
	8 hours	9.0 ppm	9.0 ppm	
Nitrogen oxides (NO_X)	1 hour	0.18 ppm	0.1 ppm	Same as Primary
	Annual	0.03 ppm	0.053 ppm	
Sulfur dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm	NA
	3 hour	NA	NA	0.50 ppm
	24 hours	0.04 ppm	0.14 ppm	NA
	Annual	NA	0.03 ppm	NA
Particulate Matter 10 microns in size (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3	Same as Primary
	Annual	20 µg/m^3	NA	
Particulate Matter 2.5 microns in size ($PM_{2.5}$)	24 hours	NA	35 µg/m3	15.0 µg/m^3
	Annual	12 µg/m^3	12 µg/m3	Same as Primary
Sulfates (SO_x)	24 hours	25 µg/m^3	NA	NA
Lead (Pb)	30 days	1.5 µg/m^3	NA	NA
	Calendar quarter	NA	1.5 µg/m3	Same as Primary
Hydrogen sulfide (H_2S)	1 hour	0.03 ppm	NA	NA
Vinyl chloride (C_2H_3Cl)	24 hours	0.01 ppm	NA	NA
Visibility Reducing Particles	8 hour	0.23 kilometers	NA	NA

NA = not applicable, ppm = parts per million.
A: The CAAQS for ozone, CO, SO2 (1- and 24-hour), NO2 PM10, and PM2.5 are values not to be exceeded. All other California standards shown are values not to be equaled or exceeded.
B: The NAAQS, other than ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
C Extinction of 0.23 per kilometers, for project region.
Source: CARB, 2013a.

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Photochemical reactions involving reactive organic gases (ROG) and NO_X resulting from the incomplete combustion of fossil fuels are the largest source of ground-level O_3. ROG and NO_X are emitted by mobile sources and stationary combustion equipment. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, O_3 is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. O_3 is

considered a regional pollutant, as the forming reaction occurs over time downwind from the sources of the emissions.

TABLE 4.4-2
SVAB CAAQS AND NAAQS ATTAINMENT STATUS

Criteria Air Pollutants	Averaging Time	CAAQS	NAAQS
Ozone	1-Hour	Nonattainment	NA
	8-Hour	Nonattainment	Nonattainment
CO	1-Hour	Attainment	Attainment
	8-Hour	Attainment	Attainment
NO2	1-Hour	Attainment	Unclassified/Attainment
	Annual	Attainment	Unclassified/Attainment
SO2	1-Hour	Attainment	Attainment (Pending)
	Annual	Attainment	NA
PM10	24-Hour	Nonattainment	Attainment
	Annual	Nonattainment	NA
PM2.5	24-Hour	NA	Nonattainment
	Annual	Nonattainment	Unclassified/Attainment
Lead (Pb)	30-Day/3-Months	Attainment	Unclassified/Attainment
Sulfates	24-Hour	Unclassified	NA
Hydrogen sulfide	1-Hour	Attainment	NA
Visible Reducing Particles	8-Hour	Unclassified	NA
Vinyl Chloride	24-Hour	Unclassified	NA
Source: CARB, 2014c.			

The State ozone standard is 0.09 parts per million (ppm) for the 1-hour average and 0.070 ppm for the 8-hour average. The federal standard for ozone is 0.075 ppm for the 8-hour average. The closest ozone monitoring station to the project site is located in the City of Lincoln, at 1445 1st Street approximately five miles northeast of the project site. **Table 4.4-3** presents a three-year summary of ambient air quality monitoring data from the Lincoln station and compares ambient air pollutant concentrations of ozone to CAAQS and NAAQS.

TABLE 4.4-3
OZONE MONITORING RESULTS – LINCOLN MONITORING STATION

Ozone (O_3)	2011	2012	2013
Highest 1-hour average ppm	NA	0.040	0.081
Highest 8-hour average ppm	NA	0.034	0.73
Days > state 1-hour standard	NA	0	0
Days > federal 8-hour standard	NA	0	0
Days > state 8-hour standard	NA	0	2
Percent of year covered	96	93	97
NA = Insufficient (or no) data available to determine the value. Source: CARB, 2014c.			

Carbon Monoxide

CO is inert to plants and materials but can significantly affect human health. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches and nausea to death.

CO is not readily dispersed throughout the atmosphere; therefore, it is considered a localized air quality issue, close to the emission source. Motor vehicles are the predominant source of CO emissions in most areas. High CO levels develop primarily during winter when light winds combine with the formation of ground-level temperature inversions, typically from evening through early morning. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. Overall, CO emissions have been reduced in the last few years as a result of cleaner tailpipes in newer model cars, use of oxygenated fuel, and modifications to cleaner-burning fuel in fleet mixes. Although the SVAB is classified as being in attainment for the NAAQS and CAAQS, CO is a pollutant of concern at major signalized intersections (greater than 100,000 vehicles per day) that exhibit prolonged vehicle idling times.

State and federal CO standards have been set for both 1- and 8-hour averaging times. The State 1-hour standard is 20 ppm, and the federal 1-hour standard is 35 ppm. Both the state and the federal standard for the 8-hour averaging period is 9.0 ppm. No CO monitoring is currently conducted in Placer County. The closest CO monitoring station is located in Sacramento County at the North Highlands – Blackfoot Way monitoring station. The results from the last three years of monitoring are shown in **Table 4.4-4**. No violations of either the state or federal CO standards were recorded at this monitoring station during the three most recent years.

TABLE 4.4-4
CARBON MONOXIDE MONITORING RESULTS
NORTH HIGHLANDS – BLACKFOOT WAY MONITORING STATION

Carbon Monoxide (CO)	2010	2011	2012
Highest 1-hour average, ppm	2.3	2.1	1.9
Highest 8-hour average, ppm	1.9	1.7	1.4
Sources: EPA, 2012.			

Nitrogen Dioxide

NO_2 contributes to smog and can injure plants and animals and affect human health. NO_2 also contributes to acidic deposition and reacts with ROG in the presence of sunlight to form photochemical smog. NO_x concentrations result in a brownish color because they absorb the blue-green area of the visible spectrum, greatly affecting visibility. Additionally, NO_2 emissions are a major component of acid rain. Health effects related to NO_2 include lung irritation and lung damage.

NO_2 is emitted primarily by combustion sources, including both mobile and stationary sources. NO_2 also is emitted by a variety of area sources, ranging from wildfires and prescribed fires to water-heating and space-heating systems powered by fossil fuels.

The State NO_2 standard is 0.18 ppm for the 1-hour average and 0.03 ppm for the annual average. The federal NO_2 standard is 0.10 ppm for the 1-hour average and 0.053 ppm for the annual average. No violations of the NO_2 standard were recorded in the SVAB during the three recent years of monitoring (CARB, 2014c).

Sulfur Dioxide

The major health concerns associated with inhalation of SO_2 are effects on breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Children, the elderly, and people with asthma, cardiovascular disease, or chronic lung diseases— such as bronchitis or emphysema—are most susceptible to adverse health effects from exposure to SO_2. SO_2 is a precursor to sulfates, which are associated with acidification of lakes and streams, accelerated corrosion of buildings and monuments, reduced visibility, and other adverse health effects.

SO_2 belongs to the family of gases called sulfur oxides or SO_x. These gases are formed when fuel containing sulfur (mainly coal and oil) is burned, and also during metal smelting and other industrial processes. SO_x emissions are typically not a concern for land use development projects such as the project.

The State SO_2 standard is 0.04 ppm measured over a 24-hour average period and 0.25 ppm measured over 1-hour. The federal SO_2 standard is 0.03 ppm measured as an annual arithmetic mean concentration, 0.14 ppm measured over a 24-hour average period, and 0.075 ppm measured over a 1-hour period. There have been no violations of the NAAQS or CAAQS for SO_2 over the last three years (CARB, 2014c).

Particulate Matter (PM10 and PM2.5)

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers (µm) in diameter pose the greatest problems, because they can travel deep into lungs (PM_{10}) and the bloodstream ($PM_{2.5}$). Exposure to such particles can affect the lungs and heart. Larger particles are of less concern, although they can irritate the eyes, nose, and throat. PM_{10} and $PM_{2.5}$ emissions are generated by a wide variety of sources, including agriculture, industrial activities, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

The State PM_{10} standards are 50 micrograms per cubic meter ($\mu g/m^3$) measured over a 24-hour average period and 20 $\mu g/m^3$ as an annual average. The federal PM_{10} standard is 150 µg/m3 measured over a 24-hour average period. The State $PM_{2.5}$ standard is 12 $\mu g/m^3$ on an annual average. The federal $PM_{2.5}$ standards are 35 $\mu g/m^3$ measured over a 24-hour average period and 12.0 $\mu g/m^3$ as an annual average. The closest PM monitoring station with data for 2011, 2012, and 2013 is the Roseville – North Sunrise Boulevard location approximately seven miles from the project site. **Table 4.4-5** presents a three-year

summary of ambient air quality monitoring data from the Roseville – North Sunrise station and compares ambient air pollutant concentrations of ozone to CAAQS and NAAQS.

TABLE 4.4-5
PARTICULATE MATTER MONITORING RESULTS
ROSEVILLE NORTH SUNRISE MONITORING STATION

Particulate Matter (PM_{10}) [1]	**2011**	**2012**	**2013**
Highest 24-hour average, µg/m^3	58.8	44.8	54.1
Days > state standard	1	0	0
Days > federal standard	0	0	0
Percent of year covered	100	100	100
Particulate Matter ($PM_{2.5}$) [1]	**2011**	**2012**	**2013**
Highest 24-hour average, µg/m^3	42.3	16.1	23.7
Days > federal standard	1	0	0
Percent of year covered	100	94	88

1 - Days over state or federal standards are measured days, not estimated days.
Source: CARB, 2014c.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (Federal Register, 1996).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (95 percent between 1980 and 1999) and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13 percent of lead emissions. A National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (EPA, 2008).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story with regard to air quality management. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent CARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are

no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, CARB identified lead as a toxic air contaminant (TAC).

Toxic Air Contaminants

In addition to the criteria pollutants discussion above, TACs, or in federal parlance, hazardous air pollutants (HAPs), are also a category of environmental concern. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

Many types of TACs exist, with varying degrees of toxicity. According to The California Almanac of Emissions and Air Quality (CARB, 2014d), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, including diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. The most important of these being particulate matter from diesel-fueled engines (DPM). DPM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Based on receptor modeling techniques, CARB estimated the DPM health risk in the SVAB in 2006 to be 375 excess cancer cases per million people (CARB, 2006). CARB's DPM reduction efforts and reductions in public exposure to DPM are of increased importance. CARB's Risk Reduction Plan to Reduce Particulate Matter Emission from Diesel-Fueled Engines and Vehicles (CARB, 2000) ("Diesel Reduction Plan") calls for all new diesel-fueled vehicles and engines to use state-of-the-art catalyzed diesel particulate filters and very low-sulfur diesel fuel. The projected emission benefits associated with the full implementation of CARB's plan, including proposed federal measures, are reductions in DPM emissions and associated cancer risks of 85 percent by 2020.

Stationary TAC Emission Sources

According to the CARB Community Health Air Pollution Information System, the nearest major stationary sources of TACs is the Roseville Electric Energy Park located approximately 0.75 miles south of the Plan Area. The next closest stationary source of TACs to the Plan Area is the Rio Bravo biomass facility, which is approximately 3.4 miles to the east of the project site.

Mobile TAC Emission Sources

Vehicles on existing area roadways, specifically Sunset Boulevard West and Fiddyment Road which accommodate some truck traffic to and from the Western Regional Sanitary Landfill (WRSL) and Sunset Industrial Area, are sources of DPM and other TACs associated with vehicle exhaust.

Naturally Occurring Asbestos (NOA)

Naturally occurring asbestos (NOA) may be found in at least 44 of California's 58 counties. Asbestos is the name for a group of naturally occurring silicate minerals. Exposure to friable asbestos may result in inhalation or ingestion of asbestos fibers, which over time may result in damage to the lungs or membranes that cover the lungs, leading to illness or even death. NOA, often found in serpentine rock formations, is present in several foothill areas of Placer County. When material containing NOA is disturbed, asbestos fibers may be released and become airborne, thereby creating a potential health hazard.

According to the Relative Likelihood for the Presence of NOA in Placer County, California (Higgins and Clinkenbeard, 2006), the Plan Area is located in an area that is least likely to contain NOA.

Odors

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Potential existing sources of odor in the region consist of industrial and agricultural land uses, including but not limited to the WRSL (located approximately 1.5 miles northeast of the site), City of Roseville Pleasant Grove Wastewater Treatment Plant (PGWWTP) (located approximately 1.3 miles south of the project site), the Rio Bravo biomass plant (located approximately 3.3 miles from the project site), Mallard Creek composting facility (located approximately 3.2 miles from the project site), Placer Propane (located approximately 3.2 miles from the project site), Thunder Valley Wastewater Treatment Plant (WWTP)

(located approximately 3.4 miles from the project site), and dairy and chicken farms (located greater than 2 miles from project site).

Sensitive Receptors

Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems. Residential areas are considered sensitive to poor air quality, because people usually stay home for extended periods of time increasing the potential exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The lands surrounding the project site are primarily open space, agricultural, residential, and industrial. The nearest residences are located in the Toad Hill Ranch Estates development approximately 50 feet north of the northern project boundary where construction activities would occur. Proposed residential land uses in the CSP Area would be located approximately 0.25 miles south of the Plan Area boundaries. Existing residential land uses and other sensitive receptors are located along roadways that would accommodate the increase in vehicle traffic resulting from the Proposed Project.

4.4.3 Regulatory Setting

Air quality within the SVAB is regulated by EPA, CARB, and PCAPCD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

Federal Plans, Policies, Regulations, and Laws

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the CAA, which was enacted in 1970. The most recent major amendments made by Congress were in 1990. Federal air quality laws regulate CAPs, TACs, and nuisance air pollutant emissions from industrial sources.

As mentioned earlier, CAPs are substances for which the EPA has established specific concentration threshold criteria based upon specific medical evidence of health effects or visibility reduction, soiling, nuisance, and other forms of damage. Non CAPs, also known as TACs, are airborne substances capable of causing adverse health effects as a result of short-term (acute) or long-term (chronic) exposure. Nuisance pollutants are substances that can result in complaints from the population about adverse impacts on quality of life. The nuisance pollutants regulated by the federal air quality laws are odors and visible plumes (smoke).

Federal Clean Air Act

The CAA required the EPA to establish NAAQS to define levels of air quality that protect the public health and welfare from the known adverse effects of air pollutants and set deadlines for attainment. Once an area reaches attainment for particular criteria pollutant, then the area is re-designated attainment or

maintenance. The CAA places most of the responsibility on states to achieve compliance with the NAAQS. States, municipal statistical areas, and counties that contain areas of non-attainment are required to develop a State Implementation Plan (SIP), which outlines policies and procedures designed to bring the state into compliance with the NAAQS. The CAA amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The EPA has the responsibility to review all state SIPs to determine conformance to the mandates of the CAA and determine whether implementation would achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated time frame may result in sanctions to transportation funding and stationary air pollution sources in the air basin.

State Plans, Policies, Regulations, and Laws

California Clean Air Act

The CCAA, which was adopted in 1988, required the establishment of the CAAQS. As shown in **Table 4.4-1** CAAQS have been established for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the six national CAPs. In most cases the CAAQS are more stringent than the NAAQS. Differences between the NAAQS and CAAQS are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The CCAA requires that air quality plans be prepared for areas of the state that have not met state air quality standards for O_3, CO, NO_2, and SO_2. Among other requirements of the CCAA, the plans must include a wide range of implementable control measures, which often include transportation control measures and performance standards. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation control measures.

California Air Resources Board

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. CARB also has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Collectively, all regional air pollution control plans or air quality management plans to achieve the NAAQS throughout the state constitute the SIP. As California's air quality management agency, CARB regulates mobile emission sources and oversees the activities of county air pollution control districts and regional air quality management districts. CARB regulates local air quality indirectly by using state standards and vehicle emission standards, conducting research activities, and carrying out planning and coordinating activities. CARB also provides land use guidance, as it relates to air quality, including criteria for siting schools and other sensitive land uses.

California Code of Regulations

California Code of Regulations, Title 13, Chapters 3.5 and 3.6 require that all heavy duty vehicles powered by a diesel engine and operating on California highways, submit to a smoke emissions test. Vehicles with 1991 or newer model-year diesel engines may not exceed an opacity level of more than 40 percent. Vehicles with 1990 or older model-year diesel engines may not exceed an opacity level of 55 percent.

California Code of Regulations, Title 13, Chapter 9, Article 4.8 regulates diesel fleet emissions. The contractor shall use CARB ultra-low-sulfur diesel fuel for all diesel-powered equipment. In addition, low sulfur fuel shall be utilized for all stationary equipment. Targets for each year between 2011 and 2020 are mandated for particulate matter emissions. A large or medium fleet must meet a DPM index that is less than or equal to the calculated target rates. Small fleets will be required to comply with DPM averages starting in 2020.

California Code of Regulations, Title 13, Chapter 9, Article 5, the California Portable Equipment Registration Program, regulates portable equipment and requires that such equipment be registered with the air district. Registered portable engines shall not exceed the following emission limits:

- 550 pounds per day per engine of CO
- 150 pounds per day per engine of particulate matter less than 10 microns
- For registered portable engines operating onshore, 10 tons for each pollutant per district per year per engine for NO_x, SO_x, volatile organic carbon (VOC), PM_{10} and CO in non-attainment areas.

Senate Bill (SB) 656

In 2003, the State Legislature passed Senate Bill (SB) 656 to reduce public exposure to PM_{10} and $PM_{2.5}$. The legislation requires CARB, in consultation with local air pollution control and air quality management districts, to adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by air districts to reduce PM_{10} and $PM_{2.5}$ The legislation establishes a process for achieving near-term reductions in PM throughout California ahead of federally required deadlines for $PM_{2.5}$, and provides new direction on PM reductions in those areas not subject to federal requirements for PM_{10}. Source categories addressed by SB 656 include measures to address the following sources: residential wood combustion and outdoor green-waste burning; fugitive dust sources such as paved and unpaved roads and construction; combustion sources such as boilers, heaters, and charbroiling; solvents and coatings; and product manufacturing. These measures include, but are not limited to, the following:

- Reduce or eliminate wood-burning devices allowed
- Prohibit residential open burning
- Permit and provide performance standards for controlled burns
- Require water or chemical stabilizers/dust suppressants during grading activities
- Limit visible dust emissions beyond the project boundary during construction
- Require paving/curbing of roadway shoulder areas
- Require street sweeping

Assembly Bill (AB) 1807 and AB 2588

State requirements specifically address air toxics issues through Assembly Bill (AB) 1807, which established the state air toxics program and AB 2588, the Air Toxics Hot Spots Information and Assessment Act. Under this bill, stationary sources of emissions are required to report the types and quantities of certain substances that their facilities routinely release through the air. The air quality regulations developed from these bills have been modified to incorporate the federal regulations associated with the federal CAA Amendments of 1990.

Green Building Standards Code

The purpose of the 2013 California Green Building Standards Code, otherwise known as CALGreen, is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts that encourage sustainable constriction practices. includes the following provisions:

- A 20 percent mandatory reduction in indoor water use, with voluntary goal standards for 30 percent, 35 percent, and 40 percent reductions
- Separate indoor and outdoor water meters to measure nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects
- Diversion of 50 percent of construction waste from landfills, increasing voluntarily to 65 percent and 75 percent for new homes and 80 percent for commercial projects
- Mandatory periodic inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies
- Mandatory use of low-pollutant-emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard

In addition, CALGreen encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce air pollutant emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction.

Local Plans, Policies, Regulations, and Laws

At the local level, air quality is managed through land use and development planning practices.

Placer County Air Pollution Control District

The PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the PCAPCD includes the preparation of plans for the attainment of ambient air quality standards, adoption, and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution.

In order to evaluate air pollutant emissions from development projects, the PCAPCD has adopted recommended significance thresholds for emissions of ROG, NO_x, PM_{10}, and CO. The PCAPCD's advisory CEQA Air Quality Handbook lists these significance thresholds, which are recommended for use by lead agencies in Placer County, in **Table 4.4-6.** The thresholds are expressed in pounds per day (lbs/day), which serve as air quality standards that may be used in the evaluation of air quality impacts associated with development projects.

TABLE 4.4-6
PCAPCD RECOMMENDED THRESHOLDS OF SIGNIFICANCE

Pollutant	Construction/Operational Threshold (lbs/day)	Cumulative Threshold (lbs/day)
ROG	82	10
NOx	82	10
PM_{10}	82	NA
CO	550	NA

NA – not applicable
Source: PCAPCD, 2012

The PCAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, as amended, and the CCAA. Air quality plans applicable to the Proposed Project are discussed below.

CAA Ozone Attainment Plan

As a part of the SVAB federal ozone nonattainment area, the PCAPCD worked with the other local air districts within the Sacramento area to develop a regional air quality management plan to describe and demonstrate how Placer County, as well as the Sacramento nonattainment area, would attain the federal 8-hour ozone standard by the proposed attainment deadline. In accordance with the requirements of the CAA, the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (Ozone Attainment Plan) was prepared in December 2008. The PCAPCD adopted the Ozone Attainment Plan on February 19, 2009, and CARB determined that the plan meets CAA requirements and approved it on March 26, 2009, as a revision to the SIP.

The 2009 Ozone Attainment Plan demonstrates how existing and new control strategies will provide the necessary future emission reductions to meet the CAA requirements for reasonable further progress and attainment of the NAAQS for ozone. In addition, this Plan includes an updated emission inventory, sets new motor vehicle emission budgets for transportation and general conformity purposes, provides photochemical modeling results, and documents the implementation of reasonably available control measures.

CCAA Air Quality Attainment Plan (AQAP) and Triennial Progress Report

The PCAPCD, in coordination with the air quality management districts and air pollution control districts of El Dorado, Sacramento, Solano, Sutter, and Yolo counties prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) in compliance with the requirements set forth in the CCAA, which specifically

addressed the non-attainment status for ozone, CO, $PM_{2.5}$ and PM_{10}. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. To comply with the planning requirements of the CCAA, the PCAPCD has prepared several triennial progress reports that build upon the AQAP. The 2012 Triennial Progress Report (PCAPCD, 2013) is the most recently adopted report. The triennial progress report, like the AQAP, includes a current emission inventory and projected future inventories of ROG and NO_x emissions in Placer County. The future inventories reflect future growth rates of population, travel, employment, industrial/commercial activities, and energy use, as well as controls imposed through local, state, and federal emission reduction measures. The triennial report discusses rules that the PCAPCD has adopted during the previous three years, incentive programs that have been implemented and other measures that would supplement those in the AQAP to achieve annual emission reductions required by the CCAA.

PCAPCD Rules and Regulations

Appendices B and D of the PCAPCD CEQA Air Quality Handbook (PCAPCD, 2012) include an all-inclusive list of rules and regulations required and recommended for all projects. In addition, a complete listing of all PCAPCD rules can be found at http://www.placer.ca.gov/ Departments/Air/Rules.aspx. Project proponents are responsible for compliance with the adopted PCAPCD rules. To facilitate Rule compliance, the City of Roseville includes applicable Rules as standard notes on improvement plans, grading plans, or design review permits.

A general summary of the key PCAPCD rules and regulations which are applicable to construction of the Proposed Project may include, but are not limited to:

Rule 202-Visible Emissions: A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 205-Nuisance: A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause to have a natural tendency to cause injury or damage to business or property. The provisions of Rule 205 do not apply to odors emanating from agriculture operations necessary for the growing of crops or raising of fowl or animals.

Rule 217-Cutback and Emulsified Asphalt Paving Materials: A person shall not manufacture for sale nor use for paving, road construction or road maintenance any: rapid cure cutback asphalt; slow cure cutback asphalt containing organic compounds which evaporate at 500°F or lower as determined by current American Society for Testing and Materials (ASTM) Method D402; medium cure cutback asphalt except as provided in Section 1.2 of Rule 217; or emulsified asphalt containing organic compounds which evaporate at 500°F or lower as determined by current ASTM Method D244, in excess of 3 percent by volume.

Rule 218-Application of Architectural Coatings: No person shall manufacture, blend, or repackage for sale within PCAPCD; supply, sell, or offer for sale within PCAPCD; or solicit for application or apply within the PCAPCD, any architectural coating with a VOC content in excess of the corresponding specified manufacturer's maximum recommendation.

Rule 225-Wood Burning Appliances: No person shall sell or supply new wood burning appliances unless it is an EPA phase II Certified wood burning appliance, pellet-fueled wood burning heater, masonry heater, or determined to meet the EPA standard for particulate matter emissions standards.

Rule 228-Fugitive Dust:

- **Visible Emissions Not Allowed Beyond the Boundary Line**: A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area (including disturbance as a result of the raising and/or keeping of animals or by vehicle use), such that the presence of such dust remains visible in the atmosphere beyond the boundary line of the emission source.
- **Visible Emissions from Active Operations**: In addition to the requirements of Rule 202, Visible Emissions, a person shall not cause or allow fugitive dust generated by active operations, an open storage pile, or a disturbed surface area, such that the fugitive dust is of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke as dark or darker in shade as that designated as number 2 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- **Concentration Limit**: A person shall not cause or allow PM_{10} levels to exceed 50 µg/m^3 (24-hour average) when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other EPA-approved equivalent method for PM_{10} monitoring.
- **Track-Out onto Paved Public Roadways**: Visible roadway dust as a result of active operations, spillage from transport trucks, and the track- out of bulk material onto public paved roadways shall be minimized and removed.

    - The track-out of bulk material onto public paved roadways as a result of operations, or erosion, shall be minimized by the use of track-out and erosion control, minimization, and preventative measures, and removed within one hour from adjacent streets such material anytime track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations.
    - All visible roadway dust tracked-out upon public paved roadways as a result of active operations shall be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. Wet sweeping or a High Efficiency Particulate Air (HEPA) filter equipped vacuum device shall be used for roadway dust removal.
    - Any material tracked-out, or carried by erosion, and clean-up water, shall be prevented from entering waterways or storm water inlets as required to comply water quality control requirements.

- **Minimum Dust Control Requirements**: The following dust mitigation measures are to be initiated at the start and maintained throughout the duration of the construction or grading activity, including any construction or grading for road construction or maintenance.

    - Unpaved areas subject to vehicle traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered.
    - The speed of any vehicles and equipment traveling across unpaved areas must be no more than 15 miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust exceeding Ringelmann 2 or visible emissions from crossing the project boundary line.
    - Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.
    - Prior to any ground disturbance, including grading, excavating, and land clearing, sufficient water must be applied to the area to be disturbed to prevent emitting dust exceeding Ringelmann 2 and to minimize visible emissions from crossing the boundary line.
    - Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt, from being released or tracked offsite.
    - When wind speeds are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures, grading and earthmoving operations shall be suspended.
    - No trucks are allowed to transport excavated material off-site unless the trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments, and loads are either covered with tarps; or wetted and loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than six inches from the top and that no point of the load extends above the top of the cargo compartment.

- **Wind-Driven Fugitive Dust Control**: A person shall take action(s), such as surface stabilization, establishment of a vegetative cover, or paving, to minimize wind-driven dust from inactive disturbed surface areas.

Rule 246-Natural Gas-Fired Water Heaters: A person shall not distribute, offer for sale, sell, or install, any natural gas-fired water heater within the District, unless it is a natural gas-fired water heater that emits less than or equal to 40 nanograms of nitrogen oxides [calculated as NO_2] per joule (93 pounds per billion British thermal unit [BTU]) of heat output; and is certified in accordance with Section 402 of Rule 246 or it is a mobile home natural gas-fired water heater that emits less than or equal to 50 nanograms of nitrogen oxides [calculated as NO_2] per joule (116 pounds per billion BTU) of heat output; and is certified in accordance with Section 402 of Rule 246.

Rule 305-Residential Allowable Burning: Except as provided in Regulation 3, no person shall use an open outdoor fire (including the use of a burn barrel) for the purposes of disposal or burning of any disallowed combustibles. Only allowable combustibles, originating at a residence, and free of disallowed

combustibles, and reasonably free from dirt, soil, and visible surface moisture, may be burned in an open outdoor burn pile. Burning in a burn barrel is prohibited.

Rule 501-General Permit Requirement: Any person operating an article, machine, equipment, or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, shall first obtain a written permit from the Air Pollution Control Officer (APCO). Stationary sources subject to the requirements of Rule 507, Federal Operating Permit Program, must also obtain a Title V permit pursuant to the requirements and procedures of that rule.

Rule 507-Federal Operating Permit Program: Stationary sources subject to Rule 507 include major stationary sources, acid rain units subject to Title IV of the CAA, solid waste incinerators subject to Section 111 or 129 of the CAA, and any other stationary sources specifically designated by rule of the EPA.

Rule 610-Air Toxics "Hot Spots" Fees: the purpose of this rule is to recover costs that are associated with the implementation of the Air Toxics "Hot Spots" Information and Assessment Act, beginning with Section 44300 of Division 26 of the California Health and Safety Code.

City of Roseville General Plan

The following goals, objectives, and policies are included in the City of Roseville General Plan Air Quality and Climate Change Element (City of Roseville, 2015a).

Air Quality and Climate Change Element Goals

Goal 1 Improve Roseville's air quality by: a) achieving and maintaining ambient air quality standards established by EPA and the CARB; and b) minimizing public exposure to toxic or hazardous air pollutants and any pollutants that create a public nuisance though irritation to the senses (such as unpleasant odors).

Goal 2 Integrate air quality planning with the land use and transportation planning process.

Goal 3 Encourage the coordination and integration of all forms of public transport while reducing motor vehicle emissions through a decrease in the average daily trips and vehicle miles traveled and by increasing the commute vehicle occupancy rate by 50 percent to 1.5 or more persons per vehicle.

Goal 4 Increase the capacity of the transportation system, including the roadway system and alternate modes of transportation.

Goal 5 Provide adequate pedestrian and bikeway facilities for present and future transportation needs.

Goal 6 Promote a well-designed and efficient light rail and transit system.

Goal 7 While recognizing that the automobile is the primary form of transportation, the City of Roseville should make a commitment to shift from the automobile to other modes of transportation.

Air Quality and Climate Change Element – General Policies

Policy 1 Cooperate with other agencies to develop a consistent and effective approach to air pollution planning.

Policy 2 Work with PCAPCD to monitor all air pollutants of concern on a continuous basis.

Policy 3 Develop consistent and accurate procedures for evaluating the air quality impacts of new projects.

Policy 4 As part of the development review process, develop mitigation measures to minimize stationary and area source emissions.

Policy 5 Develop transportation systems that minimize vehicle delay and air pollution.

Policy 6 Develop consistent and accurate procedures for mitigating transportation emissions from new and existing projects.

Policy 7 Encourage alternative modes of transportation including pedestrian, bicycle, and transit usage.

Policy 8 Separate air pollution-sensitive land uses from sources of air pollution.

Policy 9 Encourage land use policies that maintain and improve air quality.

Policy 10 Conserve energy and reduce air emissions by encouraging energy efficient building designs and transportation systems.

City of Roseville Design and Construction Standards

The City of Roseville created Design and Construction Standards to provide engineers and contractors a reference to the City's requirements for the design and construction of civil improvement projects within the City. These standards require that the following air quality notes be included on improvement plans:

> The following notes are provided as reference to applicable PCAPD adopted rules and regulations. Compliance with all applicable PCAPCD rules is the sole responsibility of the contractor. Air quality rules are enforced solely by PCAPCD.
>
> 1. Construction equipment exhaust emissions shall not exceed Placer County APCD Rule 202 Visible Emission limitations. Operators of vehicles and equipment found to exceed opacity limits

are to be immediately notified by APCD to cease operations and the equipment must be repaired within 72 hours. *(Based on APCD Rule 202)*

2. The contractor shall suspend all grading operations when fugitive dust exceeds Placer County APCD Rule 228 (Fugitive Dust) limitations. The prime contractor shall be responsible for having an individual who is CARB-certified to perform Visible Emissions Evaluations (VEE). This individual shall evaluate compliance with Rule 228 on a weekly basis. It is to be noted that fugitive dust is not to exceed 40% opacity and not go beyond the property boundary at any time. Lime or other drying agents utilized to dry out wet grading areas shall not exceed Placer County APCD Rule 228 Fugitive Dust limitations. Operators of vehicles and equipment found to exceed opacity limits will be notified by APCD and the equipment must be repaired within 72 hours. All projects in excess of 5 acres shall have an approved dust control plan from PCAPCD. *(Based on APCD Rule 228)*

3. During construction, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less. *(Based on APCD Rule* 228 / *section 401.2)*

4. During construction, no open burning of removed vegetation shall be allowed unless permitted by the PCAPCD. All removed vegetative material shall be either chipped on site or taken to an appropriate recycling site, or if a site is not available, a licensed disposal site. *(Based on APCD Rule 310)*

5. A person shall not discharge into the atmosphere volatile organic compounds (VOCs) caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance, unless such manufacture or use complies with the provisions Rule 217. *(Based on APCD Rule 217).*

6. Processes that discharge 2 pounds per day or more of air contaminants, as defined by Health and Safety Code Section 39013, to the atmosphere may require a permit. Permits may be required for both construction and operation. Developers/contractors should contact the District prior to construction and obtain any necessary permits prior to the issuance of a Building Permit. *(Based on the California Health & Safety Code section 39013:* http://www.leginfo.ca.gov/cgi-binidisplaycode?section~hsc&group=39001-40000&file=39010-39060)

Amoruso Ranch Specific Plan

The Proposed Project includes the following features that would minimize its operational criteria pollutant emissions:

- Land use plan with compact form and high density uses, consistent with the SACOG Blueprint and the City's Blueprint Implementation Strategies, proximate to planned transit services, commercial and employment land uses, schools and parks;
- Class I bikeway system to provide convenient pedestrian/bicycle connections throughout the plan area with linkages to the City's existing bikeway system;
- Class II and III on-street bikeway system;

- Development of commercial areas that provide services proximate to residential areas to reduce reliance on the automobile;
- Streets designed to maximize connectivity; and
- Provision of a park and ride lot, bus stops and shelters, and accommodation of future bus rapid transit.

4.4.4 IMPACTS

Project-related air quality impacts fall into three categories: short-term impacts due to construction, long-term impacts due to project operation, and cumulative impacts. Impacts in each category can be classified as having effects on a regional or local scale.

Method of Analysis

The discussion below presents the methodologies used to conduct the air quality analysis, as well as to assess the significance of the impacts evaluated in this section.

Construction

Short-term construction activities would result in the generation of PM_{10} and $PM_{2.5}$ containing fugitive dust and ROG, NO_x, and CO from diesel-fired construction equipment. California Emissions Estimator Model, Version 2013.2 (CalEEMod) is a PCAPCD-recommended air quality model that estimates construction emissions of CAPs from land uses by utilizing the most relevant EPA, CARB, and/or district-specific emission factors and California meteorological data. CalEEMod was used to estimate emissions from construction-related sources of the Proposed Project. The model calculates construction emissions for land use development projects based on building size, land use and type, and disturbed acreage, and allows for input of project-specific information. Project-generated criteria pollutants were modeled based on information provided in the project description and default CalEEMod settings and parameters attributable to the construction period and project location. A detailed list of the assumptions used to estimate construction emissions is included in **Appendix N**. The modeling assumed construction of the project in three phases as shown in **Figure 2-23**. Phase I would occur between January 2017 and May 2025, Phase II would occur between June 2025 and May 2030, and Phase III would occur between June 2030 and December 2034. Construction for each phase would consist of site preparation, grading, building, paving, and architectural coating. Estimated construction emissions results from CalEEMod are presented below, and CalEEMod output files are included within **Appendix N**.

Operation

Criteria Pollutant Emissions

The Proposed Project would generate operational emissions of the criteria pollutants, including ozone precursors (ROG and NO_x), CO, PM_{10}, $PM_{2.5}$, and SO_x.

CalEEMod was used to estimate area, energy, and mobile emissions associated with operation of the Proposed Project. Input values for the model included CalEEMod defaults and site-specific data. A detailed list of the assumptions used to estimate operational emissions is included in **Appendix N**. The

operational effects to air quality were analyzed for both near-term 2020 conditions and cumulative long-term 2035 conditions (cumulative year for this project is 2034; however, the CalEEMod cannot analyze emissions from the year 2034, therefore, 2035 cumulative emissions were analyzed). Although the Proposed Project would be built out in phases between the years 2017 and 2034 as described above and in Section 2.11.6, the analysis of project-specific near-term impacts assumes buildout of the Proposed Project in the year 2020. This approach provides a conservative estimate of project related emissions, as the emission estimates calculated by the CalEEMod would be reduced in future years due to regulatory requirements and improvements in fuel economy. Area, energy, and mobile emissions were modeled based on proposed land uses types and sizes as described in **Section 2.0**, **Project Description**, and the trip generation data described in **Section 4.3**, **Transportation and Circulation**. The trip generation data includes data for internal trips and vehicle miles traveled. Operational emissions results from CalEEMod are presented below, and CalEEMod output files are included within **Appendix N**.

CO Hot Spot Analysis Methodology

The *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) was used to determine impacts connected with CO Hot Spots. In 1997, the EPA approved the CO Protocol for use as an alternative hot spot analysis method in California. The CO Protocol is the standard method used for project-level CO analysis by Caltrans.

The CO Protocol outlines a screening process for determining which intersections are likely to have significant impacts. Projects that would lead to worsening the level of service (LOS) of a signalized intersection to E or F represent a potential for a CO violation and would require further analysis; projects that do not worsen signalized intersections to LOS E or F would require no more analysis.

Section 4.3.2 of the Protocol provides screening protocols for project sites that are in a region of attainment or unclassified; the project site is in a region of attainment. The Protocol allows for an intersection with a known CO concentration to be compared with an intersection that has a similar intersection configuration, within the same region of attainment, and with similar traffic volumes, so as to determine the unknown intersections CO concentration. Through consultation with PCAPCD, it was determined that this screening protocol is an acceptable method of determining the potential for CO hotspots resulting from the Proposed Project (Chang, 2014). If traffic volumes at project intersections with unknown CO concentrations are less than or more than the traffic volumes at the intersection with the known CO concentration, then the CO concentration would need to be adjusted by the percentage difference in the traffic volume.

Pursuant to the Protocol, the criteria for determining whether a reference intersection can be used to determine the potential for CO concentrations are as follows:

a. The receptors at the location under study are at the same distance or farther from the traveled roadway than the receptors at the location where attainment has been demonstrated.
b. The roadway geometry of the two locations is not significantly different. An example of a significant difference would be a larger number of lanes at the location under study compared to the location where attainment has been demonstrated.

c. Expected worst-case meteorology at the location under study is the same or better than the worst-case meteorology at the location where attainment has been demonstrated. Relevant meteorological variables include: wind speed, wind direction, temperature and stability class.
d. Traffic lane volumes at the location under study are the same or lower than those at the location where attainment has been demonstrated.
e. Percentages of vehicles operating in cold start mode at the location under study are the same or lower than those at the location where attainment has been demonstrated.
f. Percentage of Heavy Duty Gas Trucks at the location under study is the same or lower than the percentage at the location where attainment has been demonstrated.
g. For projects involving intersections, average delay and queue length for each approach is the same or smaller for the intersection under study compared to those found in the intersection where attainment has been demonstrated.
h. Background concentration at the location under study is the same or lower than the background concentration at the location where attainment has been demonstrated.

If all of the above conditions are satisfied, there is no reason to expect higher concentrations at the location under study.

This analysis relied on the results of CO modeling contained in the 2011 CSP EIR as a point of comparison. Within the CSP EIR, the greatest CO concentration was modeled at the Pleasant Grove Boulevard and Roseville Parkway intersection, which was assumed to have an average daily traffic volume of 5,818 vehicles per hour, and an intersection configuration of two through lanes in all directions, three northbound and two southbound dedicated left turn lanes, two dedicated eastbound and westbound left turn lanes, dedicated right turn lanes in all directions. The CO concentration at this intersection was calculated to be 5.9 ppm for 1-hour and 2.5 ppm for 8-hour, which is significantly below the 1-hour 20 ppm and the 8-hour 9 ppm air quality standards.

Toxic Air Contaminants

CARB has identified DPM as a TAC. DPM is generated during construction by on- and off-road construction vehicles. DPM is also generated in substantial quantities by high-volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic.

Health risks from TACs are a function of the concentration of emissions and the duration of exposure. The primary source of TACs during construction is DPM from construction equipment exhaust. The evaluation of TACs from construction is conducted qualitatively due to the short-term nature of construction and the distance of construction from the closest sensitive receptors.

Although the project would not generate substantial quantities of TACs during operation, there is the potential that proposed sensitive receptors within the project site, including residential land uses, could be exposed to TACs from on-site sources such as auto-repair and gas stations, as well as DPM from on-road diesel vehicles. Therefore, a screening level assessment was conducted to assess the health risks to future residents and employees using the screening protocol provided in the PCAPCD Air Quality Handbook (PCAPCD, 2012).

Odors

Odor analyses typically evaluate the potential for a proposed project to generate odors and for the proposed project to be affected by odors from nearby sources of odors. The Proposed Project is not considered an odor source. Consequently, the focus of the odor analysis is on the potential for existing sources of odors to affect future residents and employees within the project site.

Potential odor impacts were evaluated by examining the distances from existing and proposed odor sources (areas designated for industrial land uses) to the project. The analysis also considers prevailing wind direction and policies designed to minimize odor impacts. Odor sources typically include industrial land uses, such as sewage treatment plants, landfills, recycling facilities, and electricity generation facilities.

Thresholds of Significance

For purposes of this analysis, the following thresholds of significance have been used to determine whether implementation of the Proposed Project would result in significant air quality impacts.

Based on Appendix G of the State CEQA Guidelines, an air quality impact is considered significant if implementation of the proposed project would do any of the following:

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

As stated in Appendix G of the State CEQA Guidelines, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. Thus, implementation of the Proposed Project would result in significant air quality impacts if emissions from the Proposed Project construction or operation would:

- Exceed the PCAPCD project thresholds (PCAPCD, 2012):
    - ROG: 82 pounds per day (lbs/day)
    - NO_X: 82 lbs/day
    - PM_{10}: 82 lbs/day
    - CO: 550 lbs/day
- Generate localized concentrations of CO that exceed the 1-hour 20 ppm or the 8-hour 9 ppm air quality standards.

- Not meet CARB's minimum buffer distances between proposed sensitive receptors and TAC sources AND a subsequent Health Risk Assessment (HRA) prepared in accordance with California Air Pollution Control Officers Association (CAPCOA) guidance identifies that there is a potential for adverse risks.

According to the PCAPCD's *CEQA Air Quality Handbook* (*Handbook*), the PCAPCD recommends the use of a cumulative threshold of significance for land use projects of 10 pounds per day for ROG and NO_X. Although described as a significance threshold, the *Handbook* specifically states that the threshold should not be used to determine whether to prepare an EIR; in other words, that it is not intended to be used as a threshold for significance. The *Handbook* recommends that the "threshold" be used to determine when to apply mitigation for cumulative impacts. Given that it is not recommended for use as a threshold for determining the significance of a cumulative impact, the City (acting as CEQA lead agency), has chosen to rely on a two-tier cumulative analysis methodology similar to that adopted by the Sacramento Metropolitan Air Quality Management District (SMAQMD), as outlined in the SMAQMD *Guide to Air Quality Assessment in Sacramento County*. The City is located within the SVAB, which is the same air basin where the SMAQMD methodology is used by numerous CEQA lead agencies; on these grounds, the City finds use of this methodology to be appropriate.

The first analysis tier involves determining whether a project would result in significant project-level criteria air pollutant emissions for which the region is designated non-attainment (i.e., exceed the PCAPCD-recommended project threshold of 82 lbs/day for ROG or NO_x). If it does not, then project emissions would not be considered cumulatively considerable. Should a project exceed the thresholds, a Tier 2 evaluation is conducted to determine whether project emissions would jeopardize implementation of the SIP, which is a methodology consistent with CEQA Guidelines Section 15064 (h)(3). Under the Tier 2 analysis, projects found to be consistent with the SIP and which would not conflict with the SIP emissions budget are considered less than cumulatively considerable.

Impacts

IMPACT 4.4-1	GENERATE SHORT-TERM CONSTRUCTION RELATED EMISSIONS OF CRITERIA AIR POLLUTANTS
Applicable Policies and Regulations	PCAPCD Rules 202, 205, 217, 218, 228, 310, and 501 City of Roseville Construction Standards Section III
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.4-1 Measures to Reduce Short-term Construction-related Emissions
Significance After Mitigation	Significant and Unavoidable

Construction-related emissions are intermittent and temporary in nature. Construction-related activities associated with the Proposed Project would generate emissions of CAPs (PM_{10} and $PM_{2.5}$) and ozone precursors (ROG and NO_x) from site preparation (e.g., excavation, grading, and clearing), off-road

equipment, material transport, and worker vehicles, vehicle travel on unpaved roads, paving, and application of architectural coatings.

Emissions of fugitive PM_{10} and $PM_{2.5}$ are associated primarily with earth-moving activities during site preparation and grading. The generation of dust during construction activities could adversely affect sensitive receptors and construction workers by exacerbating existing respiratory problems such as asthma. Dust can also adversely affect children and the elderly who are more susceptible to respiratory illnesses. The quantity of PM_{10} and $PM_{2.5}$ emissions vary with the soil silt content, soil moisture, wind speed, acreage of disturbance area, and on- and off-site vehicle miles traveled. Exhaust from diesel equipment and worker commute trips contribute to project-related PM_{10} and $PM_{2.5}$ emissions. Emissions of ozone precursors (NO_x and ROG) are emitted by off-road construction equipment exhaust. Worker commute trips and other construction-related activities (application of architectural coatings, such as paint) also contribute to project-related construction emissions.

In accordance with the City's Design and Construction Standards described in Section 4.4.3, the Proposed Project would be required to comply with all PCAPCD rules and regulations for construction, including but not limited to the following rules specifically applicable to construction related air quality impacts:

- Rule 202 related to visible emissions,
- Rule 228 related to fugitive dust,
- Rule 228/Section 401.2 related to traffic speeds on unpaved surfaces,
- Rule 310 prohibiting open burning of removed vegetation,
- Rule 217 related to the emissions of VOCs from asphalt using for paving, and
- Rule 218 related to architectural coatings.

Table 4.4-7 shows project-related emissions for each year of construction. Emission levels after mitigation and compliance with PCAPD rules are listed first, and emissions before mitigation and compliance with certain PCAPCD are shown in parentheses. Construction-related air quality impacts were determined by comparing project-related emissions with applicable PCAPCD significance thresholds. Refer to **Appendix N** for CalEEMod output files.

As shown in **Table 4.4-7**, unmitigated construction-related activities would result in ROG and NO_x emissions that exceed PCAPCD's significance thresholds of 82 lb/day; therefore, construction-related CAPs emissions could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations. This is considered a **significant** impact.

Mitigation Measure 4.4-1 specifies dust and construction control measures that would reduce emissions from construction activities. As shown in **Table 4.4-7**, ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$ emissions would be reduced with the implementation of **Mitigation Measure 4.4-1**, but ROG and NO_x emissions would not be reduced to levels that are below PCAPCD thresholds. Therefore, construction-related emissions would result in a short-term **significant and unavoidable** impact to air quality.

TABLE 4.4-7
MITIGATED (UNMITIGATED) CONSTRUCTION EMISSIONS

Construction Year	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2017	36.86, (46.37)	134.82, (206.20)	206.33, (225.65)	0.41, (0.41)	32.84, (54.81)	14.16, (26.94)
2018	72.75, (80.90)	127.63, (183.08)	205.64, (219.70)	0.44, (0.44)	35.13, (56.08)	23.55, (26.43)
2019	63.13, (66.74)	47.85, (55.19)	118.54, (117.56)	0.31, (0.31)	19.01, (19.94)	5.81, (6.66)
2020	63.65, (65.04)	43.18, (48.55)	112.61, (111.35)	0.31, (0.31)	18.95, (19.70)	5.75, (6.43)
2021	61.45, (62.64)	38.47, (41.99)	106.13, (104.63)	0.31, (0.31)	18.89, (19.49)	5.71, (6.23)
2022	60.43, (61.43)	35.93, (37.59)	102.56, (100.87)	0.31, (0.32)	18.88, (19.32)	5.69, (6.07)
2023	59.46, (60.34)	33.97, (34.34)	99.05, (97.26)	0.31, (0.31)	18.85, (19.19)	5.67, (5.95)
2024	58.48, (59.26)	33.57, (32.96)	96.27, (94.42)	0.31, (0.31)	18.85, (19.09)	5.66, (5.86)
2025	57.87, (58.55)	57.44, (59.30)	94.15, (92.22)	0.31, (0.31)	18.85, (31.63)	7.95, (16.26)
2026	87.16, (90.55)	90.38, (90.63)	165.25, (162.23)	0.44, (0.44)	33.76, (50.64)	13.61, (22.03)
2027	85.49, (87.32)	70.66, (66.81)	139.92, (135.38)	0.40, (0.40)	25.05, (31.40)	8.60, (11.11)
2028	82.02, (82.71)	32.47, (30.85)	89.52, (87.60)	0.31, (0.31)	18.85, (19.01)	5.66, (5.77)
2029	81.44, (82.13)	32.27, (30.66)	88.26, (86.33)	0.31, (0.31)	18.85, (19.01)	5.66, (5.77)
2030	80.94, (81.59)	81.04, (58.12)	148.41, (136.17)	0.42, (0.42)	32.38, (49.61)	12.81, (20.12)
2031	95.07, (96.62)	61.43, (44.88)	123.83, (118.03)	0.39, (0.39)	25.84, (33.12)	8.19, (10.09)
2032	91.93, (92.58)	31.60, (25.35)	85.14, (83.34)	0.32, (0.32)	18.82, (18.60)	5.63, (5.39)
2033	91.42, (92.06)	31.45, (25.21)	84.39, (82.59)	0.32, (0.32)	18.83, (18.60)	5.64, (5.39)
2034	91.05, (91.69)	31.34, (25.09)	83.74, (81.93)	0.32, (0.32)	18.83, (18.60)	5.64, (5.39)
Maximum Year Emissions	**95.07**	**134.82**	**206.33**	**0.44**	**35.13**	**23.55**
PCAPCD Thresholds	82	82	550	N/A	82	82
Exceed Threshold?	***Yes***	***Yes***	***No***	*No*	***No***	***No***

Source: CalEEMod, 2010, **Appendix N**.

IMPACT 4.4-2	GENERATE LONG-TERM OPERATIONAL RELATED (REGIONAL) EMISSIONS OF CRITERIA AIR POLLUTANTS
Applicable Policies and Regulations	Rule 501 Stationary Sources or Processes Rule 246 Water Heaters Rule 305-Residential Allowable Burning Rule 507-Federal Operating Permit Program
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.4-2 Project Measures to Reduce Operational Emissions MM 4.4-3 Off-site Mitigation for Operational Emissions
Significance After Mitigation	Significant and Unavoidable

Area and Mobile Source Emissions

Table 4.4-8 shows criteria air pollutant emissions from area, energy, and mobile sources associated with operation of the Proposed Project at full buildout. The estimates represent peak summer emissions. As shown, project-related NO_x, ROG, and PM_{10} emissions would exceed the PCAPCD thresholds of 82 pounds per day. Therefore, area and mobile source emissions from project operation would result in a **significant** impact to air quality.

The project design is consistent with SACOG's Blueprint planning principles and incorporates new urbanism design concepts that increase the walkability and accessibility of land uses and results in land uses that are more proximate to one another and accessible to services and jobs. A new urbanism community such as this is more accessible by non-automotive transportation methods i.e., walking, bicycling) than a more conventional suburban community, and thus results in fewer project-wide vehicle miles traveled than a more conventional community.

Mitigation Measure 4.4-2 would establish mitigation on-site by incorporating design features within the project including but not limited to "green" building features such solar panels, energy efficient heating and cooling, exceeding Title 24 standards, bike lanes, and bus shelters. However, as shown in **Table 4.4-8**, it is estimated that project related emissions would still exceed PCAPCD recommended significance thresholds after on-site mitigation. **Mitigation Measure 4.4-3** is recommended to off-set project emissions by establishing mitigation off-site or through participation in PCAPCD's mitigation program. While **Mitigation Measures 4.4-2 and 4.4-3** would reduce operational emissions, no other feasible mitigation is available to reduce the Proposed Project's emissions to levels that are less than the thresholds. Therefore, after mitigation, impacts associated with operational emissions would remain **significant and unavoidable**.

TABLE 4.4-8
MITIGATED (UNMITIGATED) 2020 OPERATION EMISSIONS

Sources	Criteria Pollutants					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Area	144.12, (171.28)	2.66, (2.71)	229.73, (234.23)	0.01, (0.01)	2.49, (2.52)	2.48, (2.51)
Energy	1.78, (2.24)	15.28, (19.29)	7.08, (8.97)	0.09, (0.12)	1.23, (1.55)	1.23, (1.55)
Mobile	300.14, (288.38)	257.82, (247.98)	1,078.14, (1,115.13)	2.75, (2.89)	176.78, (186.07)	49.66, (52.27)
Total Emissions	**434.28, (473.66)**	**265.93, (279.82)**	**1,314.95, (1,358.34)**	**2.86, (3.02)**	**180.50, (190.14)**	**53.38, (53.33)**
PCAPCD Thresholds	82	82	550	N/A	82	N/A
Exceed Thresholds	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*No*

Source: CalEEMod, 2010.

Stationary Source Emissions

The Proposed Project may include commercial stationary sources of pollutants that would be required to obtain permits to operate under PCAPCD Rule 501-General Permit Requirements and Rule 507-Federal Operating Permit Program. These sources could include, but not be limited to, diesel-engine generators for emergency power generation; central heating boilers; kitchen equipment at restaurants; and dry cleaning equipment. The permit process would assure that these sources would be equipped with the required emission controls and individually would comply with permitting requirements. However, collectively, these stationary sources would be additive with the above-described area and mobile source emissions estimates. This would result in a **significant** impact.

As discussed above, **Mitigation Measure 4.4-2** would establish mitigation on-site through design features, and **Mitigation Measure 4.4-3** is recommended to off-set project emissions by establishing mitigation off-site or through participation in PCAPCD's mitigation program. **Mitigation Measures 4.4-2 and 4.4-3** represent all feasible mitigation to reduce stationary source emissions. However, following mitigation, impacts associated with emissions of criteria pollutants would remain **significant and unavoidable**.

IMPACT 4.4-3	GENERATE CARBON MONOXIDE EMISSIONS AT LOCAL INTERSECTIONS
Applicable Policies and Regulations	None Applicable
Significance with Policies and Regulations	Less than Significant
Mitigation Measures	None Required
Significance After Mitigation	Less than Significant

Background CO concentrations in the Roseville area are low, and future roadside CO concentrations are expected to decrease from existing roadside CO concentrations, despite anticipated increases in traffic volumes, due to improved fuel combustion efficiency; therefore, background concentrations in the first year of project operation would be equal to or less than existing conditions. Estimated CO concentrations in the region of the plan area are 5.9 ppm for 1-hour and 2.5 ppm for 8-hour (**Table 4.4-4**).

CO hot spot concentrations are directly related to traffic congestion, increasing with slow or idling traffic. In accordance with Section 4.7.4 of the EPA-approved protocol for assessing impacts associated with transportation-related CO hot spot concentrations, only those intersections with an LOS of E or F after mitigation require further analysis to determine CO concentration levels. Per the EPA protocol, intersections operating at LOS C or better after mitigation, including the Placer Parkway and Westbrook Boulevard intersection and all other intersections within the project site, do not have the potential to result in CO hot spot concentrations that would pose health risks to sensitive receptors. Because implementation of the Proposed Project would cause the following intersections to be degraded to an LOS E or F after mitigation has been applied (Traffic Study, **Appendix M**), these facilities require further consideration to determine the potential for impacts associated with CO hot spot concentrations:

Existing Plus Project Conditions:

- Baseline Road/Fiddyment Road (LOS D to E during PM peak hour)
- Roseville Parkway/Galleria Boulevard (LOS D to E during the PM peak hour)
- Watt Avenue/PFE Road (LOS E to F during the AM peak hour
- Walerga Avenue/PFE Road (LOS D to F during AM peak hour)
- Fiddyment Road/Athens Avenue (LOS B to E during the PM peak hour)
- Pleasant Grove Road N/Baseline Road (LOS D to F during PM peak hour)
- Pleasant Grove Road S/Baseline Road (LOS F operations exacerbated during AM peak hour)

2035 Cumulative Plus Project Conditions:

- Blue Oaks Boulevard/Washington Boulevard (LOS D to E during the PM peak hour)
- Eureka Road/Taylor Road (LOS D to E during the PM peak hour)
- Cook Riolo Road/PFE Road (LOS F operations exacerbated during the AM peak hour)
- N. Foothills Boulevard/Athens Avenue (LOS F operations exacerbated during the AM peak hours)

As discussed in the Methodology section, the Pleasant Grove Boulevard and Roseville Parkway intersection provides a benchmark by which to measure the significance of impacts at project-impacted intersections. This intersection complies with the criteria outlined in Section 4.7.2 of the CO protocol, as shown below:

a. Receptors at Pleasant Grove Boulevard/Roseville Parkway are approximately 150 feet from the center of the intersection. Receptors at the study intersections listed above are also equal or greater than 150 feet from the intersection centers, with the exception of the Cook Riolo Road/PFE Road where the nearest sensitive receptor is located approximately 110 feet from the center of the intersection.
b. The roadway geometry at Pleasant Grove Boulevard/Roseville Parkway varies from the geometry of the study intersections; however, Pleasant Grove Boulevard/Roseville Parkway has an equal to or greater number of lanes than any of the study intersections.
c. Pleasant Grove Boulevard/Roseville Parkway is between approximately 1.4 (Roseville Parkway/Galleria Boulevard) to 11.0 (Pleasant Grove Road N/Baseline Road) miles from the study intersections and the topography between the study intersections and Pleasant Grove Boulevard/Roseville Parkway is flat; therefore, the worst-case meteorology is similar.
d. A cumulative traffic volume of 6,986 vehicles per hour was used to determine the CO concentrations at Pleasant Grove/Roseville Parkway intersection in the 2011 CSP EIR; the hourly traffic volume at the busiest study intersection listed above, Roseville Parkway/Galleria Boulevard is 9,980 vehicles per hour (**Appendix M**). The second busiest intersection listed above is Eureka Road/Taylor Road, which experiences 6,500 vehicles per hour.
e. The percentage of cold start is assumed to be the same at all study intersections given the mixed land uses surround each intersection.
f. Given the mixed land uses surrounding the study intersections, it is assumed that the intersection of Pleasant Grove Boulevard/Roseville Parkway would have the same percentage of heavy duty gas trucks as the other study intersections.
g. The average delay and queue length for Pleasant Grove Boulevard/Roseville Parkway is greater than that of the other study intersections, with the exception of the Cook Riolo Road/PFE Road and N. Foothills Boulevard/Athens Avenue intersections (**Appendix M**).
h. Background concentration levels of CO are 1.9 ppm for 1-hour and 1.4 for 8-hour at the monitoring location nearest to the Proposed Project (refer to **Table 4.4-4**). Given the proximity of the Pleasant Grove Boulevard/Roseville Parkway to the study intersections, background concentrations of CO are expected to be similar.

As noted above, the Cook Riolo Road/PFE Road intersection is located approximately 40 feet closer to the nearest sensitive receptor and experiences a longer delay than the Pleasant Grove Boulevard/Roseville Parkway intersection. However, the Cook Riolo Road/PFE Road intersection experiences significantly lower traffic volumes compared to the Pleasant Grove Boulevard/Roseville Parkway intersection (4,902 less vehicles per hour). Therefore, CO concentration would also be expected to be significantly lower. Additionally, the Roseville Parkway/Galleria Boulevard intersection experiences approximately 2,994 more vehicles per hour than the Pleasant Grove Boulevard/Roseville Parkway intersection. However, there are no sensitive receptors in the vicinity of the Roseville Parkway/Galleria Boulevard intersection. Therefore, CO concentration at the nearest sensitive receptor would be expected to be significantly lower than the Pleasant Grove Boulevard/Roseville Parkway

intersection. The N. Foothills Boulevard/Athens Avenue intersection experiences a longer delay than the Pleasant Grove Boulevard/Roseville Parkway intersection. However, the N. Foothills Boulevard/Athens Avenue intersection experiences significantly lower traffic volumes compared to the Pleasant Grove Boulevard/Roseville Parkway intersection (4,928 less vehicles per hour). Therefore, CO concentrations would be expected to be significantly lower than at the Pleasant Grove Boulevard/Roseville Parkway intersection.

The intersection at Pleasant Grove Boulevard/Roseville Parkway had a worst-case modeled CO concentration under 2035 cumulative operations of 13.3 ppm for 1-hour and 6.6 ppm for 8-hour, which is far less than the 1- and 8-hour NAAQS (35 and 9 ppm, respectively) and CAAQS (20 and 9 ppm, respectively). As shown, this intersection meets the CO Protocol criteria for use as a point of comparison for determining CO concentrations at the impacted intersections. Therefore, in accordance with the CO Protocol, which allows for comparison of a Proposed Project with another intersection for which air quality data is known, the project would not expose sensitive receptors to substantial concentrations of CO. This is a **less-than-significant** impact.

IMPACT 4.4-4	EXPOSURE TO TOXIC AIR CONTAMINANTS
Applicable Policies and Regulations	Clean Air Act (NESHAPs Program) AB 2588 Air Toxics Hot Spots Information and Assessment Act of 1987) PCAPCD Rules and Regulations
Significance with Policies and Regulations	Potentially Significant
Mitigation Measures	MM 4.4-4 Screen Health Risks
Significance After Mitigation	Less than Significant

The Proposed Project has the potential to expose sensitive receptors to concentrations of TACs in two ways: 1) locating residences in proximity to sources of TACs such as industrial uses or high capacity roadways; or 2) expose off-site sensitive receptors to construction activities, which result in the emission of particulate matter from diesel-fueled engines. This analysis evaluates the location of sensitive receptors, which consist of schools and residences, in relation to potential sources of TACs: construction equipment, industrial sources, and high-capacity roadways. This analysis also considers the prevailing wind direction in the area. Proposed sensitive land uses within the project site consist of residences and an elementary school. Off-site sensitive receptors consist of residences located north of the project site in the Toad Hill estates, as well as existing and proposed residences and schools located south and east of the project site in the CSP and West Roseville Specific Plan areas.

Construction

Project construction would result in short-term emissions of diesel exhaust, of which a major constituent is DPM, a known TAC. Off-road heavy-duty diesel equipment would emit DPM during site preparation (e.g.,

excavation and grading); paving; installation of utilities, materials transport and handling; building construction; and other miscellaneous activities. PCAPCD has not adopted a methodology for analyzing such impacts and has not recommended that HRAs be completed for construction- related emissions of TACs. Due to the intermittent nature of construction activities, the relatively short-term construction period, and the distance to sensitive receptors, the project would not result in long-term exposure of sensitive receptors to significant health risks associated with construction-related emissions of TACs. Therefore, exposure of sensitive receptors to TACs from construction activities is considered a **less-than significant** impact. **Mitigation Measure 4.4-2** would minimize vehicle idling times during construction activities, further reducing the less-than-significant effect.

Operations

CARB has developed recommendations against siting new sensitive land uses, such as schools, within 500 feet of freeways or arterials that have more than 100,000 average daily trips (ADT) per day (CARB, 2005). Key recommendations in the Handbook include taking steps to avoid siting new, sensitive land uses in the following locations:

- 500 feet of a freeway, urban roads with 100,000 vehicles/day or rural roads with 50,000 vehicles / day
- 1,000 feet of a major service and maintenance rail yard
- Within 300 feet of any dry cleaning operation using perchloroethylene(for operations with two or more machines, within 500 feet). California regulations prohibit the installation of new perchloroethylene dry cleaning equipment, and thus this is only relevant for existing dry cleaners using old equipment.
- 300 feet from the fenceline of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater)
- 50 feet from the fenceline of a typical gas dispensing facilities

The CARB Handbook further recommends that because other facilities types that may emit air pollutants of concern, such as autobody shops, furniture repair and printing shops, are subject to air permits from local air districts, the local air district should be contacted where there are questions about siting a sensitive land use close to an industrial facility.

Interstate 80 (I-80) and State Route 65 (SR-65) are located 7 and 4 miles east of the project site, respectively. Arterials in the City of Roseville, including the proposed Westbrook Boulevard that would extend through the project site, are sized to handle less than 100,000 ADT. Additionally, under 2035 Cumulative Plus Project conditions, the future Placer Parkway is projected to carry 18,600 ADT west of Westbrook Boulevard and 33,500 ADT east of Westbrook Boulevard, which is within the capacity of a four-lane restricted access roadway (Fehr and Peers, 2016). Therefore, the location of residences and the proposed elementary school does not pose a substantial health risk due to DPM or TAC from high-volume roadways.

The location of industrial uses south and east of the project site could potentially result in exposure to TACs or $PM_{2.5}$ at on-site residences and/or the proposed school. Industrial sources can generate a wide variety of TACs from fuel combustion and use of hazardous chemicals which have the potential to

become airborne; however, given the distance to the nearest industrial site, approximately 1.1 miles south of the project site—the Roseville Energy Park (REP)—it is not likely that residential or school occupants would be affected. The REP generates TACs from natural gas combustion and from diesel emergency generator testing. The California Energy Commission (CEC) conducted a screening level HRA for the REP prior to its construction. That analysis found that the REP would not cause significant acute, chronic, or carcinogenic health risks to existing or future residences in the vicinity (CEC, 2004).

The community commercial areas within the project site could include facilities that would emit TACs, such as fueling stations, in close proximity to proposed or existing sensitive receptors. This is considered a potentially **significant** impact. **Mitigation Measure 4.4-4** requires that any large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater) to be established within the project site be located a certain distance from proposed sensitive receptors that meets the applicable CARB Land Use Planning Handbook recommendations. Under the current CARB Land Use Planning Handbook, this would require a separate of 300 feet. Additionally, any future proposed facility or equipment that may emit pollutants from a stationary source into the atmosphere must first obtain an Authority to Construct permit from the PCAPCD. The PCAPCD reviews each proposed use and if it is determined that there are potential risks, a risk assessment and menu of site specific measures that would lessen impacts associated with TACs would be required. The PCAPCD issues permits and monitors new and modified sources of air pollutants to ensure compliance with national, state, and local emission standards that govern TAC sources. Therefore, because new sensitive land uses within the project site, including the elementary school, would meet the siting recommendations within the CARB Land Use Planning Handbook with respect to buffer distances from potential TAC sources, and future sources of TACs would be subject to compliance with existing rules and regulations that govern TACs through the PCAPCD permitting and monitoring process, this impact would be **less than significant** after mitigation.

IMPACT 4.4-5	EXPOSURE OF SENSITIVE RECEPTORS TO ODORS
Applicable Policies and Regulations	PCAPCD Rule 205
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.4-1 Measures to Reduce Short-term Construction-related Emissions
Significance After Mitigation	Significant and Unavoidable

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Construction

The Proposed Project would result in diesel exhaust emissions from on-site construction equipment during the construction phase. Diesel exhaust emissions can result in temporary and intermittent odors at off-site sensitive receptors. These odors are generally not detectible beyond the a project's property line due to the rapid deposition of diesel exhaust emissions. In addition, CARB's Diesel Reduction Plan (discussed in **Section 4.4.2**), recommends control measures to reduce the risks associated with DPM and achieve a goal of 85 percent reduction by 2020. Compliance with PCAPD rule 205 and **Mitigation Measure 4.4-1** will further reduce exposure of existing and future residents to the odors from construction-related diesel exhaust. Impacts associated with construction odors are considered **less than significant**.

Proposed Odor Sources within the Project Site

Implementation of the Proposed Project would involve development of commercial land uses that may be minor odor sources (e.g., dry cleaners, diesel backup generators, diesel delivery vehicles, restaurants). These sources are typical of an urban environment and, according to the PCAPCD CEQA Air Quality Handbook, the uses of the Proposed Project are not a new major source of odor. Impacts associated with proposed potential odor sources within the project site are considered **less than significant**.

Exposure of Proposed Sensitive Receptors to Off-site Odor Sources

The Proposed Project would result in the establishment of sensitive receptors in proximity to existing and future odor sources, including the PGWWTP, WRSL, Materials Recovery Facility (MRF), industrial land uses, and agricultural uses.

The project site is located approximately one mile north of the PGWWTP. In the winter months, the general wind direction in the vicinity of the project site is north to south. Due to this, odors from the PGWWTP have a greater potential to be detected to the south (the opposite direction of the project site). In the summer months, delta breezes blow from southwest to northeast. These winds have the potential to disperse odors from the PGWWTP to the northeast away from the project site (Springsteen, 2015). The PCAPCD CEQA Handbook includes a recommended buffer of two miles from a WWTP. This buffer is intended to be used as a screening tool, not a significance threshold (PCAPCD, 2012). The PGWWTP may occasionally emit odors that could affect sensitive receptors within the project site. Wastewater processing at PGWWTP incorporates odor control techniques, such as oxygenating the wastewater holding ditches so that non-anaerobic bacteria cannot produce gases. Considering prevailing wind directions and the 1-mile distance of the nearest residential unit at the project site and the odor-controlling processes at PGWWTP, it is unlikely that sensitive receptors would experience frequent odors from wastewater treatment activities.

The project site is located approximately 1.5 miles southwest of the WRSL and 1.8 miles southwest of the MRF. The PCAPCD Air Quality Handbook includes a recommended buffer of two miles from a sanitary landfill. This buffer is intended to be used as a screening tool, not a significance threshold. The landfill operates seven days a week and takes in approximately 270 tons of waste per day (refer to **Section 4.12-4**). In 2013, the PCAPCD received three complaints for odor. The complaints came from Crocker Ranch, Whitney Ranch and West Park residential developments all located south of the WRSL

(Springsteen, 2014). The WRSL provides a complaint form on its website which can be used to register odor complaints. In February 2015, the WRSL registered over 200 plus odor complaints. The PCAPCD monitors the WRSL odor complaints and in February 2015 it issued the WRSL a notice of violation (NOV). Since the NOV was issued, PCAPCD receives real time data from the WRSL regarding odor complaints made on the WRSL website (Springsteen, 2015). According to PCAPCD, since February 2015, the WRSL has registered less than 30 odor complaints. The project site is not located directly south of the WRSL and thus it is not expected that odors would be transported directly by the prevailing winds to the Proposed Project. However, given the number of recent complaints from residences located at similar distances from the WRSL, it likely that sensitive receptors would experience occasional odors from landfill operations. Similarly, sensitive receptors may experience occasional odors from MRF operations.

There are a number of other odor sources within the region of the Proposed Project such as the Rio Bravo biomass plant (located approximately 3.3 miles from the project site), Mallard Creek composting facility (located approximately 3.2 miles from the project site), Placer Propane (located approximately 3.2 miles from the project site), Thunder Valley WWTP (located approximately 3.4 miles from the project site), and dairy and chicken farms (located greater than 2 miles from project site), all of which have screening distances of less than two miles in the PCAPCD CEQA Air Quality Handbook. Because these uses are located greater than two miles from the project site, per the PCAPCD CEQA Air Quality Handbook, these potential odor sources would not affect a significant number of people at the project site.

PCAPCD Rule 205 provides that air contaminants emitted by any person shall not cause annoyances, and the PCAPCD provides an on-line complaint website and phone number if any resident experiences odor concerns. Also, disclosures will be provided to buyers and occupants of property in the project site (as embodied in the conditions, covenants, and restrictions [CC&Rs]), to ensure that residents and property owners are informed of the proximity of the PGWWTP, WRSL, and agricultural uses and the associated potential for nuisance odors (refer to **Section 2.12**). The proximity of the project site to odor-generating land uses is closer than the buffer distances recommended within the PCAPCD CEQA Air Quality Handbook; therefore, it is possible that the Proposed Project could expose sensitive receptors to objectionable odors. This is considered a **significant** impact. There is no feasible mitigation to reduce this impact. Therefore, exposure of sensitive receptors to odor nuisances is considered to be a **significant and unavoidable** impact.

IMPACT 4.4-6	CONSISTENCY WITH PLANS AND POLICIES
Applicable Policies and Regulations	State Implementation Plan
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.4-1 Measures to Reduce Short-term Construction Related Emissions MM 4.4-2 Project Measures to Reduce Operational Emissions MM 4.4-3 Off-site Mitigation for Operational Emissions
Significance After Mitigation	Significant and Unavoidable

Operational emissions associated with development of the Proposed Project would exceed the PCAPCD thresholds for criteria pollutants. The Proposed Project is not currently included in the City of Roseville or Placer County General Plans. As a result, the emissions associated with the development of the Proposed Project area are not accounted for in the SIP. Therefore, growth associated with the annexation area has the potential to hinder the PCAPCD's ability to have the region re-designated as in attainment with regards to the NAAQS and CAAQS. This is considered a **significant** impact.

Mitigation measures described in the previous impact discussions would reduce air quality emissions, but not to levels consistent with the current SIP. If the Proposed Project is approved and included in the City's General Plan, it will eventually be included in the SIP when it is next updated so that a revised emissions budget and attainment strategy can be implemented. However, CARB is the lead agency for all purposes with regard to the SIP; with mitigation this impact remains **significant and unavoidable** because amending the SIP is not within the jurisdiction or control of the City.

IMPACT 4.4-7	RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE IN CRITERIA POLLUTANTS
Applicable Policies and Regulations	None Applicable
Significance with Policies and Regulations	Significant
Mitigation Measures	MM 4.4-1 Measures to Reduce Short-term Construction Related Emissions MM 4.4-2 Project Measures to Reduce Operational Emissions MM 4.4-3 Off-site Mitigation for Operational Emissions
Significance After Mitigation	Significant and Unavoidable

Past, present, and future development projects contribute to a region's air quality conditions on a cumulative basis. Therefore, by its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to by itself result in non-attainment of the NAAQS or CAAQS. If a project's individual emissions contribute toward an exceedance of the NAAQS or CAAQS, then the project's cumulative impact on air quality would be significant. In developing attainment designations for CAPs, the EPA and CARB consider the region's past, present, and future emission levels. The project site is located in an area that is designated nonattainment for ozone (federal and state) and PM_{10} (state only). In order to improve air quality and attain the health-based standards, reductions in emissions are necessary within nonattainment areas. PCAPCD determined suitable significance thresholds as a tool by which PCAPCD can achieve attainment of the NAAQS and CAAQS. Therefore, the PCAPCD's significance thresholds consider the regions past, present, and future emissions levels.

Implementation of the Proposed Project combined with the proposed developments within the region could lead to cumulative impacts to air quality. Operational activities of the Proposed Project in the year 2034 would result in emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ emissions, which are assumed to be pollutants of concern in the year 2034. The majority of ROG, NO_x, PM_{10}, and $PM_{2.5}$ emissions would be generated by vehicle trips associated with residents, visitors, and workers at the project site. Consumer products (e.g., cleaning products, aerosol sprays, automotive products) used by residents, visitors, and workers would also contribute ROG and NOx emissions. Lesser sources of precursors would include energy use (fuel combustion for heating and cooling of buildings).

Table 4.4-9 shows cumulative 2035 emissions associated with operation of the Proposed Project. Completion of construction and full operation without construction activities would occur in the year 2034. However, the CalEEMod does not allow for analysis of 2034; therefore, the closest analysis year to 2034 was used to model emissions. The estimates represent peak summer emissions. As shown, project-related NO_x and ROG emissions would exceed the PCAPCD project specific thresholds of 82 pounds per day. Additionally, as discussed above, the Proposed Project is not consistent with the SIP. Therefore, the Proposed Project's contribution to cumulative air quality impacts is potentially **significant**. With the implementation of **Mitigation Measure 4.4-2** cumulative emissions of NO_x and ROG would not be

reduced to below the PCAPCD thresholds. **Mitigation Measure 4.4-3** is recommended below to further reduce project-related emissions.

Implementation of **Mitigation Measures 4.4-2** and **4.4-3**, which require a number of measures to reduce vehicular and area source emissions, would reduce the amount of emissions generated by the Proposed Project. The ARSP also includes a variety of policies that would promote the use of alternative forms of transportation and pedestrian access to commercial and office uses within the project site. However, because air emissions associated with the Proposed Project are not accounted for in regional air quality attainment plans, and Proposed Project emissions would still exceed PCAPCD thresholds, development would contribute considerably to the regional degradation of air quality. The project's contribution in combination with other reasonably foreseeable development would be cumulatively considerable and would result in a **significant and unavoidable** impact to air quality.

TABLE 4.4-9
MITIGATED 2035 OPERATION EMISSIONS

Sources	Criteria Pollutants					
	ROG	**NOx**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
	Pounds per Day					
Area	143.95	2.64	228.17	0.01	2.50	2.49
Energy	1.78	15.28	7.08	0.10	1.23	1.23
Mobile	201.86	143.40	748.62	2.76	176.60	49.48
Total Emissions	**347.59**	**161.32**	**983.87**	**2.87**	**180.34**	**53.20**
PCAPCD Thresholds	10	10	550	N/A	N/A	N/A
Exceed Thresholds	***Yes***	***Yes***	***Yes***	*No*	*No*	*No*
Source: CalEEMod, 2010.						

4.4.5 MITIGATION MEASURES

MM 4.4-1 Measures to Reduce Short-term Construction Related Emissions (Impact 4.4-1)

The following mitigation measures shall be implemented to reduce short-term construction-related air quality impacts.

a. Prior to approval of Grading or Improvement Plans, (whichever occurs first), on project sites greater than five acres, the Applicant shall submit to PCAPCD a Construction Emission / Dust Control Plan within 30 days prior to groundbreaking. If the PCAPCD does not respond within 20 days, the plan shall be considered approved. The applicant shall provide written evidence, provided by the PCAPCD, to the City that the plan has been submitted to PCAPCD. It is the responsibility of the Applicant to deliver the approved plan to the local jurisdiction. The applicant shall not break ground prior to receiving District approval of the Construction Emission / Dust Control Plan, and delivering that approval to the local jurisdiction issuing the permit, unless the PCAPCD does not

respond within 20 days of submission of the plan, and the plan is deemed approved.

b. The following shall be included in the Dust Control Plan:

   - During construction, emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area, shall be controlled so that dust does not remain visible in the atmosphere beyond the boundary line of the emission source.
   - When wind speeds result in dust emissions crossing the property line, and despite the application of dust control measures, grading and earthmoving operations shall be suspended and inactive disturbed surface areas shall be stabilized.
   - Fugitive dust generated by active operations, open storage piles, or from a disturbed surface area shall not result in such opacity as to obscure an observer's view to a degree equal to or greater than does smoke as dark or darker in shade as that designated as No. 2 on the Ringlemann Chart (or 40 percent opacity).
   - All exposed soils be watered a minimum of once every two hours of active operation or sufficiently often to keep the area adequately wetted.
   - Any visible track-out on a paved road where vehicles enter and exit the work area must be removed at the end of the workday or at least on time per day. Removal shall be accomplished by using wet sweeping or a HEPA filter equipped vacuum device. Dirt from vehicles exiting shall be removed through the use of a gravel pad, a tire shaker, a wheel wash system, or a pavement extending for not less than 50 feet from the intersection with the paved public road.

c. Include the following standard note on the Grading or Improvement Plan: The prime contractor shall submit to the District a comprehensive inventory (i.e., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used in aggregate of 40 or more hours for the construction project. If any new equipment is added after submission of the inventory, the prime contractor shall contact the PCAPCD prior to the new equipment being utilized. At least three business days prior to the use of subject heavy-duty off road equipment, the project representative shall provide the District with the anticipated construction timeline including start date, name and phone number of the property owner, project manager and on-site foreman.

d. Prior to approval of Grading or Improvement Plans, whichever occurs first, the applicant shall provide a written calculation to the PCAPCD for approval by the District demonstrating that the heavy-duty (50 horsepower or greater) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction as required by CARB. Acceptable options for reducing emissions may include use of late model engines, low-

emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

e. In order to control dust, operational watering trucks shall be on-site during construction hours. In addition, dry, mechanical sweeping is prohibited. Watering of a construction site shall be carried out in compliance with all pertinent PCAPCD rules (or as required by ordinance within each local jurisdiction).

f. Include the following standard notes on the Improvement/Grading Plan:

   - During construction the contractor shall utilize existing power sources (e.g., power poles) or clean fuel (i.e. gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators.
   - During construction the contractor shall minimize idling time to a maximum of 5 minutes for all diesel-powered equipment.

g. Signs shall be posted in the designated queuing areas of the construction site to remind off-road equipment operators that idling time is limited to a maximum of 5 minutes.

MM 4.4-2 Project Measures to Reduce Operational Emissions (Impact 4.4-2 and 4.4-7)

Following receipt of an application for a Tentative Map (excluding the Large Lot Subdivision Map), Design Review Permit, conditional use permits and/or any other discretionary permits, the City will forward an early consultation notice to the PCAPCD. Where the PCAPCD provides comments on a specific development proposal, the City shall consult with PCAPCD and the developer to incorporate measures recommended by the PCAPCD and agreed to by the City into the project. Where the PCAPCD does not provide comment on a specific development proposal, the City shall incorporate measures that reduce vehicle emissions and operation emissions from the proposed development. This measure will be implemented through project design, conditions of approval, noticing and disclosure statements, or through the City's plan check and inspection processes. This process is intended to ensure that best available and practical approaches are used to reduce operational emissions in specific tentative map and design review permit applications. The following is a listing of measures that shall be implemented for the purpose of reducing vehicle and operational emissions, unless the applicant provides an analysis that demonstrates to the City's satisfaction that the measure is infeasible or other measure is comparably effective. If the applicant demonstrates that any particular measure in the list below is infeasible for a proposed project to which it would otherwise be applicable, the applicant must provide an analysis supported by substantial evidence demonstrating that a replacement measure is comparably effective.

- Provide tree plantings that meet or exceed the requirements of the City's Community Design Guidelines to provide shading of buildings and parking lots.

- Landscape with native drought-resistant plants (ground covers, shrubs and trees) with particular consideration of plantings that are not reliant on gas-powered landscape maintenance equipment.
- Require all flat roofs on non-residential structures to have a white or silver cap sheet to reduce energy demand.
- Provide conductive/inductive electric vehicle charging station and signage prohibiting parking for non-electric vehicles within designated spaces within non-residential developments.
- Provide vanpool parking only spaces and preferential parking for carpools to accommodate carpools and vanpools in employment areas (e.g. community commercial, business-professional uses)
- All truck loading and unloading docks shall be equipped with one 110/208 volt power outlet for every two-dock doors. Signs shall be posted stating "Diesel trucks are prohibited from idling more than five minutes and trucks requiring auxiliary power shall connect to the 110/208-vot outlets to run auxiliary equipment".
- Design streets to maximize pedestrian access to transit stops.
- Require site design to maximize access to transit lines, to accommodate bus travel, and to provide lighted shelters at transit access points.
- Develop the plan consistent with the higher residential densities (within approved residential density ranges of zone) provided around the village nodes and transit corridors.
- Participate in Roseville Electric incentive programs for energy-efficient development where feasible if available at the time of construction.
- Ten percent of the residential units shall be designated as low to very-low income residential units.
- A pedestrian access network shall link areas of the project site with other land uses.
- Electric landscape maintenance equipment shall be utilized to the extent feasible on parks and public/quasi-public lands.
- Design buildings to meet the 2013 Title 24 Energy Efficiency Standards (which is a 25% reduction below 2010 Title 24 Energy Efficiency Standards).
- Ensure that all area lighting installed on the site shall be considered high efficiency lighting. All public street lighting shall meet the lighting standards of Roseville Electric at the time of construction.
- Utilize reclaimed water for irrigation of all non-single family areas within the project site, including the school, parks, paseos, roadway landscaping and commercial landscaping.
- Reduce the area of turf allowed consistent with the City's Water Efficient Landscape Ordinance and the Water Conservation Strategy (see **Appendix G**).
- Install water efficient landscape irrigation systems at all public land uses.

Measures for Residential Units:

- Require electrical outlets be installed on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment.
- Require every garage of each single family home to be considered "Electric Vehicle Ready". This by definition is not limited to, but includes a conduit raceway to a spare electric box in the garage that is sized for a future minimum 50-amp 220v outlet. A 220v breaker space must be available in the electrical panel.
- Require installation of a gas outlet in the rear of residential buildings for use of outdoor cooking appliances, such as gas burning barbeques.
- Require installation of low NO_x hot water heaters (beyond District Rule 246 requirements)
- Prior to approval of Tentative Maps: provide notice to homebuyers through CC&Rs or other mechanisms to inform them that only gas fireplaces are permitted.
- The applicant shall ensure that builders offer only energy efficient appliances for installation in residential units, including Energy Star refrigerators, clothes washers, dishwashers, and ceiling fans.
- Prior to building permit approval, the applicant shall show, on the plans submitted to the Building Department, provisions for construction of new residences, and where natural gas is available, the installation of a gas outlet for use with outdoor cooking appliances, such as a gas barbecue or outdoor recreational fire pits.

MM 4.4-3 Off-site Mitigation for Operational Emissions (Impacts 4.4-2, 4.4-6, and 4.4-7)

Prior to the issuance of building permits, in order to mitigate the contribution to long-term emissions of pollutants, subject to the PCAPCD's review and approval, the applicant shall either:

a. Establish mitigation on-site by incorporating design features within the project. This may include, but not be limited to: "green" building features such solar panels, energy efficient heating and cooling, exceeding Title 24 standards, bike lanes, bus shelters, etc as described in Mitigation Measure 4.4-3. The specific amounts of "credits" received shall be established and coordinated through the PCACPD;
b. Establish mitigation off-site within the same region (i.e., east or west Placer County) by participating in an offsite mitigation program, coordinated through the District. Examples include, but are not limited to: participation in a "Biomass" program that provides emissions benefits; retrofitting, repowering, or replacing heavy duty engines from mobile sources (e.g., buses, construction equipment, on road haulers); or other programs that the project proponent may propose to reduce emissions;

c. Participate in the District's Offsite Mitigation Program (Resolution Number 01-06) by paying fees equal to the project's contribution of pollutants (ROG and NOx) in excess of the threshold of 82 lbs per day. The estimated payment for the Proposed Project is $885,870 based on a rate of $18,260 per ton for a one year period. The actual amount to be paid shall be determined, and satisfied pursuant to current California Air Resource Board guidelines, at the time of recordation of the Final Map or issuance of Building Permits; or

d. Any combination of a, b, or c, calculated to reduce or off-set the project's emissions above thresholds, and as determined feasible by the Director of the PCAPCD.

MM 4.4-4 Screen Health Risks (Impact 4.4-4)

a. The siting of proposed land use types, including fueling facilities and other stationary source/industrial land use types, within the project site shall meet the minimum screening buffer recommendations within the applicable CARB Air Quality and Land Use Handbook in effect at the time of building permit issuance. Within the current (April 2005) Handbook, this would require that sensitive land uses, including residential and school uses, be located greater than 50 feet from the fence line of typical gas dispensing facilities, and greater than 300 feet from large gasoline dispensing facilities, defined as a facility with a throughput of 3.6 million gallons per year or greater.

b. For projects that include stationary sources of air pollutants or TACs e.g., gasoline dispensing facility, auto painting, dry cleaning, large HVAC units, etc.), a copy of the Authority to Construct permit from PCAPCD shall be provided to the City prior to the issuance of a Certificate of Occupancy.