3.3 AIR QUALITY

3.3.1 INTRODUCTION

This section covers the topic of air quality and describes existing conditions at and surrounding the project site. It summarizes relevant regulations and policies, and analyzes the Proposed Action and each alternative's potential impacts on air quality. This section also evaluates potential impacts on air quality from the implementation of the Applicant's draft permittee-responsible compensatory wetlands mitigation plan (PRMP) that includes wetland restoration activities on three off-site mitigation properties.

Sources of information used in this analysis include:

- Amoruso Ranch Specific Plan (ARSP) EIR prepared by the City of Roseville (City of Roseville 2016a);
- City of Roseville General Plan 2035 (City of Roseville 2016b);
- 2015 Triennial Report (PCAPCD 2015);
- Traffic Study for the Amoruso Ranch Specific Plan (ARSP) (Fehr & Peers 2016) (included in **Appendix 3.14a**); and
- Traffic Study for the No Action, Proposed Action, and Alternatives 1, 2, and 3 (Fehr & Peers 2018) (included in **Appendix 3.14b**).

3.3.2 AFFECTED ENVIRONMENT

3.3.2.1 Regional Setting

The California Air Resources Board (CARB) has divided California into regional air basins according to topographic features. The proposed project is located in the City of Roseville, which is located in the Placer County portion of the Sacramento Valley Air Basin (Air Basin). This portion of the Air Basin is under the jurisdiction of the Placer County Air Pollution Control District (PCAPCD) for issues related to air quality planning. The PCAPCD works in conjunction with the Sacramento Metropolitan Air Quality Management District (SMAQMD) and other air pollution control districts within the Air Basin to address air quality in the region.

The primary factors that determine air quality in any region are the locations of air pollutant sources, the amount of pollutants emitted, and meteorological and topographical conditions affecting their dispersion. Atmospheric conditions, including wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

The Air Basin includes Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba Counties; the western urbanized portion of Placer County; and the eastern portion of Solano County. The Air Basin occupies approximately 15,040 square miles and has a population of more than 2 million people. The Air Basin is bounded by the North Coast Ranges on the west and Northern Sierra Nevada Mountains on the east. The intervening terrain is flat and is often described as a bowl-shaped valley.

The Air Basin has a Mediterranean climate, characterized by hot, dry summers and mild, rainy winters. During the year, the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually

in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches with snowfall being very rare. The prevailing winds are moderate in strength and vary from moist breezes from the south to dry land flows from the north (SMAQMD 2016).

The mountains surrounding the Sacramento Valley create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The highest frequency of air stagnation events occur in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in the air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground.

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September; however, a phenomenon called the "Schultz Eddy" prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out of the valley, the Schultz Eddy causes the wind pattern and pollutants to circle back southward preventing dispersion and increasing the likelihood of federal and state air quality standards violations (SMAQMD 2016).

3.3.2.2 Ambient Air Quality Standards

Both the federal government and the State of California have established ambient air quality standards for several different pollutants. The U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards for the following seven pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), respirable particulate matter (PM10), fine particulate matter (PM2.5), and lead. These seven pollutants are commonly referred to as *criteria pollutants*. California Ambient Air Quality Standards have also been adopted for these pollutants, as well as for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. California standards are generally stricter than national standards. Each of the criteria pollutants that are relevant to the Proposed Action and alternatives and that are of concern in the Air Basin are briefly described below. While reactive organic gases (ROGs) are not considered to be criteria air pollutants, they are widely emitted from land development projects and undergo photochemical reactions in the atmosphere to form O_3; therefore, ROGs are also relevant to the Proposed Action and alternatives, and are of concern in the area (USEPA 2017).

- Ozone (O_3). O_3 is a gas that is formed when ROGs and oxides of nitrogen (NO_X), both byproducts of internal combustion engine exhaust and other sources, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- Reactive Organic Gases (ROGs). ROGs are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Adverse effects on human health are not caused directly by ROGs, but rather by

reactions of ROGs to form secondary air pollutants, including ozone. ROGs are also referred to as reactive organic compounds (ROCs) or volatile organic compounds (VOCs). ROGs themselves are not criteria pollutants; however, they contribute to formation of O_3.

- Nitrogen Dioxide (NO_2). NO_2 is a reddish-brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide (NO). NO_2 is also a byproduct of fuel combustion. The principal form of NO_X produced by combustion is NO, but NO reacts quickly to form NO_2, creating the mixture of NO and NO_2 referred to as NO_X. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_X is only potentially irritating. NO_2 absorbs blue light, the result of which is a brownish-red cast to the atmosphere and reduced visibility.
- Carbon Monoxide (CO). CO is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during winter mornings, with little to no wind, when surface-based inversions trap the pollutant at ground levels. CO is emitted directly from internal combustion engines. Motor vehicles operating at slow speeds are the primary source of CO in the basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- Sulfur Dioxide (SO_2). SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high-sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4).
- Respirable Particulate Matter (PM10). PM10 consists of suspended particles or droplets 10 micrometers or smaller in diameter. Some sources of PM10, like pollen and windstorms, are naturally occurring. However, in populated areas, most PM10 is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- Fine Particulate Matter (PM2.5). PM2.5 is suspended particulate matter that is 2.5 micrometers or smaller in diameter. The sources of PM2.5 include fuel combustion from automobiles, power plants, wood burning, industrial processes, and diesel-powered vehicles such as buses and trucks. These fine particles are also formed in the atmosphere when gases such as sulfur dioxide, NO_X, and ROGs are transformed in the air by chemical reactions.

A summary of state and federal ambient air quality standards and the effects of the exceedance of these standards on health are shown in **Table 3.3-1, Ambient Air Quality Standards**. For some pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values, such as protection of crops, protection of materials, or avoidance of nuisance conditions.

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Nonattainment areas are ranked (marginal, moderate, serious, severe, or extreme) according to the degree of nonattainment. Areas that do not meet the standards shown in **Table 3.3-1** are classified as nonattainment areas. The National Ambient Air Quality Standards (other than O_3, PM10, PM2.5, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The National Ambient Air Quality Standards for O_3, PM10, and PM2.5 are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards are not to be exceeded during a three-year period.

Table 3.3-1
Ambient Air Quality Standards

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (California Ambient Air Quality Standards)	Federal Primary Standard (National Ambient Air Quality Standards)	
Ozone	0.09 ppm, 1-hr. avg. 0.070 ppm, 8-hr avg.	0.070 ppm, 8-hr avg. (three-year average of annual 4th-highest daily maximum)	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage
Nitrogen Dioxide1	0.18 ppm, 1-hr avg. 0.030 ppm, annual arithmetic mean	0.100 ppm, 1-hr avg. (three-year avg. of the 98th percentile of the daily maximum 1-hour avg.) 0.053 ppm, annual arithmetic mean	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration
Carbon Monoxide	20 ppm, 1-hr avg. 9.0 ppm, 8-hr avg.	35 ppm, 1-hr avg. (not to be exceeded more than once per year) 9 ppm, 8-hr avg. (not to be exceeded more than once per year)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses
Sulfur Dioxide2	0.25 ppm, 1-hr. avg. 0.04 ppm, 24-hr avg.	0.075 ppm, 1-hr avg. (three-year avg. of the 99th percentile)	Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Respirable Particulate Matter (PM10)	50 µg/m3, 24-hr avg. 20 µg/m3, annual arithmetic mean	150 µg/m3, 24-hr avg. (not to be exceeded more than once per year on average over three years)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Fine Particulate Matter (PM2.5)	12 µg/m3, annual arithmetic mean	35 µg/m3, 24-hr avg. (three-year average of 98th percentile) 12 µg/m3, annual arithmetic mean (three-year average)	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in the elderly
Lead3	1.5 µg/m3, 30-day avg.	0.15 µg/m3, three-month rolling average	(a) Increased body burden; and (b) Impairment of blood formation and nerve conduction

Air Pollutant	Concentration/Averaging Time		Most Relevant Health Effects
	State Standard (California Ambient Air Quality Standards)	Federal Primary Standard (National Ambient Air Quality Standards)	
Visibility-Reducing Particles	Reduction of visual range to less than 10 miles at relative humidity less than 70%, 8-hour avg. (10:00 AM–6:00 PM)	None	Visibility impairment on days when relative humidity is less than 70 percent.
Sulfates	25 µg/m3, 24-hr avg.	None	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage
Hydrogen Sulfide	0.03 ppm, 1-hr avg.	None	Odor annoyance
Vinyl Chloride3	0.01 ppm, 24-hr avg.	None	Known carcinogen

Source: United States Environmental Protection Agency, NAAQS Table. https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed August 2017. California Air Resources Board, California Ambient Air Quality Standards. https://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Accessed August 2017. South Coast Air Quality Management District, Final Program Environmental Impact Report for the 2007 Air Quality Management Plan, (2007) Table 3.1-1, p. 3.1-3.

µg/m³ = microgram per cubic meter.

ppm = parts per million by volume.

[1] *On January 25, 2010, the USEPA promulgated a new 1-hour NO_2 standard. The new 1-hour standard is 0.100 parts per million (188 micrograms per cubic meter [µg/m³]) and became effective on April 12, 2010.*

[2] *On June 3, 2010, the USEPA issued a new 1-hour SO_2 standard. The new 1-hour standard is 0.075 parts per million (196 µg/m³). The USEPA also revoked the existing 24-hour and annual standards citing a lack of evidence of specific health impacts from long-term exposures. The new 1-hour standard becomes effective 60 days after publication in the Federal Register.*

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

Table 3.3-2, Placer County Attainment Status, presents the status of the Placer County portion of the Air Basin with respect to the attainment of federal and state standards.

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant.

3.3.2.3 Toxic Air Contaminants

In addition to criteria pollutants, CARB periodically assesses the health impacts and ambient levels of toxic air contaminants (TACs), also referred to as hazardous air pollutants (HAPs), in California. The USEPA also assesses health impacts for hazardous air pollutants. A TAC is defined by California Health and Safety Code Section 397655:

"Toxic air contaminant" means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal act (42 USC. Sec. 7412(b)) is a toxic air contaminant.

Table 3.3-2
Placer County Attainment Status (Western Portion of County)

Pollutant	Federal Standards	State Standards
Ozone 1-hour	No federal standard	Nonattainment
Ozone 8-hour	Nonattainment (severe)	Nonattainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Carbon Monoxide	Attainment	Attainment
Sulfur Dioxide	Unclassified/Attainment	Attainment
PM10	Attainment	Nonattainment
PM2.5	Nonattainment (moderate)	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	No federal standards	Unclassified
Sulfates	No federal standards	Attainment
Visibility-Reducing Particulates	No federal standards	Unclassified

Sources:
California Air Resources Board, "Area Designations Maps/State and National," http://www.arb.ca.gov/desig/adm/adm.htm. 2017. Accessed May 15, 2018.
U.S. Environmental Protection Agency, "Air Quality Maps," http://www.epa.gov/region9/air/maps/index.html. 2015. Accessed May 15, 2018.
[1] *A formal request for voluntary reclassification from "serious" to "severe" for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019, was submitted by CARB to the U.S.EPA on February 14, 2008. The U.S.EPA approved the reclassification request on April 15, 2010.*

TACs are also defined as an air pollutant that may increase a person's risk of developing cancer and/or other serious health effects; however, the emission of a toxic chemical does not automatically create a health hazard. Other factors, such as the amount of the chemical; its toxicity, and how it is released into the air, the weather, and the terrain, all influence whether the emission could be hazardous to human health. TACs are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as PM10 and PM2.5 or as vapors (gases). TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human

health through consumption of contaminated food. The carcinogenic potential of TACs is a particular public health concern because many scientists currently believe that there is no "safe" level of exposure to carcinogens. Any exposure to a carcinogen poses some risk of contracting cancer.

The public's exposure to TACs is a significant public health issue in California. The Air Toxics "Hotspots" Information and Assessment Act is a state law requiring facilities to report emissions of TACs to air districts. The program is designated to quantify the amounts of potentially hazardous air pollutants released, the location of the release, the concentrations to which the public is exposed, and the resulting health risks.

The State Air Toxics Program (AB 2588) identified over 200 TACs, including the 188 TACs identified in the federal Clean Air Act. The United States Environmental Protection Agency (USEPA) has assessed this expansive list of toxics and identified 21 TACs as Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. USEPA also extracted a subset of these 21 MSAT compounds that it now labels as the six priority MSATs: benzene, formaldehyde, acetaldehyde, diesel particulate matter (DPM)/diesel exhaust organic gases, acrolein, and 1,3-butadiene. While these six MSATs are considered the priority transportation toxics, USEPA stresses that the lists are subject to change and may be adjusted in future rules (FHWA 2016). USEPA has issued a number of regulations that will dramatically decrease MSATs through cleaner fuels and cleaner engines. According to an FHWA analysis, if the number of vehicle miles traveled increases by 45 percent, a reduction of 91 percent in MSATs is projected from 2010 to 2050.

California law defines TACs as air pollutants having carcinogenic or other health effects. A total of 245 substances have been designated TACs under California law; they include the federal Hazardous Air Pollutants (HAPs) adopted as TACs in accordance with Assembly Bill 2728. The Air Toxics Hot Spots Information and Assessment Act of 1987, Assembly Bill 2588 (AB 2588), seeks to identify and evaluate risk from air toxics sources; AB 2588 does not regulate air toxics emissions directly. Under AB 2588, sources emitting more than 10 tons per year of any criteria air pollutant must estimate and report their toxic air emissions to the local air districts. Local air districts then prioritize facilities on the basis of emissions, and high priority facilities are required to submit a health risk assessment and communicate the results to the affected public. Depending on risk levels, emitting facilities are required to implement varying levels of risk reduction measures.

The California-specific transportation air quality analysis model, Emission Factors model (EMFAC), is designed to model MSATs at the project-level. Health effects from MSATs/TACs, i.e., cancer risks and chronic non-cancer risks from on-road traffic, have been associated primarily with DPM, benzene, and 1,3-butadiene. EMFAC can be used to estimate DPM, benzene, and 1,3-butadiene emissions. In addition to DPM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, paradichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient TAC risk, for which data are available, in California. DPM poses the greatest health risk among these 10 TACs mentioned.

3.3.2.4 Naturally Occurring Asbestos (NOA)

Naturally occurring asbestos (NOA) is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs). Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present (CARB 2017).

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 (City of Roseville 2016a).

3.3.2.5 Ambient Air Monitoring

CARB has established and maintains a network of sampling stations in conjunction with local air pollution control districts (APCDs) and air quality management districts (AQMDs), private contractors, and the National Park Service. The monitoring station network provides air quality monitoring data, including real-time meteorological data and ambient pollutant levels, as well as historical data. The network in the Air Basin consists of 12 monitoring stations. The closest monitoring station to the project is located at 151 North Sunrise Boulevard in Roseville, located just over 6 miles east of the project site. This station monitors ambient pollutant concentrations of O_3, NO_2, PM10, and PM2.5. The nearest station to the project site that monitors CO and SO_2 is located at 7823 Blackfoot Way in North Highlands, approximately 5 miles to the south of the project site.

Table 3.3-3, Ambient Air Pollutant Concentrations Near the Project Site, lists the measured ambient pollutant concentrations and the exceedances of state and federal standards that have occurred from 2014 through 2016, the most recent years for which data are available. As shown, exceedances occurred for O_3, the state standard for PM10, and the federal standard for PM2.5. The standards for CO, NO_2, SO_2, lead, and sulfate have not been exceeded anywhere within the basin for several years. Values for lead and sulfate are not presented in the table since ambient concentrations are well below the state standards. Hydrogen sulfide, vinyl chloride, and visibility reducing particles were not monitored in the Air Basin during the period from 2014 to 2016.

3.3.3 SIGNIFICANCE THRESHOLDS AND ANALYSIS METHODOLOGY

3.3.3.1 Significance Thresholds

The PCAPCD has adopted thresholds to meet its obligations under both the CAA and the California Environmental Quality Act (CEQA). In accordance with guidance from the Council on Environmental Quality (40 CFR § 1506.2), the Corps considers local standards when determining the significance of the impacts of a proposed action. Therefore, the Corps has used the thresholds developed by the local PCAPCD to evaluate the impacts of the Proposed Action and its alternatives on air quality.

Table 3.3-3
Ambient Air Pollutant Concentrations Near the Project Site

Pollutant	Year		
	2014	2015	2016
OZONE (O_3)			
Maximum 1-hour concentration (ppm)	**0.097**	**0.098**	**0.115**
Maximum 8-hour concentration (ppm)	**0.086**	**0.084**	**0.092**
CARBON MONOXIDE (CO)			
Maximum 8-hour concentration (ppm)	1.4	1.3	1.6
Maximum 1-hour concentration (ppm)	1.8	2.1	2.3
NITROGEN DIOXIDE (NO_2)			
Maximum 1-hour concentration (ppm)	0.054	0.051	0.050
Annual average concentration (ppm)	0.008	0.008	0.008
RESPIRABLE PARTICULATE MATTER (PM_{10})			
Maximum 24-hour concentration, state ($\mu g/m^3$)	31.8	**59.1**	39.1
Annual arithmetic mean concentration ($\mu g/m^3$)	17.9	13.0	15.8
FINE PARTICULATE MATTER ($PM_{2.5}$)			
Maximum 24-hour concentration ($\mu g/m^3$)	30.7	**44.1**	24.4
Annual arithmetic mean concentration ($\mu g/m^3$)[6]	10.5	8.1	6.9

Source: CARB iADAM https://www.arb.ca.gov/adam/topfour/topfourdisplay.php
CO Data from USEPA Monitor Values Report: https://www.epa.gov/outdoor-air-quality-data/monitor-values-report
All data obtained from the Roseville N Sunrise Blvd air monitoring station with the exception of CO, which was obtained from the North Highlands-Blackfoot Way.
ppm = parts per million by volume; µg/m3 = microgram per cubic meter.
*Values reported in **bold** exceed ambient air quality standards.*

Criteria Pollutants

The PCAPCD thresholds presented below in **Table 3.3-4, Placer County Air Pollution Control District Significance Thresholds,** are for both construction and operational emissions. If the emission rates of a

particular pollutant associated with a proposed project are above these thresholds, the project is judged to potentially have a significant impact on air quality.[1]

Table 3.3-4
Placer County Air Pollution Control District Significance Thresholds (lbs/day)

Pollutant	Construction (lbs per day)	Operational (lbs per day)	Operation Cumulative Level (lbs per day)
ROG	82	55	55
NOx	82	55	55
PM10	82	82	82

Source: Placer County APCD 2016

Toxic Air Contaminants and Odors

The local PCAPCD does not provide quantitative thresholds for evaluating potential effects associated with toxic air contaminants and odors. However, it provides guidelines as to how those impacts should be evaluated. The PCAPCD recommends the preparation of a human health risk assessment to evaluate whether a project would expose receptors to excessive TAC emissions. With respect to odors, the PCAPCD recommends the evaluation of impacts based on distance between the odor source and the receptors.

Carbon Monoxide

With respect to CO hot spots, the PCAPCD guidelines recommend screening as a first step to determine whether CO hot spots could result from project traffic and in the event that the screening suggests that might be the case, the guidelines recommend CO modeling to estimate CO concentrations which can then be compared to the state CO standard for evaluation of the significance of the impact.

Cumulative Impacts

The contribution of the Proposed Action or an alternative to a cumulative impact would be considered significant if the Proposed Action or an alternative would:

- Result in substantial unmitigated emissions of air pollutants (ozone, PM10, and PM2.5) for which the Air Basin is in nonattainment.

[1] The PCAPCD has developed the approach to the assessment of air quality impacts which is based on mass emissions of pollutants and does not require the estimation of pollutant concentrations. The air district (like all other air districts in the state) has developed thresholds of significance that are in pounds per day (or tons per year) that can be used to measure a project's impact on regional air quality. Significance thresholds produced by the air districts are designed to ensure compliance with both NAAQS and CAAQS. The air districts use this approach because pollutants released at one point may be transported throughout the air basin, or even into neighboring air basins. Consequently, the focus of air districts in attaining ambient air standards is on overall basin-wide emissions. The most efficient way to protect regional air quality is to restrict emissions on a mass basis, and therefore guidelines developed by the air districts include significance thresholds using pounds per day as the preferred measure. This is discussed in the Placer County APCD CEQA guidelines (PCAPCD 2012).

3.3.3.2 Analysis Methodology

This analysis is based primarily on the 2016 ARSP Final EIR, prepared by Analytical Environmental Services. The technical study is included in **Appendix 3.14a**. The methodology used in the 2016 analysis is summarized below.

The analysis used the California Emissions Estimator Model Version 2013.2 (CalEEMod), which is a PCAPCD recommended air quality model that was used to estimate air emissions from construction of the Proposed Action. Construction was assumed to occur over three phases. Phase 1 was assumed to extend from January 2017[2] to May 2025; Phase 2 between June 2025 and May 2030; and Phase 3 between June 2030 and December 2034. Construction for each phase would consist of site preparation, grading, building construction, paving, and architectural coating.

CalEEMod was also used to estimate operational emissions associated with the Proposed Action. This includes estimates of area sources, energy usage, and mobile source emissions. The operations of the Proposed Action were analyzed for near-term 2020 conditions and cumulative long-term 2035 conditions.

The *Transportation Project-Level Carbon Monoxide Protocol* (CO Protocol) was used to determine impacts connected with CO hotspots. In 1997, the USEPA 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 for CO. 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,[3] it was determined that this screening protocol is an acceptable method of determining the potential for CO hotspots resulting from the Proposed Action. 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.

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2 Although the air quality analysis in this Draft EIS for the Proposed Action is based on project construction beginning in 2017, if the DA permit is issued to the Proposed Action or an alternative in 2018, construction would likely begin in 2019. Emissions estimates based on a construction start in 2017 are conservative and provide a higher estimate of likely emissions than the emissions that would occur if construction of the first phase begins in 2019 or later. This is because with improvements in equipment emissions control and fuel efficiency and quality, emission rates for construction equipment and vehicles continue to improve. The Proposed Action's construction emissions for the first phase will be lower than the numbers reported in this Draft EIS.

3 Chang, Yu-Shuo, 2014. Personal communication with Yu-Shuo Chang, PCAPCD Planning Manager, carbon monoxide hotspots methodology for the 2016 Amoruso Ranch Specific Plan Final EIR. November 20, 2014.

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 Creekview Specific Plan (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.

Impacts due to exposure to TACs are generally assessed using a Health Risk Assessment (HRA), which quantifies the risk of chronic and acute health impacts, including cancer. However, an HRA was not prepared for the Proposed Action because of reasons set forth under Impact AQ-4 below and the impacts from TACs were analyzed qualitatively. This was done by identifying sensitive receptors such as schools and residences and comparing their location with either existing or potential sources of TACs, taking into consideration wind patterns in the area. Sources considered include industrial sites, commercial zones, freeways, and other major roadways.

Potential odor impacts were also analyzed qualitatively, examining the relative positions of existing and potential odor sources with receptors in the context of prevailing wind patterns.

Construction and operation emissions for the alternatives were estimated using assumptions about the main sources of emissions. For construction, emissions were assumed to be proportional to acreage under development. Construction emissions for the Proposed Action were multiplied by the ratio of the footprint of each alternative to the Proposed Action. For operations, emissions were assumed to be proportional to the number of residences and the square footage of non-residential buildings. Operational emissions for each alternative were estimated by multiplying the operational emissions of the Proposed Action by the ratio of the number of residences included in the alternative to the number under the Proposed Action and by the ratio of the square footage of non-residential buildings included in the alternative to the square footage under the Proposed Action. These two values were then averaged to obtain a final estimate of emissions from operation of development under each alternative. This is a reasonable method to estimate emissions for the alternatives as the CalEEMod model estimates emissions based on the size of a project (number and types of dwelling units and building square footage of non-residential space).

3.3.4 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Impact AQ-1 Criteria Pollutant Emissions Associated with Construction

No Action Alt. Construction-related emissions can be distinguished as either on-site or off-site. On-site emissions generated during construction principally consist of exhaust emissions (NO_x, sulfur oxides (SO_x), CO, ROG, PM10, and PM2.5) from the operation of heavy-duty construction equipment, fugitive dust (PM10) from excavation and grading, and ROG emissions from asphaltic paving and painting. Off-site emissions during the construction phase normally consist of exhaust emissions and entrained paved road dust (PM10 and PM2.5) from worker commute trips, material delivery trips, and haul truck trips to and from the construction site.

Construction activities associated with the No Action alternative would occur over a number of years, with portions of the area being developed in phases. However, the exact timing and duration of these phases is not currently known as they will be determined by market conditions and other factors that are unpredictable over the course of development. Since emissions rates for construction are evaluated on a maximum rate per day, any extension of the construction schedule would result in emissions that are the same or less than the shortest schedule. Construction emissions are roughly proportional to the land area to be graded as well as the total building space to be constructed. Consequently, construction emissions for the No Action alternative and Alternatives 1, 2 and 3 were calculated as a ratio of the emissions for the Proposed Action. As noted above in **Subsection 3.3.3.2**, this ratio was developed by comparing the graded area and building space to be developed under the Proposed Action to the graded area and building space under the No Action alternative. The estimated construction emissions of criteria pollutants are shown in **Table 3.3-5, Estimated Unmitigated Construction Emissions – Proposed Action and Alternatives**. The maximum emissions in any construction year are shown in the table.

As the table shows, construction emissions of NOx for the No Action alternative are above significance thresholds; and thus, the No Action alternative would result in a **significant direct** effect on air quality in the Air Basin. **No indirect** effects on air quality, from construction related emissions, were identified under the No Action alternative.

However, implementation of **Mitigation Measure AQ-1** would reduce the direct air quality effects due to construction. This measure is the same as Mitigation Measure MM 4.4-1 in the ARSP EIR and is highly likely be imposed by the City of Roseville to reduce these effects. The estimated emissions from construction, after mitigation, are shown in **Table 3.3-6, Estimated Mitigated Construction Emissions – Proposed Action and Alternatives.** After mitigation, emissions of NOx would be below the PCAPCD significance thresholds.

As no wetland mitigation would be necessary under the No Action alternative, no construction emissions would occur at the three wetland mitigation sites. **No direct** or **indirect** effects related to construction emissions at the mitigation sites would occur.

Table 3.3-5
Estimated Unmitigated Construction Emissions – Proposed Action and Alternatives

Maximum Emissions in Any Construction Year	Emissions in Pounds per Day					
	ROG	NO_x	CO	SO_x	PM10	PM2.5
No Action	51	**109**	119	<1	30	14
Proposed Action	**97**	**206**	226	<1	56	26
Alternative 1	**89**	**191**	209	<1	52	24
Alternative 2	**96**	**205**	225	<1	56	26
Alternative 3	**95**	**203**	222	<1	55	26
Significance Threshold	82	82	--	--	82	--

Source: Proposed Action Emissions by Analytical Environmental Services 2016; Alternative emissions estimated by Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 3.3****.*
Bold *emissions exceed PCAPCD significance thresholds.*

Proposed Action

Construction of the Proposed Action would commence in 2019 and be completed by 2034. The development would be guided by a phasing plan, which would provide for a comprehensively planned infrastructure system with coordinated construction of roadways, utilities, and related facilities. The Proposed Action would be constructed in three phases. The first phase of development would occur in the southern portion of the project site and include the Village District. The second phase would develop the remainder of the site located south of the planned Placer Parkway alignment, and the third phase would develop the remainder of the site, north of the Parkway alignment.

As **Table 3.3.5** above shows, construction of the Proposed Action would generate emissions of ROG and NO_x that would exceed significance thresholds. Therefore, the

construction emissions under the Proposed Action would result in a **significant direct** effect on air quality in the Air Basin. **No indirect** effects on air quality, from construction related emissions, were identified under the Proposed Action.

Table 3.3-6
Estimated Mitigated Construction Emissions – Proposed Action and Alternatives

Alternative	Maximum Emissions in Any Year, in Pounds per Day					
	ROG	NOx	CO	SOx	PM10	PM2.5
No Action	55	78	120	<1	20	14
Proposed Action	**95**	**135**	206	<1	35	24
Alternative 1	**88**	**125**	191	<1	33	22
Alternative 2	**95**	**134**	205	<1	35	23
Alternative 3	**94**	**133**	203	<1	35	23
Significance Threshold	82	82	--	--	82	--

*Source: Proposed Action Emissions by Analytical Environmental Services 2016; Alternative emissions estimated by Impact Sciences, Inc. Emissions calculations are provided in **Appendix 3.3**.*
***Bold** emissions exceed PCAPCD significance thresholds.*

Mitigation Measure AQ-1 would reduce the construction emissions, as shown in **Table 3.3-6.** As noted above, this measure is the same as Mitigation Measure MM 4.4-1 in the ARSP EIR and has been imposed on the Proposed Action and will be enforced by the City of Roseville to reduce this effect. Although emissions of ROG and NOx would be reduced with implementation of **Mitigation Measure AQ-1**, construction emissions of these pollutants would remain above significance thresholds.

The Applicant has put forth a draft permittee-responsible compensatory wetland mitigation plan (PRMP) that includes wetland restoration activities at three off-site mitigation properties. Since the mitigation plan is currently conceptual in nature, the specifics of grading activities associated with wetland restoration are not available. Nonetheless, given the types and scale of land modification activities that are anticipated, the construction emissions at the mitigation sites would be unlikely to exceed the significance thresholds, and therefore **no direct** effects were identified. Furthermore, the Applicant will be required to implement **Mitigation Measure AQ-1** to minimize construction emissions at the mitigation sites. **No indirect** effects related to construction emissions at the mitigation sites were identified.

Alts. 1,2,3 Construction of each alternative is expected to occur over a similar timeframe as the Proposed Action, and would commence in 2019 and be completed by 2034, in three phases similar to the Proposed Action. As **Table 3.3-5** shows, construction of each of the alternatives would generate emissions of ROG and NOx that would exceed significance thresholds. Therefore, the emissions under these alternatives would result in a **significant direct** effect

on air quality in the Air Basin. **No indirect** effects on air quality, from construction related emissions, were identified under Alternatives 1, 2, or 3.

Mitigation Measure AQ-1 would reduce the construction emissions under each alternative, as shown in **Table 3.3-6**. As noted above, this measure is the same as Mitigation Measure MM 4.4-1 in the ARSP EIR and is highly likely to be imposed and enforced by the City of Roseville to reduce this effect of Alternatives 1 through 3. Although emissions of ROG and NOx would be reduced with implementation of Mitigation Measure AQ-1, construction emissions of these pollutants would remain above significance thresholds.

Similar to the Proposed Action, given the types and scale of land modification activities that are anticipated at the three mitigation sites, construction emissions would be unlikely to exceed the significance thresholds, and therefore **no direct** effects were identified. Furthermore, the Applicant will be required to implement **Mitigation Measure AQ-1** to minimize construction emissions at the mitigation sites. **No indirect** effects related to construction emissions were identified.

Mitigation Measure AQ-1: Dust and Construction Control Measures

(Applicability – No Action, Proposed Action, and Alternatives 1, 2, and 3)

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.*

Impact AQ-2 Criteria Pollutant Emissions Associated with Occupancy/Operation

No Action Alt. Operational emissions would be generated by mobile and area sources as a result of normal day-to-day activity at the proposed development. Mobile source emissions would be generated by motor vehicles traveling to and from the area. Area source emissions would be generated by the use of natural gas in space and water heating devices, the operation of landscape maintenance equipment, the use of consumer products, and the application of architectural coatings for property maintenance.

The amount of residential and non-residential development under the No Action alternative would be less than the residential and non-residential development under the Proposed

Action. Emissions from both area and mobile sources are proportional to the amount of development, specifically the number of residential units to be constructed and the total amount of commercial or other space to be built on the site. Consequently, as noted in **Subsection 3.3.4.2**, operational emissions for the No Action alternative were estimated by proportionally reducing the emissions calculated for the Proposed Action. The results are shown in **Table 3.3-7**, **Estimated Unmitigated Operational Emissions – Proposed Action and Alternatives**. Unmitigated operational emissions for the No Action alternative exceed the PCAPCD significance thresholds and would have a **significant indirect** effect on air quality in the area.

Mitigation Measure AQ-2a would establish mitigation on-site by incorporating design features within the project to include; but would not be limited to, "green" building features such solar panels, energy efficient heating and cooling, exceeding Title 24 standards, bike lanes, and bus shelters. Additionally, **Mitigation Measure AQ-2b** would offset project emissions by establishing mitigation off-site or through participation in PCAPCD's mitigation program. These measures are the same as Mitigation Measures 4.4-2 and 4.4-3 in the ARSP EIR and are highly likely to be imposed and enforced by the City of Roseville to reduce this effect of the No Action alternative. However, as shown in **Table 3.3-8, Estimated Mitigated Operational Emissions – Proposed Action and Alternatives**, it is estimated that emissions generated by the No Action alternative during operation would still exceed PCAPCD recommended significance thresholds after mitigation. **No direct** effects on air quality from occupancy/operational emissions, after mitigation, were identified under the No Action alternative.

As no wetland mitigation would be necessary under the No Action alternative, no operational emissions would occur at the three wetland mitigation sites. N**o direct** or **indirect** effects related to operational emissions at the mitigation sites were identified.

Proposed Action

Table 3.3-7, **Estimated Unmitigated Operational Emissions,** shows the future operational emissions at full buildout of the Proposed Action. As the table shows, operational emissions of criteria air pollutants would be substantial, and in the cases of ROG, NOx, and PM10, well above significance thresholds recommended by the PCAPCD. Therefore, unmitigated emissions from operation of the Proposed Action would likely have a **significant indirect** effect on air quality.

As discussed above, **Mitigation Measure AQ-2a** would provide mitigation on-site while **Mitigation Measure AQ-2b** would provide mitigation off-site. As noted above, these measures are the same as Mitigation Measures 4.4-2 and 4.4-3 in the ARSP EIR and have been imposed by the City of Roseville to reduce this effect of the Proposed Action and will also be enforced by the City. However, as shown in **Table 3.3-8**, it is estimated that mitigated emissions generated by the Proposed Action during operation would still exceed PCAPCD recommended significance thresholds after mitigation. **No direct** effects to air quality, from occupancy/operational emissions, after mitigation, were identified under the Proposed

Action.

Table 3.3-7
Estimated Unmitigated Operational Emissions – Proposed Action and Alternatives

Emissions Source	Emissions in Pounds Per Day					
	ROG	NOx	CO	SOx	PM10	PM2.5
No Action						
Area	100	2	136	<1	1	1
Energy	1	11	5	<1	1	1
Mobile	175	150	649	2	108	30
Total	**276**	**163**	790	2	**111**	33
Proposed Action						
Area	171	3	234	<1	3	3
Energy	2	19	9	<1	2	2
Mobile	300	258	1,115	3	186	53
Total	**474**	**280**	1,358	3	**191**	58
Alternative 1						
Area	159	3	217	<1	2	2
Energy	2	18	8	<1	1	1
Mobile	278	239	1,033	3	172	48
Total	**439**	**259**	1,258	3	**176**	52
Alternative 2						
Area	170	3	233	<1	3	2
Energy	2	19	9	<1	2	2
Mobile	299	257	1,110	3	185	52
Total	**471**	**278**	1,352	3	**189**	56
Alternative 3						
Area	169	3	230	<1	2	2
Energy	2	19	9	<1	2	2
Mobile	295	254	1,097	3	183	51
Total	**466**	**275**	1,337	3	**187**	55
Significance Threshold	55	55	--	--	82	--

Source: Proposed Action emissions by Analytical Environmental Services 2016; emissions of alternatives estimated by Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 3.3****.*
Bold *emissions exceed PCAPCD significance thresholds.*
Totals in table may not appear to add exactly due to rounding in the computer model calculations.
Note: Table 4.4-8 of the 2016 ARSP FEIR has an data input error for mobile source ROG and NOx, and therefore an addition error for total ROG and NOx. The unmitigated and mitigated mobile source ROG and NOx emissions are reversed in the ARSP EIR.

With respect to the Applicant's draft PRMP that includes wetland restoration activities at three off-site mitigation properties, once the wetlands are restored/created, there would be

minimal on-going maintenance activities and no source of air emissions would be associated with the mitigation sites on a daily basis. **No direct** or **indirect** effects related to operational emissions at the mitigation sites were identified.

Alts. 1,2,3 **Table 3.3-7**, **Estimated Unmitigated Operational Emissions,** shows the future operational emissions at full buildout for Alternatives 1, 2 and 3. As the table shows, operational emissions of criteria air pollutants would be substantial, and in the cases of ROG, NOx, and PM10, would be well above significance thresholds recommended by the PCAPCD. Therefore, unmitigated emissions from operation of each of these alternatives would likely have a **significant indirect** effect on air quality.

As stated above, **Mitigation Measure AQ-2a** would provide mitigation on-site while **Mitigation Measure AQ-2b** would provide mitigation off-site. As noted above, these measures are the same as Mitigation Measures 4.4-2 and 4.4-3 in the ARSP EIR and are highly likely to be imposed and enforced by the City of Roseville to reduce this effect of Alternatives 1 through 3. However, as shown in **Table 3.3-8**, it is estimated that mitigated emissions generated by the Proposed Action during operation would still exceed PCAPCD recommended significance thresholds after mitigation. **No direct** effects to air quality, from occupancy/operational emissions, were identified under Alternatives 1, 2, or 3.

With respect to the Applicant's draft PRMP that includes wetland restoration activities at three off-site mitigation properties, once the wetlands are restored/created, there would be minimal on-going maintenance activities and no source of air emissions would be associated with the mitigation sites on a daily basis. **No direct** or **indirect** effects related to operational emissions at the mitigation sites were identified.

Mitigation Measure AQ-2a: Project Measures to Reduce Operational Emissions

(Applicability – No Action, Proposed Action, and Alternatives 1, 2, and 3)

Following receipt of an application for a Tentative Maps (excluding the large lot subdivision map), Design Review Permit, conditional use permits and/or all discretionary permits, the City will forward an early consultation notice to the Placer County Air Pollution Control District (PCAPD). Where the PCAPD provides comments on a specific development proposal, the City shall consult with the PCAPD and the developer to incorporate measures recommended by the PCAPD and agreed to by the City into the project. Where the PCAPD 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

Table 3.3-8
Estimated Mitigated Operational Emissions – Proposed Action and Alternatives

Emissions Source	Emissions in Pounds Per Day					
	ROG	NOx	CO	SOx	PM10	PM2.5
No Action						
Area	84	2	134	<1	1	1
Energy	1	9	4	<1	1	1
Mobile	168	144	627	2	103	29
Total	**253**	**155**	**765**	2	**105**	31
Proposed Action						
Area	144	3	230	<1	2	2
Energy	2	15	7	<1	1	1
Mobile	288	248	1,078	3	177	50
Total	**434**	**266**	**1,315**	3	**181**	53
Alternative 1						
Area	133	2	213	<1	2	2
Energy	2	14	7	<1	1	1
Mobile	267	230	998	3	164	46
Total	**402**	**246**	**1,218**	3	**167**	49
Alternative 2						
Area	143	3	229	<1	2	2
Energy	2	15	7	<1	1	1
Mobile	287	247	1,073	3	176	49
Total	**432**	**265**	**1,309**	3	**180**	53
Alternative 3						
Area	142	3	226	<1	2	2
Energy	2	15	7	<1	1	1
Mobile	284	244	1,061	3	174	49
Total	**427**	**262**	**1,294**	3	**178**	53
Significance Threshold	55	55	--	--	82	--

Source: Proposed Action Emissions by Analytical Environmental Services 2016; Emissions of Alternatives estimated by Impact Sciences, Inc. Emissions calculations are provided in ***Appendix 3.3****.*
Bold *emissions exceed PCAPCD significance thresholds.*
Totals in table may not appear to add exactly due to rounding in the computer model calculations.
Note: Table 4.4-8 of the 2016 ARSP FEIR has a data input error for mobile source ROG and NOx, and therefore an addition error for total ROG and NOx. The unmitigated and mitigated mobile source ROG and NOx emissions are reversed in the ARSP EIR.

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 5 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 2016Title 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 nitrogen oxide (NOx) 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.*

Mitigation Measure AQ-2b: Off-site Mitigation for Operational Emissions

(Applicability – No Action, Proposed Action, and Alternatives 1, 2, and 3)

Prior to the issuance of building permits by the City, 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 55 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.*

Impact AQ-3 CO Hot Spots

No Action Alt. Motor vehicles are a primary source of pollutants within the project area. Traffic congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed state and/or federal standards are termed CO hot spots. Such hot spots are defined as locations where the ambient CO concentrations exceed the state or federal ambient air quality standards. Emissions of CO are produced in greatest quantities from vehicle combustion and are usually concentrated at or near ground level because CO does not readily disperse into the atmosphere. As a result, potential air quality effects to sensitive receptors are assessed through an analysis of localized CO concentrations. Areas of vehicle congestion, especially congested intersections, have the potential to create CO hot spots that exceed the state ambient air quality 1-hour

standard of 20 ppm or the 8-hour standard of 9.0 ppm. The federal levels are less stringent than the state standards and are based on 1- and 8-hour standards of 35 and 9 ppm, respectively. Thus, an exceedance condition would occur based on the state standards prior to exceedance of the federal standard

Areas of vehicle congestion, especially congested intersections that are performing at or are projected to perform at poor levels of service (LOS), have the potential to result in CO hot spots. As demonstrated under the Proposed Action analysis below, no intersection in the project area would be near enough to sensitive receptors or have a high enough traffic volume to expose nearby sensitive receptors to a CO hot spot. The No Action alternative would generate less traffic as compared to the Proposed Action; and therefore, would not exacerbate CO concentrations or cause CO hot spots. **No indirect or direct** effects to air quality, associated with CO hot spots, were identified under the No Action.

As no wetland mitigation would be necessary under the No Action alternative, there would be no daily vehicle trips associated with the three wetland mitigation sites that could contribute to CO hot spots. **No direct** or **indirect** effects related to CO hot spots were identified.

Proposed Action

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 of CO 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 range from 2.3 ppm for 8-hour maximum concentration to 1.6 ppm 1-hour maximum concentration (See **Table 3.3-3**).

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 USEPA-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 this 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 Action would cause the following intersections to be degraded to an LOS E or F after mitigation has been applied, these facilities require further evaluation 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 congested intersections under the Proposed Action. 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, 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 of the ARSP FEIR). The second busiest intersection listed above is Eureka Road/Taylor Road, which experiences 6,500 vehicles per hour.

e) The percentage of cold start[4] is assumed to be the same at all study intersections given the mixed land uses surrounding each intersection.

f) Given similar 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 3.14a**).

h) Background concentration levels of CO are 1.6 ppm for 1-hour and 2.3 for 8-hour at the monitoring location nearest to the Proposed Project (refer to **Table 3.3-3**). 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 National Ambient Air Quality Standards (NAAQS) (35 and 9 ppm, respectively) and California Ambient Air Quality Standards (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 traffic conditions with the proposed project with traffic conditions at another intersection

4 Starting a vehicle's engine when it is cold as opposed to its normal operating temperature.

for which air quality data is known, the Proposed Action would not expose sensitive receptors to substantial concentrations of CO. Thus, **no direct** or **indirect** effects on air quality due to CO emissions associated with the Proposed Action were identified.

With respect to the Applicant's draft PRMP that includes wetland restoration activities at three off-site mitigation properties, once the wetlands are restored/created, there would be minimal on-going maintenance activities and there would not be any daily vehicle trips to the mitigation sites that could contribute to CO hot spots. **No direct** or **indirect** effects related to CO hot spots due to mitigation site operations were identified.

Alts. 1,2,3 As stated above, given the similar land uses surrounding the study intersections, traffic volumes for Alternatives 1, 2, and 3, would be comparable to the traffic volumes predicted for the Proposed Action. Therefore, CO concentrations for these alternatives would be similar to those that would result from the implementation of the Proposed Action. Thus, **no direct** or **indirect** effects on air quality due to CO emissions associated with Alternatives 1, 2, and 3 were identified.

With respect to the Applicant's draft PRMP that includes wetland restoration activities at three off-site mitigation properties, once the wetlands are restored/created, there would be minimal on-going maintenance activities and there would not be any daily vehicle trips to the mitigation sites that could contribute to CO hot spots. **No direct** or **indirect** effects related to CO hot spots were identified.

Impact AQ-4 Exposure to Toxic Air Contaminants

No Action Alt. Receptors are generally exposed to TACs through either: (1) the location of a source of TACs in proximity to a residence, workplace, school, or care facility (sensitive receptors); or, (2) the siting of sensitive receptors in proximity of sources of TACs. Typical sources of TACs that could be associated with the No Action alternative include freeways or other major high-volume roadways; certain commercial operations such as dry cleaners and auto repair facilities; and, construction and other heavy diesel equipment. Proposed sensitive land uses within the project site under the No Action alternative include residences and an elementary school. Off-site sensitive receptors include residences located north of the project site in the Toad Hill Ranch 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 diesel particulate matter (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. The 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 period of time when construction would occur near the existing receptors, 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, construction activities would not expose sensitive receptors to substantial levels of TACs. Thus, **no direct** or **indirect** effects on air quality associated with construction TACs under the No Action alternative were identified**.** Additionally**,** **Mitigation Measure AQ-1** would minimize vehicle idling times during construction activities; further reducing any effect.

As no wetland mitigation would be necessary under the No Action alternative, there would be no construction TACs associated with the three wetland mitigation sites. **No direct** or **indirect** effects related to TACs during construction were identified.

Operation

CARB recommends that new sensitive land uses, such as residents and schools, not be sited within 500 feet of freeways or arterials that have more than 100,000 average daily trips (ADT) per day (CARB 2005). No existing freeway or high-volume roadway is located near the project site. Interstate 80 (I-80) and State Route 65 (SR-65) are located 7 and 4 miles east of the project site, respectively. The proposed Westbrook Boulevard would extend north-south through the eastern portion of the project site, and the future Placer Parkway would extend generally east-west through the northern and central portions of the site. Sunset Boulevard while is an existing two-lane roadway located along the northern project site boundary would be widened along the length of the project boundary to provide capacity to serve the proposed development but would not be widened west of the project site. The proposed Westbrook Boulevard would be an arterial roadway, and the segment directly to the south of the project site would carry 31,500 ADT under 2035 Cumulative Plus Project conditions. Additionally, based on the analysis in the traffic study, 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 (Fehr and Peers 2016). Similarly, Sunset Boulevard West is projected to carry an ADT of 10,700 vehicles under 2035 Cumulative Plus Project conditions. As the ADTs on all major roadways within the project site would be well below 100,000 vehicle trips, residences on the project site would not be exposed to a substantial health risk due to DPM or TACs from high-volume roadways. The school sites would not be adjacent to either the Parkway or Westbrook Boulevard. Thus, **no direct** or **indirect** effects on air quality, associated with operational TACs, were identified under the No Action alternative.

The location of industrial uses south and east of the project site could potentially result in exposure to TACs or PM2.5 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 residents 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 Health Risk Assessment (HRA) for the REP prior to its construction. The screening level HRA utilized worse-case meteorology for that project site and analyzed the likely impacts at the maximally exposed individual. That analysis found that the REP would not cause significant acute, chronic, or carcinogenic health risks to existing or future residences in the vicinity of the REP because the estimated cancer risk from REP operations was estimated at 0.074 in one million which is substantially below a risk of 10 in one million. Similarly the acute and chronic health hazard indices (HI) were calculated at 0.048 and 0.023, which are substantially below the threshold HI of 1 (CEC 2004). Thus, **no direct** or **indirect** effects related to exposure to industrial source emissions were identified under the No Action alternative.

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 **significant indirect** effect. **Mitigation Measure AQ-4** requires that any large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater) 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 separation 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.

Mitigation Measure AQ-4 is the same as Mitigation Measure 4.4-4 in the ARSP EIR; thus, it is highly likely that the City will impose and enforce the same mitigation measure on the No Action alternative to address this effect. **No direct** effects on air quality due to commercial source emissions were identified under the No Action alternative.

No wetland mitigation would be necessary under the No Action alternative. **No direct** or **indirect** effects related to operational TACs would occur at the mitigation sites.

Proposed Action

Given the comparable amount of proposed roadways, commercial, and industrial development as the No Action alternative, the effects related to exposure to TACs under the Proposed Action would be essentially the same as discussed above. As a result, **indirect** effects on air quality associated with on-site sources of TACs from community commercial

facilities, under the Proposed Action would be **significant;** however, **Mitigation Measure AQ-4** is proposed to reduce this effect. As noted above, **Mitigation Measure AQ-4** is the same as Mitigation Measure 4.4-4 in the ARSP EIR; thus, it is highly likely that the City will impose and enforce the same mitigation measure on the Proposed Action to address this effect. **No direct** effects on air quality due to commercial source emissions were identified under the Proposed Action.

With respect to the Applicant's draft PRMP that includes wetland restoration activities at three off-site mitigation properties, there would be no sensitive receptors at the mitigation sites and exposure to TACs would not be a concern. **No direct** or **indirect** effects related to TACs were identified.

Alts. 1,2,3 Again, given the similar amount of proposed roadways, commercial, and industrial development as the No Action and Proposed Action, the effects related to exposure to TACs under Alternatives 1, 2, and 3 would be substantially the same as discussed above for the No Action and Proposed Action. As a result, **indirect** effects on air quality associated with on-site sources of TACs from community commercial facilities under Alternatives 1, 2, and 3 would be **significant;** however, **Mitigation Measure AQ-4** is proposed to reduce this effect. As noted above, **Mitigation Measure AQ-4** is the same as Mitigation Measure 4.4-4 in the ARSP EIR; thus, it is highly likely that the City will impose and enforce the same mitigation measure on Alternatives 1, 2, and 3, to address this effect. **No direct** effects on air quality due to commercial source emissions were identified under Alternatives 1, 2, or 3.

With respect to the Applicant's draft PRMP that includes wetland restoration activities at three off-site mitigation properties, there would be no sensitive receptors at the mitigation sites and exposure to TACs would not be a concern. **No direct** or **indirect** effects related to TACs were identified.

Mitigation Measure AQ-4: Screen Health Risks

(*Applicability – No Action, Proposed Action, and Alternatives 1, 2, and 3*)

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 heating, ventilation, and air conditioning (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.*

Impact AQ-5 Exposure to Objectionable Odors

No Action Alt. Odor effects are generated when receptors are located downwind of or near sources of objectionable odors. Sources of these odors include facilities such as wastewater treatment plants, rendering plants, landfills, chemical plants, dairies, refineries, large agricultural operations, and composting. The No Action alternative would result in the establishment of sensitive receptors in proximity to existing and future odor sources, including the Pleasant Grove Wastewater Treatment Plant (PGWWTP), Western Regional Sanitary Landfill (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 the 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. The PCAPCD CEQA Handbook includes a recommended buffer of two miles from a WWTP. This buffer is intended to be used as a planning tool, not a significance threshold. 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 planning tool, not a significance threshold. The landfill operates seven days a week and takes in approximately 932 tons of waste per day (refer to Section 3.15). In 2013, the PCAPCD received three odor complaints related to the WRSL. The complaints came from Crocker Ranch, Whitney Ranch and West Park residential developments all located south of the WRSL. 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. According to the 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 project site. However, given the number of recent complaints from residences located at similar distances from the WRSL, it is 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 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 these types of sources have screening distances of less than two miles in the PCAPCD CEQA Air Quality Handbook. Because these sources are located more 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. 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 No Action alternative could expose sensitive receptors to objectionable odors. This is considered a **significant indirect** effect. No feasible mitigation is available to address this effect; therefore, a **significant indirect** effect related to exposure of project residents to objectionable odors would occur under the No Action alternative. **No direct** effects on air quality associated with objectionable odors were identified under the No Action alternative.

No wetland mitigation would be necessary under the No Action alternative. Furthermore, there would be no sensitive receptors on the mitigation sites. **No direct** or **indirect** effects related to the exposure to odors were identified for the mitigation sites.

Proposed Action, Alts. 1, 2, 3

The effects related to exposure to odors would be essentially the same as discussed above; due to the similarities of the development footprint within the project site under Alternatives 1, 2, and 3. Based on the significance criteria listed above; and for the same reasons presented for the No Action alternative, there would be a **significant indirect** effect related to exposure of project residents to objectionable odors under Alternatives 1, 2, and 3. No feasible mitigation is available to address this effect; therefore, a **significant indirect** effect associated with exposure to objectionable odors under Alternatives 1, 2, and 3 would occur. **No direct** effects associated with exposure to objectionable odors were identified under these alternatives.

With respect to the Applicant's draft PRMP that includes wetland restoration activities at three off-site mitigation properties, there would be no sensitive receptors at the sites and exposure to odors would not be a concern. **No direct** or **indirect** effects related to the exposure to odors for the mitigation sites were identified.

3.3.5 GENERAL CONFORMITY

Under Section 176(c)(1) of the federal CAA, federal agencies that "engage in, support in any way or provide financial assistance for, license or permit, or approve any activity must demonstrate that such actions do not interfere with state and local plans to bring an area into attainment with the National Ambient Air Quality Standards"(42 USC Section 7506(c)).

The Proposed Action is located in the Sacramento Valley Air Basin (Air Basin), an 11-county air basin. The western Placer County portion of the Air Basin is designated as non-attainment with respect to the national standards for 8-hour ozone and PM2.5. To address the Air Basin's non-attainment status, the regional air districts, including the PCAPCD, have worked together to produce implementation plans for attainment of the national standards. The General Conformity Rule ensures a federal agency's actions in a non-attainment area do not obstruct or conflict with a state or local implementation plan. The implementing regulations for the General Conformity Rule are found in Title 40 CFR, Part 51, Subpart W and Part 93, Subpart B. In addition, the PCAPCD has adopted the federal General Conformity regulations under Regulation 5, Rule 508.

Under the General Conformity regulations, both the direct and indirect emissions associated with a federal action must be evaluated. Subpart W defines direct emissions as:

> *[T]hose emissions of a criteria pollutant or its precursors that are caused or initiated by the Federal action and occur at the same time and place as the action (40 CFR § 51.852).*

Indirect emissions are defined as:

> *[T]hose emissions of a criteria pollutant or its precursors that:*
>
> *(1) Are caused by the Federal action, but may occur later in time and/or may be farther removed in distance from the action itself but are still reasonably foreseeable; and*
>
> *(2) The Federal agency can practicably control and will maintain control over due to a continuing program responsibility of the Federal agency (40 CFR § 51.852).*

A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a federal non-attainment or maintenance area would equal or exceed specified annual emission rates, referred to as *de minimis* thresholds. For ozone precursors, the *de minimis* thresholds depend on the severity of the nonattainment classification; for other pollutants, the threshold is set at 100 tons per year. The Air Basin was designated as serious non-attainment for ozone by the USEPA in June 2004. However, due to concerns with meeting emissions reductions targets,

the member air districts of the Sacramento Federal Nonattainment Area requested a voluntary reclassification to severe, which was approved by the USEPA in June 2010. The relevant *de minimis* thresholds for the Air Basin are shown below in **Table 3.3-9**.

Table 3.3-9
General Conformity De Minimis Thresholds

Pollutant	Attainment Status	Annual Emissions (ton/yr)
NO_x	Nonattainment/Severe (Ozone)	25
VOC	Nonattainment/Severe (Ozone)	25
PM2.5 (direct)	Nonattainment (moderate)	100
PM2.5 (NO_x)[1]	Nonattainment (moderate)	100
PM2.5 (VOC and NH_3)[2]	Nonattainment (moderate)	100
PM2.5 (SO_x)	Nonattainment (moderate)	100

Source: USEPA De Minimis Tables. https://www.epa.gov/general-conformity/de-minimis-tables. Accessed May 15, 2018.

According to the General Conformity Rule, conformity analysis only applies to activities that trigger NEPA review.[5] Where the federal action is a permit, license, or other approval for some aspect of a non-federal undertaking, the relevant activity is the part, portion, or phase of the nonfederal undertaking that requires the federal permit, license, or approval. The Corps' permit action is limited to the discharge of dredged and/or fill material into waters of the U.S. on the project site, and does not extend to other construction activities or elements of the Proposed Action or alternatives that are associated with the operation of facilities constructed on the project site. Accordingly, this evaluation will not consider the operational emissions from the development of the Proposed Action or any of the alternatives. Furthermore, with respect to construction emissions, the scope of this conformity analysis is appropriately limited to the emissions resulting from grading activities associated with the discharge of dredged and/or fill material into waters of the U.S., including associated access, staging, and stockpiling areas necessary to conduct activities authorized by the Corps. Other construction activities not needing authorization from the Corps (i.e.,

5 As stated in 40 CFR Parts 6, 51, and 93 (FRL-4805-1), Determining Conformity of General Federal Actions to State or Federal Implementation Plans, "the definition of "Federal action" is revised by adding the following sentence to the end of the definition in the proposal: Where the Federal action is a permit, license, or other approval for some aspect of a nonfederal undertaking, the relevant activity is the part, portion, or phase of the nonfederal undertaking that requires the Federal permit, license, or approval. The following examples illustrate the meaning of the revised definition. Assume, for example, that the COE issues a permit and that permitted fill activity represents one phase of a larger nonfederal undertaking; i.e., the construction of an office building by a nonfederal entity. Under the conformity rule, the COE would be responsible for addressing all emissions from that one phase of the overall office development undertaking that the COE permits; i.e., the fill activity at the wetland site. However, the COE is not responsible for evaluating all emissions from later phases of the overall office development (the construction, operation, and use of the office building itself), because later phases generally are not within the COE's continuing program responsibility and generally cannot be practicably controlled by the COE."

activities that don't involve the discharge of dredged and/or fill material into waters of the U.S.), are not included in the conformity calculations.

While grading to construct the Proposed Action would take place over a majority of the project site, only a small portion of the grading would involve the discharge of dredged and/or fill material into waters of the U.S. Therefore, only a fraction of the grading would be required to be analyzed under this conformity analysis. However, since information was readily available for the effect of grading the site as a whole under the Proposed Action, the Corps used this data instead. If this data had provided emissions greater than the threshold then further efforts to focus the analysis on the grading specific to the discharge of dredged and/or fill material into waters of the U.S. would have been warranted. In this case, the effects of the entire grading operations of the Proposed Action do not exceed the *de minimis* thresholds. Therefore, the Corps analyzed the entire grading operations associated with the Proposed Action, even though the Corps' authorized activities involve a smaller portion of the overall operation.

Annual grading emissions for the Proposed Action were estimated using CalEEMod 2013.2. Due to similarities in their development footprints, with the exception of the No Action alternative, grading emission totals for Alternatives 1, 2, and 3 are essentially the same as the emissions for the Proposed Action. So, if the Proposed Action meets the conformity criteria, then Alternatives 1, 2, and 3, would as well. Due to a reduction in its development footprint, emission totals for the No Action alternative would be substantially less than the Proposed Action and therefore, would meet the conformity criteria.

Maximum on-site grading emissions would occur during Phase 1 grading. The resultant maximum annual emissions for each non-attainment or maintenance pollutant are shown in **Table 3.3-10** below. As the table shows, all emission values are less than the *de minimis* threshold for that pollutant. Based on this preliminary analysis, a *detailed* conformity analysis by the Corps is not required (40 CFR § 51.858). In addition, direct emissions associated with the Proposed Action or any of the alternatives would not conflict with or obstruct implementation of the applicable air quality plan (i.e., SIP for the Sacramento Valley Air Basin).

Table 3.3-10
Direct Average Annual Construction Emissions (Unmitigated)

Source	VOC (tons/yr)	NOx (tons/yr)	SOx (tons/yr)	PM2.5 (tons/yr)
Proposed Action	0.70	7.93	<0.01	1.11
Thresholds (tons/yr)	25	25	100	100
Exceeds Threshold?	NO	NO	NO	NO

Source: Analytical Environmental Services, 2016.

Regardless of whether the Corps focuses only on direct emissions associated with the issuance of a DA permit for the project or whether it looks more broadly at all emissions associated with full buildout of the project area, future air quality conditions are anticipated to improve over time within the affected airshed due to improvements in emissions controls and the use of cleaner fuels and alternate energy, and full

buildout of the Proposed Action would not result in a lack of conformity with approved federal air quality plans or the State Implementation Plan (SIP). In February 2016, the SACOG reached a favorable conformity determination in approving its most recent Regional Transportation Plan (called the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS)). SACOG's Draft EIR for the MTP/SCS explained SACOG's reasoning as follows:

> *In general, projecting the future air quality environment and how well the proposed MTP/SCS fits within existing air quality attainment plans, and their projected maintenance or attainment strategies, is evaluated through existing federal, state, and local air district processes. A determination of conformity, or conformance with the plans, is realized when: the forecasted emissions are within budgets identified in the plans or pass the interim emissions test, the latest planning assumptions and emission models are used, the plan and program are financially constrained, and the timely implementation of transportation control measures can be demonstrated. Conformity analyzes the impacts of land use and transportation in combination at the regional level. It quantitatively measures how selected land use and transportation planning principles in combination will affect our future air quality environment. As established in the proposed MTP/SCS, behavioral changes in choice of travel directly impacts mobile source emission generation projections and reduced VMT and trip numbers result in lower emissions.*
>
> *The forecasted emissions for ozone, PM_{10} and CO associated with the proposed MTP/SCS are within the conformity budgets identified within the existing plans for each milestone year. Similarly, the forecasted emissions for PM_{10} and $PM_{2.5}$ associated with the proposed MTP/SCS pass all interim emissions tests for all milestone years.*

As described previously in **Chapter 1.0**, the Sustainable Communities Strategy (SCS), formulated pursuant to Senate Bill 375, assumed full development of the Amoruso Ranch Specific Plan area. Since buildout of all land uses assumed in the SCS would not conflict with or obstruct implementation of applicable federal air quality plans or the SIP, the same would be true of the buildout of the Proposed Action by itself or any of the alternatives.

3.3.6 REFERENCES

California Air Resources Board (CARB). 2004. Roseville Rail Yard Study.

CARB. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective, 2005*. Available at: http://www.arb.ca.gov/ch/landuse.htm.

CARB. 2017. Naturally Occurring Asbestos. https://www.arb.ca.gov/toxics/asbestos/asbestos.htm

California Energy Commission (CEC). 2004. Roseville Energy Park, Application for Certification (03- AFC-1). Placer County, November.

City of Roseville. 2016a. Amoruso Ranch Specific Plan Final Environmental Impact Report.

FHWA. 2016. *Memorandum. Information: Updated Interim Guidance on Air Toxic Analysis in NEPA Documents*. October 18.

Fehr and Peers. 2016. *Final Traffic Study for the Amoruso Ranch Specific Plan*. February 16,

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2016. *Guide to Air Quality Assessment in Sacramento County*. December.

United States Environmental Protection Agency (USEPA). USEPA, Accessed November 2017, Technical Overview of Volatile Organic Compounds.