4.2 AIR QUALITY

4.2.1 Introduction

This section includes a discussion of existing air quality conditions in the project area, a summary of applicable regulations, and an analysis of potential short-term and long-term air quality impacts caused by the proposed project.

The Placer County Air Pollution Control District (PCAPCD) submitted a comment letter in response to the Notice of Preparation with respect to usage of the PCAPCD CEQA Air Quality Handbook (Handbook) to assist with recommended analytical approaches and feasible mitigation measures when preparing air quality analyses for land use projects. This letter was dated December 19, 2013. In October 2016, PCAPCD adopted updated significance thresholds; and, in June 72017, PCAPCD released a draft 2017 update of the District's Handbook which was subsequently approved by the PCAPCD Board in August 2017. The method of analysis contained in this section for short-term construction, long-term regional (operational, or in this case, use of the trail), local mobile-source, and toxic air emissions is consistent with PCAPCD recommendations in the updated August 2017 Handbook.

4.2.2 Environmental Setting

The project site is located in the City of Roseville (City) within western Placer County, California, which is located within the Sacramento Valley Air Basin (SVAB). The SVAB also includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba counties and the eastern portion of Solano County.

The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below. The nearest sensitive receptors in the vicinity of the project site are residences in the residential neighborhoods located adjacent to the site. Several parks are also located near the project site along with Eich Middle School (see Chapter 3, "Project Description").

TOPOGRAPHY, METEOROLOGY, AND CLIMATE

The SVAB is a relatively flat area bordered by the north Coast Ranges to the west and the northern Sierra Nevada to the east. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin Delta (Delta) from the San Francisco Bay area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50 degrees Fahrenheit (°F) to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also characteristic

of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow leading to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. Poor air movement is most frequent in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

May through October is ozone season in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta sea breeze from the southwest in the afternoons. In addition, longer daylight hours provide a plentiful amount of sunlight to fuel photochemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NO_X), which result in ozone formation. Typically, the Delta breeze transports air pollutants northward out of the SVAB; however, a phenomenon known as the Schultz Eddy prevents this from occurring during approximately half of the time from July to September. The Schultz Eddy phenomenon causes the wind to shift southward and blow air pollutants back into the SVAB. This phenomenon exacerbates the concentration of air pollutant emissions in the area and contributes to the area violating the ambient-air quality standards.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Sacramento International Airport. The normal annual precipitation is approximately 17 inches. The predominant wind direction and speed is from the south at 8 miles per hour (WRCC 2013a, 2013b).

EXISTING AIR QUALITY

Criteria air pollutants

Concentrations of several air pollutants—ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead—indicate the quality of ambient air and are, therefore, the premise of air quality regulations. Because these pollutants are the most prevalent air pollutants known to be harmful to human health, they are commonly referred to as “criteria air pollutants.” Their effects on human health have been studied in depth and their criteria for affecting health have been documented. Concentrations of emissions from criteria air pollutants are used to indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SVAB is provided below. Monitoring data applicable to the project site is provided in Table 4.2-1.

Table 4.2-1 Summary of Annual Data on Local Ambient Air Quality (2012-2016)[1]

	2012	2013	2014	2015	2016
OZONE					
Maximum concentration (1-hr/8-hr avg, ppm)	0.108/0.093	0.111/0.084	0.097/0.087	0.098/0.085	0.115/0.093
Number of days state standard exceeded (1-hr/8-hr)	9/28	2/8	4/21	1/6	5/21
Number of days national standard exceeded (8-hr)[2]	27	6	19	6	20
FINE PARTICULATE MATTER ($PM_{2.5}$)					
Maximum concentration ($\mu g/m^3$)	28.0	57.0	30.7	44.1	24.4
Number of days national standard exceeded[2] (calculated[3])	0.0	0.0	0.0	0.0	0.0

Table 4.2-1 Summary of Annual Data on Local Ambient Air Quality (2012-2016)[1]

	2012	2013	2014	2015	2016
RESPIRABLE PARTICULATE MATTER (PM_{10})					
Maximum concentration ($\mu g/m^3$)	44.8	54.1	31.8	59.1	39.1
Number of days state standard exceeded (calculated[3])	0.0	*	0.0	*	0
Number of days national standard exceeded (calculated[3])	0.0	0.0	0.0	*	0

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

[1] Measurements from the Roseville-N Sunrise Blvd monitoring station.

[2] Based on 2015 National standard.

[3] Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

* There was insufficient (or no) data available to determine the value.

Source: CARB 2017, data compiled by Ascent in 2017

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Emissions of ROG and NO_X decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013a: Table 3-1).

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Long-term health effects include chronic bronchitis and chronic obstructive pulmonary disease (EPA 2017a).

Emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner burning fuels. Between 2000 and 2015, the annual average daily emissions of ROG and NO_X decreased by 56 percent. However, the ozone problem in the Sacramento Metropolitan Area, which includes western Placer County, still ranks among the most severe in the state. (CARB 2013a:4-45,2-16.)

Nitrogen Oxide

NO_2 is a brownish, highly reactive gas that is most present in urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2016, 2017b).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and

smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013a:1-20). Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are dominated by the same sources as emissions of PM_{10} (CARB 2013a:4-47).

Acute health effects of PM_{10} exposure include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, and premature death. Chronic health effects include reduced lung function and chronic bronchitis (EPA 2003).

Monitoring Station Data and Attainment Area Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. The Roseville-North Sunrise Boulevard station is located approximately 0.75 mile north of the middle sections of the proposed trail alignment and is the closest monitoring station to the project site with recent data for ozone, PM_{10}, and $PM_{2.5}$. In general, the local ambient air quality measurements from this station are representative of the air quality near the project given its similar meteorological conditions and urban surroundings. Table 4.2-2 summarizes the air quality data for the four most recent calendar years for which data is available (2012–2016).

Both CARB and EPA use this type of monitoring data to designate areas according to their attainment status in accordance with ambient air quality standards for criteria air pollutants. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are “nonattainment,” “attainment,” and “unclassified.” “Nonattainment” means that an area does not attain State or federal ambient air quality standards for a given pollutant, while “attainment” means that an area either attains or exceeds State or federal ambient air quality standards. “Unclassified” is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called “nonattainment-transitional.” The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. Attainment designations for the western, or SVAB portion, of Placer County are shown in Table 4.2-2 for each criteria air pollutant. Key pollutants for which Western Placer County is in nonattainment include ozone (California and National), PM_{10} (California), and $PM_{2.5}$ (National).

Table 4.2-2 Ambient Air Quality Standards and Designations for Western Placer County

Pollutant	Averaging Time	California		National Standards [1]	
		Standards [2, 3]	Attainment Status [4]	Primary [3]	Attainment Status [6]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	N	–	N (Severe)
	8-hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)	
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	U/A
	8-hour	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	
	8-hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	A	0.053 ppm (100 µg/m^3)	U/A
	1-hour	0.18 ppm (339 µg/m^3)		0.100 ppm	

Table 4.2-2 Ambient Air Quality Standards and Designations for Western Placer County

Pollutant	Averaging Time	California		National Standards [1]	
		Standards [2, 3]	Attainment Status [4]	Primary [3]	Attainment Status [6]
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	A	0.030 ppm (80 µg/m^3)	U
	24-hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	
	3-hour	–		0.5 ppm (1300 µg/m^3)[5]	
	1-hour	0.25 ppm (655 µg/m^3)		0.075 ppm	
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N	–	U
	24-hour	50 µg/m^3		150 µg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	A	12 µg/m^3	A
	24-hour	–		35 µg/m^3	N (Moderate)
Lead [7]	30-day Average	1.5 µg/m^3	A	–	–
	Calendar Quarter	–		1.5 µg/m^3	U/A
	Rolling 3-Month Avg	–		0.15 µg/m^3	U/A
Sulfates	24-hour	25 µg/m^3	A	No National Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	U		
Vinyl Chloride [7]	24-hour	0.01 ppm (26 µg/m^3)	U		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer —visibility of 10 mi or more	U		

Notes: µg/m^3 = micrograms per cubic meter; ppm = parts per million

[1] National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.

[2] California standards for ozone, CO (except 8-hour Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards (CAAQS) are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[3] Concentration expressed first in units in which it was promulgated [i.e., ppm or micrograms per cubic meter (µg/m^3)]. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas. Secondary national standards are also available from EPA.

[4] Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment (A): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area. Nonattainment designations for ozone are classified as marginal, serious, severe, or extreme depending on the magnitude of the highest 8-hour ozone design value at a monitoring site in a nonattainment area.

Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

[5] Secondary Standard

[6] Nonattainment (N): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment (A): any area that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable (U): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Maintenance (M): any area previously designated nonattainment pursuant to the CAAA of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under Section 175A of the CAA, as amended.

[7] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold 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.

Source: CARB 2015a, 2016; EPA 2017c; data compiled by Ascent in 2017.

Emissions Inventory

Exhibit 4.2-1 summarizes an estimated emissions inventory of criteria air pollutants within western Placer County (the portion of the county located within the SVAB) for various source categories in 2012. According to the emissions inventory, mobile sources are the largest contributor to the estimated annual average for levels of ROG and NO_X, accounting for approximately 47 percent and 73 percent respectively, of the total emissions. Area-wide sources (i.e., sources that occur over a large area rather than at a stationary source [e.g., smoke stack] or mobile-source [e.g., tailpipe]) account for approximately 76 percent and 58 percent of the western portion of the county's PM_{10} and $PM_{2.5}$ emissions, respectively (CARB 2013b). This is the current emissions inventory available for the western Placer County area.

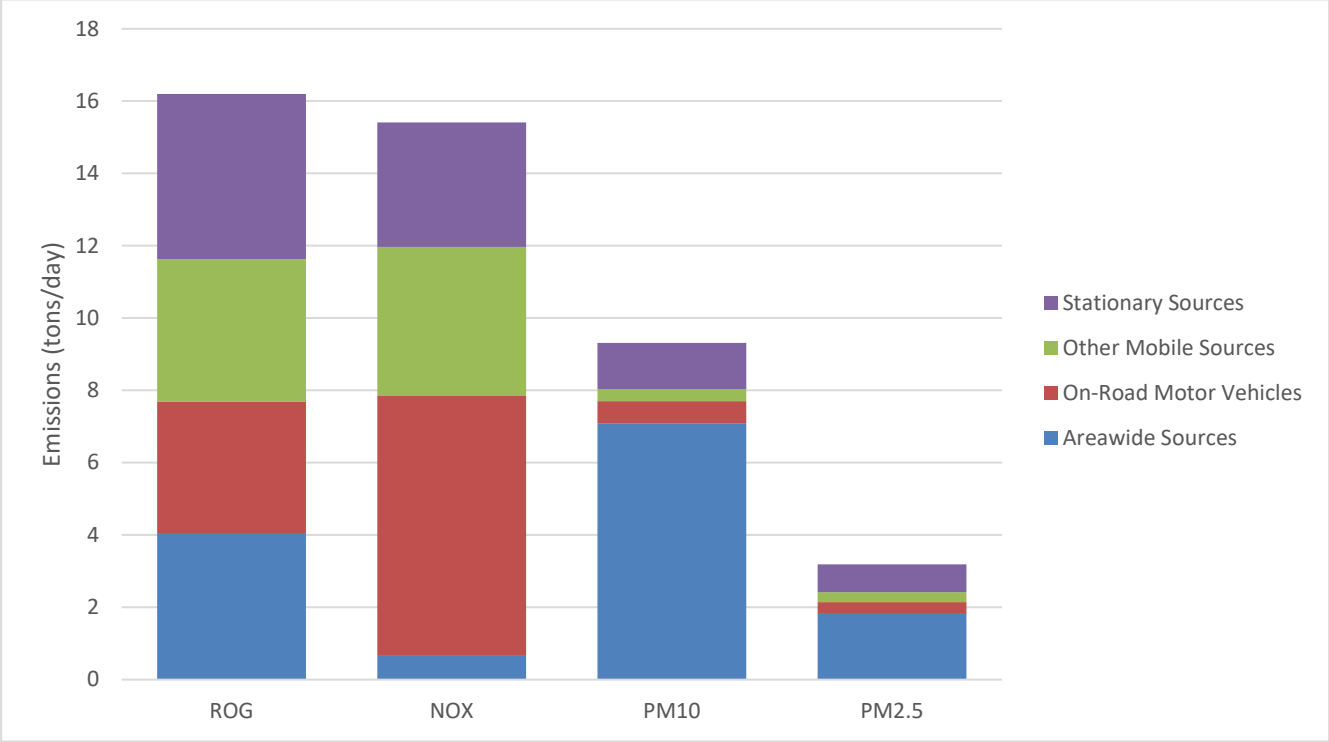

Exhibit 4.2-1 Western Placer County 2012 Emissions Inventory

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs) are also used to indicate the quality of ambient air. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the California Almanac of Emissions and Air Quality (CARB 2013a), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel exhaust (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses the

CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM.

In addition to diesel PM, the TACs that pose the greatest ambient risk in California, for which data are available, are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Sources of these TACs vary considerably and include (but are not limited to) consumer products, gasoline dispensing stations, auto repair and auto body coating shops, dry cleaning establishments, chrome plating and anodizing shops, welding operations, and other stationary sources.

Diesel PM poses the greatest health risk among the 10 TACs mentioned. Based on receptor modeling techniques, CARB estimated the health risk from diesel PM to be 360 excess cancer cases per million people in the SVAB in the year 2000. Since 1990, the health risk associated with diesel PM has been reduced by 52 percent. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2009).

According to the CARB Air Toxics "Hot Spots" Program (see Regulatory Setting below), stationary facilities that emit toxic substances above a specified level are required to prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. There are approximately 117 existing facilities that meet the reporting criteria located in the same Roseville zip codes (95661 and 95678) as the proposed project, including hospital facilities, auto dealerships, schools, large retail and service businesses or shopping centers (e.g., grocery stores, department stores), hotels, and other commercial and industrial uses (CARB 2015b). Minor stationary sources of TACs may also be located in the project area and could include, but are not limited to: gasoline dispensing stations, dry cleaning establishments, printing operations, and auto body coating operations.

Major highways and roadways are also considered sources of TAC emissions, associated with the presence of diesel PM emissions from vehicle exhaust. Interstate 80 (I-80) passes over the western portion of the proposed trail alignment just north of Cirby Way between Riverside Avenue and Sunrise Avenue. The annual average daily traffic volume on this segment of I-80 in the project area is approximately 175,000 vehicles per day (Caltrans 2014).

Naturally Occurring Asbestos

Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Naturally occurring asbestos, which was identified as a TAC by CARB in 1986, is located in many parts of California and is commonly associated with serpentine soils and rocks. According to two reports by the California Department of Conservation, Division of Mines and Geology, the proposed project site is not likely to contain naturally occurring asbestos (Higgins and Clinkenbeard 2006:54, Churchill and Hill 2000).

Odors

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

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

person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

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

Land uses that are major sources of odor typically include wastewater treatment and pumping facilities, sanitary landfills, transfer stations, recycling and composting facilities, and various industrial uses such as chemical manufacturing and food processing. There are no major sources of odor located adjacent to or in the immediate vicinity of the proposed project.

Sensitive Land Uses

Sensitive land uses generally include uses where prolonged exposure to pollutants could result in health-related risks to individuals. Residential dwellings and places where people recreate or congregate for extended periods of time such as parks or schools are of primary concern, because of the potential for increased and prolonged exposure of individuals to pollutants.

A number of sensitive land uses are located adjacent to or in close proximity to the proposed trail alignment, including single-family and multi-family residential dwellings, parks, and schools.

4.2.3 Regulatory Setting

As stated previously, the proposed trail alignment is located in the SVAB. Air quality in the vicinity of the proposed project is regulated by the EPA, CARB, PCAPCD, and the City. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

As discussed above under “Environmental Setting,” acceptable levels of exposure to criteria air pollutants have been determined and ambient standards have been established for them (see Table 4.2-2).

Air quality regulations also focus on TACs (also known as hazardous air pollutants [HAPs] in federal regulations). In general, for those TACs that may cause cancer, all concentrations present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. EPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by PCAPCD, establish the regulatory framework for TACs.

Applicable regulations associated with criteria air pollutants, TACs, and odors are described below.

FEDERAL

At the federal level, EPA implements the national air quality programs. EPA’s air quality mandates are drawn primarily from the Federal Clean Air Act (CAA), enacted in 1970. The most recent major amendments were made by Congress in 1990.

Criteria Air Pollutants

The CAA requires EPA to establish National Ambient Air Quality Standards (NAAQS). As shown in Table 4.2-2, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead (CARB 2016). The primary standards protect public health and the secondary standards protect public welfare. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Hazardous Air Pollutants and Toxic Air Contaminants

Toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs) are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term acute affects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 4.2-2). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA and, in California, CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum available control technology or best available control technology for toxics to limit emissions.

STATE

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). California law authorizes CARB to set ambient (outdoor) air pollution standards (California Health and Safety Code Section 39606) in consideration of public health, safety, and welfare (California Ambient Air Quality Standards [CAAQS] (Table 4.2-2).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects

studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest date practical. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing local air district compliance with Federal and State laws, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs, including diesel PM, and adopted EPA's list of HAPs as TACs.

Once a TAC is identified, CARB then adopts an airborne toxics control measure for sources that emit that particular TAC. If a safe threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate best available control technology for toxics to minimize emissions.

CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Recent milestones included the low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks (effective in 2007 and subsequent model years) and off-road diesel equipment (2011). Over time, replacing older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) in California have been reduced substantially over the last decade; such emissions will be reduced further through a progression of regulatory measures (e.g., low emission vehicle/clean fuels and Phase II reformulated-gasoline regulations) and control technologies.

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005) provides guidance concerning land use compatibility with TAC sources. While not a law or adopted policy, the handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

LOCAL

Placer County Air Pollution Control District

<u>Criteria Air Pollutants</u>

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

and issuing permits for stationary sources of air pollution. PCAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and CCAA.

All projects in Placer County are subject to PCAPCD's adopted rules and regulations. Specific rules applicable to the construction under the action alternatives may include but are not limited to the following:

- PCAPCD Rule 217—Cutback and Emulsified Asphalt Paving Materials. Prohibits the use of the following asphalt materials for road paving: rapid cure cutback asphalt; slow cure cutback asphalt; medium cure cutback asphalt; or emulsified asphalt.
- PCAPCD Rule 218—Application of Architectural Coatings. This rule limits the quantity of volatile organic compounds (VOCs) in architectural coatings used in PCAPCD's jurisdiction. Subsection 301 lists VOC content limits for a variety of architectural coatings.
- PCAPCD Rule 228—Fugitive Dust. To regulate fugitive dust emissions, this rule prescribes limits and best management practices to be applied during construction and operation activities. See Appendix H-2 for a detailed list of these guidelines.
- PCAPCD Rule 501— General Permit Requirements. Any person operating an article, machine, equipment, or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, shall first obtain a written permit from the Air Pollution Control Officer. Stationary sources subject to the requirements of Rule 507, Federal Operating Permit Program, must also obtain a Title V permit pursuant to the requirements and procedures of that rule.

Toxic Air Contaminants

At the local level, PCAPCD may adopt and enforce CARB's airborne toxic control measures. Under PCAPCD Rule 501 ("Permit Requirements"), PCAPCD Rule 502 ("New Source Review"), PCAPCD Rule 507 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from PCAPCD. PCAPCD may grant permits to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. PCAPCD limits emissions and public exposure to TACs through a number of programs.

Sources that require a permit are analyzed by PCAPCD (e.g., health risk assessment) based on their potential to emit TACs that would expose receptors to substantial health risk. If it is determined that a source would emit TACs in excess of PCAPCD's standard of significance for TACs (identified below), then the source would have to implement the best available control technology (BACT) for TACs to reduce emissions. If a source cannot reduce the risk below the standard of significance even after the BACT has been implemented, PCAPCD will deny issuing a permit to the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new TAC-reduction technology when being retrofitted.

City of Roseville General Plan

The Air Quality and Climate Change Element of the City of Roseville's General Plan 2035 contains numerous goals and policies that pertain to criteria air pollutant emissions, TACs, and odors (City of Roseville 2016). Key policies that are applicable to the proposed project include the following:

Air Quality Goals

GOAL 1: Improve Roseville's air quality by:

a) Achieving and maintaining ambient air quality standards established by the U.S. Environmental Protection Agency and CARB; and

b) Minimizing public exposure to toxic or hazardous air pollutants and air pollutants that create a public nuisance through irritation to the senses (such as unpleasant odors).

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

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

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

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

Air Quality Policies

- **Policy 2:** Work with the Placer County Air Pollution Control District to monitor air pollutants of concern on a continuous basis
- **Policy 3:** Develop consistent and accurate procedures for evaluating the air quality impacts of new projects.
- **Policy 5:** Develop transportation systems that minimize vehicle delay and air pollution.
- **Policy 6:** Develop consistent and accurate procedures for mitigating transportation emissions from new and existing projects.
- **Policy 7:** Encourage alternative modes of transportation including pedestrian, bicycle, and transit usage.
- **Policy 9:** Encourage land use policies that maintain and improve air quality.

Air Quality Implementation Measures

Interagency Coordination

- Coordinate with other local and regional jurisdictions, including the PCAPCD and CARB, in the development of regional and county clean air plans and incorporate the relevant provisions of those plans into City planning and project review procedures. Also cooperate with the PCAPCD and CARB in:
  - enforcing the provisions of the California and Federal Clean Air Acts, state and regional policies, and established standards for air quality
  - establishing a monitoring station to accurately determine the status of carbon monoxide, ozone, nitrogen dioxide, and hydrocarbon concentrations;
  - developing and implementing clean fuel regulations for vehicle fleets; and
  - developing consistent procedures for evaluating project-specific and cumulative air quality impacts of projects.
- Submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.
- Cooperate with Placer County in the identification of hazardous material users (both large and small-scale users) and the development of an inspection process and hazardous materials management plan. (Policies 1, 2, 3, 9 and 11)

Development Review Process

- Notify and solicit comments from local and regional agencies of proposed projects that may affect regional air quality. The comments of the responding agencies will be considered during the review of the projects. The City will encourage project applicants to consult early in the planning process with Planning Department staff regarding the applicability of county-wide indirect and area wide

source permit program and TCM programs. Project review should also address energy efficient building and site designs, as well as the proper storage, use, and disposal of hazardous materials.

- Include identification of potential air quality impact and designation of design and other appropriate mitigation measures or offset fees to reduce impacts in the environmental review of a project. The City will dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures. (Policies 1, 3, 10, and 11)

Mitigation Strategies – Motor Vehicle Alternatives

- Encourage transportation alternatives to motor vehicles by developing infrastructure amenable to such alternatives by doing the following:
  - implementing the Bicycle Master Plan and Long-Range Transit Plan as specified in the Circulation Element;
  - considering right-of-way requirements for bike usage in the planning of new arterial and collector streets and in street improvement projects;
  - requiring that new development be designed to promote pedestrian and bicycle access and circulation;
  - providing safe and secure bicycle parking facilities at major activity centers, such as public facilities, employment sites, and shopping and office centers;
  - providing convenient and safe pedestrian and bike movement through the large parking areas that surround large retail and office centers;
  - providing safe pathways that link residential areas to schools, parks, services, and employment areas and transit facilities;
  - promoting project design that encourages pedestrian and cyclist use, including grade separated crossing at major arterials, clear and safe connections between projects and uses; and
  - installing sidewalks in residential and commercial developments with protective curbing and adequate lighting and pedestrian amenities.

4.2.4 Impacts

METHODS OF ANALYSIS

PCAPCD has issued guidance on the analysis of criteria air pollutants and toxic air contaminants the PCAPCD's 2017 Handbook (PCAPCD August, 2017). The Handbook outlines expectations and methodologies for the analysis of emissions generated by a proposed project, and guidance on determining the significance of impacts and appropriate mitigation.

Temporary construction-related and permanent use-related air quality (regional and local) impacts, as well as impacts from TACs, were assessed in accordance with PCAPCD-recommended methods consistent with the 2017 Handbook (PCAPCD August, 2017).

Construction

Temporary emissions of criteria air pollutants (e.g., PM_{10} and $PM_{2.5}$) and ozone precursors (e.g., ROG and NO_X) generated by project construction were assessed in accordance with PCAPCD-recommended methods. Where quantification was required, these emissions were modeled using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 computer program as summarized in Table 4.2-3. CalEEMod is designed to model both construction and use-related emissions and allows for the input of project-specific information. Project-specific data, such as construction equipment types, along with PCAPCD-recommended and default model settings were used to estimate reasonable worst-case conditions.

Use of the Proposed Project

The proposed project is a multi-use trail and would include a trailhead with accompanying parking lot at the western end of the trail, off Riverside Avenue just south of Darling Way. The parking lot would include approximately 35 parking spaces. This would be the only parking associated with the project. While it cannot be known with certainty how many motor vehicle trips or vehicle miles traveled (VMT) could be reduced by increased use of the proposed trail by bicyclists and pedestrians (in lieu of vehicle trips), over the long term it is expected that trail use would contribute to decreased motor vehicle travel. Similarly, no new stationary sources would be included in the use of the proposed project. Thus, the proposed project would not result in a net increase in permanent emissions of criteria air pollutants, precursors, or TACs associated with mobile or stationary sources.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines and the August 2017 PCAPCD CEQA Air Quality Handbook thresholds of significance, the proposed project was determined to result in a significant impact to air quality if it would:

- conflict with or obstruct implementation of an applicable air quality plan;
- result in short-term (construction) or long-term (operational/use) emissions of 1) ROG and NO_X that exceed PCAPCD's CEQA threshold (e.g., level that attains/maintains concentrations in the County in regards to the California Clean Air Act) of 82 lb/day (construction phase) and 55 lb/day (operational phase) or 2) PM_{10} that exceed PCAPCD's CEQA threshold of 82 lb/day for both construction and operational phases (PCAPCD August, 2017);
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in the exposure of sensitive receptors to substantial pollutant concentrations; or
- result in cumulative annual emissions of 1) ROG and NO_x that could exceed the federal *de minimis* level of 25 tons/year or 2) $PM_{2.5}$ that could exceed the federal *de minimus* level of 100 tons/year, based on Western Placer County's attainment status for ozone and $PM_{2.5}$ NAAQS (EPA 2017d).

ISSUES OR POTENTIAL IMPACTS NOT DISCUSSED FURTHER

There are no major sources of odor at or near the project site. Additionally, the proposed construction and use of a multi-use trail would not include activities that typically generate excessive odors. Therefore, potential impacts related to odor are not discussed further.

IMPACT ANALYSIS

Impact 4.2-1	Short-term construction-generated emissions of ROG, NO_X, $PM_{10,}$ and $PM_{2.5}$.
Applicable Policies and Regulations	NAAQS CAAQS PCAPCD Rules City of Roseville General Plan Air Quality and Climate Change Element
Significance with Policies and Regulations	Proposed Project: Potentially significant Alignment Option 1A: Potentially significant Alignment Option 1C: Potentially significant Alignment Option 5A: Potentially Significant
Mitigation Measures	Mitigation Measure 4.2-1 (Proposed Project, Option 1A, Option 1C, Option 5A)
Significance after Mitigation	Less than significant (Proposed Project, Option 1A, Option 1C, Option 5A)

Proposed Trail Alignment

Construction emissions are described as "short term" or temporary in duration. Construction-related activities would result in project-generated emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ (a subset of PM_{10}) from site preparation (e.g., excavation, grading, and vegetation clearing), heavy off-road equipment, material delivery, worker commute vehicle travel to and from the site, trenching and asphalt paving, bridge construction, and other related activities. Fugitive dust emissions are associated primarily with site preparation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, VMT both on- and off-site, and other factors. Ozone precursor emissions of ROG and NO_X are associated primarily with construction equipment exhaust and the application of architectural coatings.

For the purposes of this analysis, construction was assumed to take place over 4 years (2021–2024), commencing in 2021. The maximum daily disturbed acreage for the proposed project would be less than 1 acre. Because the proposed project would be constructed in up to four segments, construction emissions were modeled for each segment and phase separately, according to construction phasing and equipment anticipated for each segment. For phases that are anticipated to overlap, maximum daily emissions were aggregated and presented as such in Table 4.2-3.

Appendix C contains model input and output parameters, detailed assumptions, and daily construction emissions estimates. Construction emissions are summarized in Table 4.2-3. Based on the modeling, construction of the proposed project would result in maximum daily emissions of approximately 10 lb/day of ROG, 106 lb/day of NO_X, 13 lb/day of PM_{10} and 8 lb/day of $PM_{2.5}$.

Table 4.2-3 Summary of Modeled Temporary Construction-Generated Emissions for the Proposed Project

	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)
Segment A: Darling Way – Eastwood Park				
2021 Maximum Daily Emissions	5	56	5	3
2022 Maximum Daily Emissions	5	51	4	3
Segment B: Eastwood Park – Oak Ridge Dr				
2021 Maximum Daily Emissions	3	33	2	1
2022 Maximum Daily Emissions	2	17	1	1
Segment C: Eich School – Rocky Ridge Dr				
2021 Maximum Daily Emissions	1	11	1	1
2022 Maximum Daily Emissions	4	40	9	5
Segment A, B, and C: Overlapping Phases				
2021 Maximum Daily Emissions	8	89	6	4
2022 Maximum Daily Emissions	10	106	13	8
Segment D: Rocky Ridge Dr – Spahn Ranch Rd				
2023 Maximum Daily Emissions	6	56	5	3
2024 Maximum Daily Emissions	3	29	5	3
Maximum daily emissions across all years, unmitigated	10	106	13	8
PCAPCD CEQA significance criteria Project-level threshold of significance	82	82	82	N/A

Notes: Totals may not sum due to rounding. lb/day = pounds per day; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less; ROG = reactive organic gases; PCAPCD = Placer County Air Pollution Control District.

Source: Ascent Environmental, 2017. See Appendix C for detailed CalEEMod modeling results.

It is important to note that the project would be required to comply with PCAPCD Rules 228, Fugitive Dust Emissions; Rule 202, Visible Emissions; Rule 217, Cutback and Emulsified Asphalt Paving Materials; and Rule 218, Architectural Coatings.

When separately considered, construction emissions from any single phase would be below PCAPCD's recommended CEQA project-level significance thresholds of 82 lb/day of ROG, 82 lb/day of NO_X, lb and 82 lb/day of PM_{10}. However, construction of segments A, B and C occurring within a single day would result in construction emissions that would exceed PCAPCD's recommended CEQA project-level significance threshold of 82 lb/day of NO_x.

Conclusion

Depending on the number of segments being constructed within a single day, construction emissions associated with construction of the proposed project could exceed applicable thresholds for NO_X and thus, contribute to the existing nonattainment status of the SVAB with respect to the CAAQS and NAAQS. This would be a **potentially significant** impact.

Alignment Option 1A

Construction-related activities for Option 1A would be the same type and general magnitude of activities that would occur under the Proposed Trail Alignment. The total number of bridges constructed under Option 1A would be less than the number of bridges constructed under the Proposed Trail Alignment, which would result in fewer emissions associated with bridge construction activities. Option 1A would require an additional 765 linear feet of retaining walls or streambank stabilization when compared to the Proposed Trail Alignment. Overall, construction emissions would be less than under the Proposed Trail Alignment because emissions from the lighter type of equipment needed to construct these elements would be less than emissions for the heavy construction equipment needed for bridge construction. However, depending on the number of segments being constructed within a single day, Option 1A could still potentially exceed PCAPCD's recommended CEQA-level project significance threshold of 82 lb/day of NO_X during construction. Therefore, project construction under this option could substantially contribute to air pollutant concentrations that exceed the NAAQS or CAAQS. This impact would be **potentially significant**.

Alignment Option 1C

Construction-related activities for Option 1C would be the same type and general magnitude of activities that would occur under the Proposed Trail Alignment. Option 1C would not require the widening of the Darling Way Bridge, which would result in fewer emissions associated with bridge construction activities. Thus, construction activities under Option 1C would result in less emissions than estimated for the Proposed Trail Alignment. However, depending on the number of segments being constructed within a single day, Option 1C could still potentially exceed PCAPCD's recommended CEQA-level project significance threshold of 82 lb/day of NO_x during construction. Therefore, project construction under this option could substantially contribute to air pollutant concentrations that exceed the NAAQS or CAAQS. This impact would be **potentially significant**.

Alignment Option 5A

Construction-related activities for Option 5A would be the same type and general magnitude of activities that would occur under the Proposed Trail Alignment. Implementing Option 5A would change the location of one bridge (#14 rather than #13), but would not change the number of bridges proposed, which would result in approximately the same emissions associated with bridge construction activities. Thus, estimated emissions for construction activities under Option 5A would be the same as the Proposed Trail Alignment and would not exceed PCAPCD's recommended CEQA-level project significance thresholds for trail use. However, depending on the number of segments being constructed within a single day, Option 5A could still potentially exceed PCAPCD's recommended CEQA-level project significance threshold of 82 lb/day of NO_x during construction. Therefore, project construction under this option could substantially contribute to air pollutant concentrations that exceed the NAAQS or CAAQS. This impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 4.2-1: Reduce construction-related NO_X emissions.

Before approval of grading permits, the construction contractor shall submit for PCAPCD approval, a written calculation demonstrating that the fleet of heavy-duty (> 50 horsepower) off-road equipment used during the project's construction, including owned, leased, and subcontractor vehicles, will achieve the necessary percent reduction in NO_X emissions during all construction phases, and for any periods during which multiple phases would overlap, as to not exceed 82 lb/day. Acceptable options for reducing emissions may include reduction in the number of segments constructed in a single day, use of late model-year engines, low-emission renewable diesel fuel, engine retrofit technologies, and/or other effective options as recommended by PCAPCD at the time (see Appendix C of the PCAPCD 2017 CEQA Handbook [PCAPCD 2017:75] for additional options). The calculation shall be provided using PCAPCD's Construction Mitigation Calculator.

Significance after Mitigation

Tier 4 engines are readily available in California for off-road equipment, and therefore, the use of off-road construction equipment with higher tiered engines would be able to achieve NO_X reductions sufficient (i.e., 24 lb/day) to ensure construction-generated levels of NO_X would be less than PCAPCD's threshold of 82 lb/day, presumably with some combination of Tier 3 and Tier 4 engines. Additionally, use of renewable diesel fuel could result in further NO_x reductions of 14 percent (SMAQMD 2015).

Thus, given that the reduction of construction-related NO_x emissions to below 82 lb/day is achievable, Mitigation Measure 4.2-1 would reduce construction-generated emissions of NO_x to less than the PCAPCD's recommended significance threshold of 82 lb/day for all construction phases. This impact would be reduced to a **less-than-significant** level.

Impact 4.2-2	Long-term use-related emissions of ROG, NO_X, $PM_{10,}$ and $PM_{2.5}$.
Applicable Policies and Regulations	NAAQS CAAQS PCAPCD Rules City of Roseville General Plan Air Quality and Climate Change Element
Significance with Policies and Regulations	Proposed Project: Less than significant Alignment Option 1A: Less than significant Alignment Option 1C: Less than significant Alignment Option 5A: Less than significant
Mitigation Measures	None required (Proposed Project, Option 1A, Option 1C, Option 5A)
Significance after Mitigation	Less than significant (Proposed Project, Option 1A, Option 1C, Option 5A)

Proposed Trail Alignment

The proposed project would be a 4.25-mile multi-use trail intended for use by bicyclists and pedestrians with accompanying parking lot at the western end of the trail, off Riverside Avenue just south of Darling Way. The parking lot would include approximately 35 parking spaces. This would be the only parking associated with the project. The trail would also need occasional maintenance as a standard part of its use. The proposed project was envisioned as a component of the City's 2008 Bicycle Master Plan. While it cannot be known with certainty how many motor vehicle trips or VMT could be reduced by increased use of the proposed trail by bicyclists and pedestrians (in lieu of vehicle trips), over the long term it is expected that trail use would contribute to decreased motor vehicle travel.

Therefore, emissions generated by trail use would be below PCAPCD's project-level significance thresholds, and the project would not substantially contribute to air pollutant concentrations that exceed the NAAQS or CAAQS. It is reasonably foreseeable that a net air quality benefit could accrue over the long term to the extent that bicycle or pedestrian travel occurs on the proposed trail in lieu of motor vehicle trips. Such a benefit would be consistent with the mobility enhancement goal of the proposed project. It is not feasible to precisely quantify the number of motor vehicle trips avoided, so a beneficial impact conclusion would not be a certainty.

Conclusion

Over the long term, the proposed multi-use trail with accompanying parking lot is expected to decrease motor vehicle travel. Emissions generated by trail use would be below PCAPCD's project-level significance thresholds, and the project would not substantially contribute to air pollutant concentrations that exceed the NAAQS or CAAQS. Consequently, this impact would be **less than significant**.

Alignment Option 1A

Use-related activities for Option 1A would be the same type and general magnitude of activities that would occur under the Proposed Trail Alignment. Thus, use-related activities under Option 1A would be the same as the estimated emissions for the Proposed Trail Alignment. This impact would be **less than significant**.

Alignment Option 1C

Use-related activities for Option 1C would be the same type and general magnitude of activities that would occur under the Proposed Trail Alignment. Thus, use-related activities under Option 1C would result in similar emissions as estimated for the Proposed Trail Alignment, and Option 1 C would not exceed PCAPCD's recommended CEQA-level project significance thresholds for trail use. This impact would be **less than significant**.

Alignment Option 5A

Use-related activities for Option 5A would be the same type and general magnitude of activities that would occur under the Proposed Trail Alignment. Thus, estimated emissions for use-related activities under Option 5A would be the same as the Proposed Trail Alignment and would not exceed PCAPCD's recommended CEQA-level project significance thresholds for trail use. This impact would be **less than significant**.

Mitigation Measures

None required.

Impact 4.2-3	Generation of local mobile-source CO emissions.
Applicable Policies and Regulations	NAAQS CAAQS PCAPCD Rules City of Roseville General Plan Air Quality and Climate Change Element
Significance with Policies and Regulations	Proposed Project: Less than significant Alignment Option 1A: Less than significant Alignment Option 1C: Less than significant Alignment Option 5A: Less than significant
Mitigation Measures	None required (Proposed Project, Option 1A, Option 1C, Option 5A)
Significance after Mitigation	Less than significant (Proposed Project, Option 1A, Option 1C, Option 5A)

Proposed Trail Alignment

Construction Impacts

CO concentration is a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. Notably, the City of Roseville is in attainment for CO and has not experienced a violation of ambient air quality standards for CO in 20 years (CARB 2012). The project would not result in a net increase in VMT on the local roadway network, and would have no or negligible traffic impacts during construction and would not result in traffic congestion because construction equipment would be staged adjacent to or near each phase of construction, and closure of traffic lanes during construction would be temporary and would implement traffic control measures.

Thus, implementation of the proposed project would not result in, or contribute to, local CO concentrations that exceed the California 1-hour or 8-hour ambient-air quality standards of 20 ppm or 9 ppm, respectively, as a result of project-related construction activities. This impact would be **less than significant**.

Use-related Impacts

The proposed project is a 4.25-mile multi-use trail intended for bicyclists and pedestrians. The proposed project would include a trailhead with accompanying parking lot at the western end of the trail, off Riverside Avenue just south of Darling Way. The parking lot would include approximately 35 parking spaces. This would be the only parking associated with the project. While it cannot be known with certainty how many motor vehicle trips or VMT could be reduced by increased use of the proposed trail by bicyclists and pedestrians (in lieu of vehicle trips), over the long term it is expected that trail use would contribute to decreased motor vehicle travel. Use of the trail and parking lot would have negligible traffic impacts and would not result in traffic congestion (see Section 4.13, “Transportation and Circulation”). Therefore, as discussed above, implementation of the proposed project would not result in, or contribute to, local CO concentrations that exceed the California 1-hour or 8-hour ambient-air quality standards of 20 ppm or 9 ppm, respectively. This impact would be **less than significant**.

Alignment Option 1A

Both construction and use-related activities for Option 1A would be the same type and magnitude of activities that would occur under the Proposed Trail Alignment. Implementation of Option 1A would not result in, or contribute to, local CO concentrations that exceed the California 1-hour or 8-hour ambient-air quality standards of 20 ppm or 9 ppm, respectively, as a result of project-related construction or use-related activities as described above for the proposed trail alignment. This impact would be **less than significant**.

Alignment Option 1C

Both construction and use-related activities for Option 1C would be the same type and magnitude of activities that would occur under the Proposed Trail Alignment. Implementation of Option 1C would not result in, or contribute to, local CO concentrations that exceed the California 1-hour or 8-hour ambient-air quality standards of 20 ppm or 9 ppm, respectively, as a result of project-related construction or use-related activities. This impact would be **less than significant**.

Alignment Option 5A

Both construction and use-related activities for Option 5A would be the same type and magnitude of activities that would occur under the Proposed Trail Alignment. For the reasons above for the proposed trail alignment, implementation of Option 5A would not result in, or contribute to, local CO concentrations that exceed the California 1-hour or 8-hour ambient-air quality standards of 20 ppm or 9 ppm, respectively, as a result of project-related construction or use-related activities. This impact would be **less than significant**.

Mitigation Measures

None required.

Impact 4.2-4	Exposure of sensitive receptors to toxic air contaminant (TAC) emissions.
Applicable Policies and Regulations	NAAQS CAAQS PCAPCD Rules City of Roseville General Plan Air Quality and Climate Change Element
Significance with Policies and Regulations	Proposed Project: Less than significant Alignment Option 1A: Less than significant Alignment Option 1C: Less than significant Alignment Option 5A: Less than significant
Mitigation Measures	None required (Proposed Project, Option 1A, Option 1C, Option 5A)
Significance after Mitigation	Less than significant (Proposed Project, Option 1A, Option 1C, Option 5A)

Proposed Trail Alignment

The exposure of sensitive receptors (e.g., existing offsite residents) to TAC emissions during construction is discussed below. As stated earlier, the project is exempt from Conformity Requirements under the Clean Air Act pursuant to 40 CFR 93.126, and is, by definition, a type of project considered to have no meaningful potential mobile source air toxics (MSAT) effects (FWHA 2012). The nearest sensitive receptors to the proposed trail alignment are adjacent residences, schools, and parks. The predominant wind direction in the project area is from the south/southwest.

Construction Impacts

Construction of the proposed project would result in temporary diesel exhaust emissions from onsite heavy-duty equipment required for site preparation, paving, and other construction activities. Particulate-exhaust emissions from diesel-fueled engines (diesel PM) were identified as a TAC by CARB in 1998. PCAPCD has not established a quantitative threshold of significance for construction-related TAC emissions. In this case, lead agencies may address this issue on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and its proximity to offsite receptors.

The nearest sensitive receptors to the project site are single-family residences located on properties adjacent to the project boundary along the length of the proposed multi-use trail, with the distance to the homes, themselves, ranging from less than 50 feet to several hundred feet. The dose to which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, for construction, use of mobilized equipment would be temporary (i.e., only constituting 3 percent of the total health-risk exposure period).

The primary construction activities in which TAC emissions (including diesel PM) from heavy equipment would be generated include site preparation and paving. The proposed project would involve relatively small construction crews and would result in daily ground disturbances of less than 1 acre per day. Project construction activities would not exceed PM_{10} or $PM_{2.5}$ thresholds of significance for mass emissions as shown in Table 4.2-3. In addition, there would be no net increases in mobile source emissions as a result of project use.

These factors, in combination with the dispersive properties of diesel PM (Zhu et al. 2002), would not result in the exposure of sensitive receptors to TAC levels that would result in a health hazard or exceed applicable standards during construction of the proposed project. Thus, the exposure of sensitive receptors to TACs would be **less than significant**.

Use-related Impacts

The proposed project is a 4.25-mile multi-use trail intended for bicyclists and pedestrians, and other non-motorized vehicles. Use of the trail would not be a substantial source of TAC emissions. However, a portion of the proposed trail improvements would be located near or directly adjacent to the I-80 freeway, which could result in the exposure of trail users to mobile source TAC emissions.

While the project would result in new trail users within close proximity to the freeway, the exposure period would be relatively short and temporary in nature. Most trail users would travel along the segment trail near the freeway for relatively short periods of time (i.e., minutes within a given hour), rather than for longer-duration or sustained periods of time (i.e., many hours per day over a 70-year period, such as in the case of a single-family residence; see OEHHA health risk assessment criteria in construction impacts discussion above). Thus, users of the trail would not be considered sensitive receptors for the purposes of TAC emissions exposure, and use-related impacts would be **less than significant**.

Alignment Option 1A

Both construction and use-related activities for Option 1A would be the same type and magnitude of activities that would occur under the Proposed Trail Alignment. Both existing sensitive receptors in adjacent land uses and users of the trail would not be exposed to TAC levels that would result in a health hazard or exceed applicable standards during construction or use of the proposed project under Option 1A. This impact would be **less than significant**.

Alignment Option 1C

Both construction and use-related activities for Option 1C would be the same type and magnitude of activities that would occur under the Proposed Trail Alignment. Both existing sensitive receptors in adjacent land uses and users of the trail would not be exposed to TAC levels that would result in a health hazard or exceed applicable standards during construction or use of the proposed project under Option 1C. This impact would be **less than significant**.

Alignment Option 5A

Both construction and use-related activities for Option 5A would be the same type and magnitude of activities that would occur under the Proposed Trail Alignment. Both existing sensitive receptors in adjacent land uses and users of the trail would not be exposed to TAC levels that would result in a health hazard or exceed applicable standards during construction or use of the proposed project under Option 5A. This impact would be **less than significant**.

Mitigation Measures

None required.

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