4.3 AIR QUALITY

4.3.1 Introduction

This section includes a discussion of existing air quality conditions, a summary of applicable air quality regulations, and an analysis of potential short- and long-term air quality impacts that could result from implementation of the project. The methods of analysis for short-term construction, long-term operation, local mobile-source, and toxic air emissions are consistent with guidance from the Placer County Air Pollution Control District (PCAPCD), the California Air Resources Board (CARB), and U.S. Environmental Protection Agency (EPA). The analysis addresses pertinent comments from the public and agency scoping period, including general concerns about air quality impacts from the California Native Plant Society, guidance from PCAPCD, and concerns expressed by Western Placer Waste Management Authority about odors emitted from the Western Regional Sanitary Landfill and other sources in the project area. In addition, mitigation measures are recommended to reduce significant air quality impacts.

Important terms for specific parts of the project are discussed in detail in Chapter 4, "Approach to the Environmental Analysis." The following brief discussion is intended to remind the reader how those terms are defined and used in the EIR analysis, including this section. "SAP area" refers to the entire SAP area, which includes the PRSP area. "Net SAP area" refers to the portion of the SAP area outside the PRSP area. The "project" encompasses the entirety of the SAP, including the PRSP and all associated off-site improvements. "Project area" refers to the entire area covered by the project. Because the project area is composed of three pieces (the net SAP area, the PRSP area, and areas where other off-site infrastructure would support the project), the impact analysis typically is divided into three subsections: "Net SAP Area," "PRSP Area," and "Other Supporting Infrastructure." ("Other Supporting Infrastructure" refers to improvements outside the SAP area and is divided into "Pleasant Grove Retention Facility" and "Off-Site Transportation and Utility Improvements.") Some required infrastructure improvements are planned outside the PRSP area but still in the SAP area; those improvements are addressed in the "PRSP Area" sections.

As discussed in Chapter 1, "Introduction," the PRSP land use plan has been slightly revised since circulation of the NOP. Changes primarily relate to increasing the distance between the landfill property and land designated for residential uses, modifying the density of proposed residential areas, reducing the proposed commercial intensity, slightly decreasing the acreage of open space, and increasing the acreage of parks to meet County parkland provision standards. The size of the PRSP area (2,213 acres) has not changed since release of the NOP, and the overall area of development would be nearly identical. The estimates of operational emissions of criteria air pollutants and precursors for the PRSP have been updated to reflect the changes in the land use plan. However, construction emissions associated with development of the updated land use plan were not remodeled because these emissions were modeled for individual years with intense periods of construction and for this reason are considered conservative. In addition, as described in Section 4.14, "Transportation and Circulation," the results presented in the traffic memorandum (Appendix P) demonstrate that the trip generation and VMT for the revised PRSP land use plan would be lower than for the previously proposed land use plan. Therefore, because mobile-source emissions associated with operation of the PRSP are based on a conservatively high trip generation rate, the mobile-source emissions for the revised PRSP land use plan were also not remodeled. Therefore, the emissions reported for the PRSP in the following analysis are conservative because they continue to assume the original land use intensities and associated activities (e.g., mobile trips) under the land use plan.

4.3.2 Environmental Setting

The project area is located in unincorporated land in west Placer County that is part of the Sacramento Valley Air Basin (SVAB). The SVAB comprises the western portion of Placer County, the eastern portion of Solano County, and all of Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Yolo, and Sacramento Counties.

Ambient concentrations of air pollutants are determined by the amount of pollutants emitted and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the SVAB are determined by such natural factors as climate, meteorology, and topography, in addition to the level of emissions released by existing air pollutant sources. These factors are discussed separately below.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

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 in 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 average winter temperature is a moderate 49°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. 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, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor-quality air movement occurs 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 hinder dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

Elevated levels of ozone typically occur May through October in the SVAB. This period is characterized by poor air movement in the mornings with the arrival of the Delta breeze from the southwest in the afternoons. In addition, longer daylight hours provide ample sunlight to fuel photochemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NO_X), which form ozone. 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 area and surrounding area is represented by measurements recorded at the Lincoln Regional Airport (Karl Harder Field) station. The National Oceanic and Atmospheric Administration's National Centers for Environmental Information has records for that station dating back to 2009. According to these data, the average annual precipitation in the project area is approximately 20 inches, January temperatures range from a normal minimum of 36°F to a normal maximum of 56°F, and July temperatures range from a normal minimum of 61°F to a normal maximum of 96°F. The predominant wind direction is from the southeast (NOAA 2018).

CRITERIA AIR POLLUTANTS

Concentrations of emissions of criteria air pollutants indicate the quality of the ambient air. A brief description of key criteria air pollutants in the SVAB and their health effects is provided below. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (PM) with aerodynamic diameter of 10 micrometers or less (PM_{10}), fine PM with aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. However, ozone, PM_{10}, and $PM_{2.5}$ are the criteria air pollutants of primary concern in this analysis due to their nonattainment status with respect to the applicable National Ambient Air Quality Standards (NAAQS) and/or California Ambient Air Quality Standards (CAAQS). The attainment status of criteria air pollutants with respect to the NAAQS and the CAAQS in Placer County is shown in Table 4.3-1. Monitoring data representative of ambient air concentrations in the SAP area are summarized in Table 4.3-2.

Table 4.3-1 Attainment Status Designations for Placer County

Pollutant	Federal Standard	State Standard
Ozone	No Federal Standard	Nonattainment (1-hour)
	Nonattainment (8-hour)[1]	Nonattainment (8-hour)
PM_{10}	Attainment (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
$PM_{2.5}$	Nonattainment (24-hour)	No State Standard for 24-Hour
	Attainment (Annual)	Attainment (Annual)
CO	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
NO_2	Unclassified (1-hour)	Attainment (1-hour)
	Attainment (Annual)	Attainment (Annual)
SO_2	Attainment (1-Hour)	Attainment (1-hour)
	Attainment (24-hour)	Attainment (24-hour)
	Attainment (Annual)	No State Standard for Annual
Lead (Particulate)	Attainment (3-month rolling avg.)	Attainment (30-day average)

Notes: PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; CO = carbon monoxide; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide.

[1] 2008 Standard.

Source: PCAPCD 2017a

Table 4.3-2 Summary of Annual Air Quality Data (2014–2016)

Ozone[1]	2014	2015	2016
Maximum concentration (1-hour/8-hour, ppm)	0.107/*	0.098/0.079	0.102/0.084
Number of days state standard exceeded (1-hour/8-hour)	1/4	2/5	3/12
Number of days national standard exceeded (1-hour/8-hour)	0/3	0/4	0/11
Respirable Particulate Matter (PM_{10}) [1]	**2014**	**2015**	**2016**
Maximum Concentration ($\mu g/m^3$)	46.8	*	*
Number of days state standard exceeded (measured)	0	*	*
Number of days national standard exceeded (measured)	0	*	0
Fine Particulate Matter ($PM_{2.5}$) [2]	**2014**	**2015**	**2016**
Maximum Concentration ($\mu g/m^3$)	32.3	39.7	32.6
Annual Average ($\mu g/m^3$)	*	9.3	8.3
Number of days national standard exceeded (measured)	*	*	*

Table 4.3-2 Summary of Annual Air Quality Data (2014–2016)

Carbon Monoxide [3]	2014	2015	2016
Maximum 8-hour Concentration (ppm)	1.4	1.3	1.6
Maximum 1-hour Concentration (ppm)	1.8	2.1	2.3
Number of days national standard exceeded (measured)	0	0	0

Notes: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; * = Insufficient data to determine the value.

[1] Data from Roseville-N Sunrise Boulevard station.

[2] Data from Lincoln station at 1445 First Street.

[3] Data from North Highlands-Black Foot Way station. Data from EPA's Monitor Values Reports.

Sources: CARB n.d., EPA 2018a

Ozone

Ground-level ozone is not emitted directly into the air but is created by chemical reactions between NO_X and ROG. This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone at ground level is a harmful air pollutant, because of its effects on people and the environment, and is the main ingredient in smog (EPA 2018b).

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2018b). Emissions of the ozone precursors ROG and NO_X have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels (CARB 2013a).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all 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 2012).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2018b).

Particulate Matter

PM_{10} is emitted directly into the air and includes fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, as well as PM formed in the atmosphere by reaction of gaseous precursors (CARB 2013b). $PM_{2.5}$ 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 slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are primarily generated by the same sources as emissions of PM_{10} (CARB 2013b).

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 alterations to the immune system and carcinogenesis (EPA 2018b).

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. Eighty-six percent of the nationwide CO emissions are from mobile sources. The remaining 14 percent consists of CO emissions from power generation, refineries, and industrial sources (CARB 2016).

CO affects human health by entering the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (CARB 2018a).

The highest concentrations of CO are generally associated with cold, stagnant weather conditions that occur during winter. In contrast to ozone, which tends to be a regional pollutant, CO tends to be localized. Emissions of CO have been declining statewide since the mid-1970s, when catalytic converters were first required in new vehicles. Despite increases in vehicle miles traveled (VMT), CO emissions are expected to continue to decrease into the future with the continuing improvement in automotive emission controls. Commercial and industrial fuel combustion and electric generation contribute a significant portion of the stationary source CO emissions. Areawide CO emissions are primarily from residential fuel combustion (including wood), waste burning, and fires (CARB 2018b).

MONITORING STATION DATA AND ATTAINMENT DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. Table 4.3-2 summarizes air quality data representative of the project area from 2014 to 2016. The station at 1445 First Street in Lincoln is the station closest to the project area with recent data for ozone and $PM_{2.5}$. Because PM_{10} concentrations were not measured at the Lincoln station, data was used from the next closest station, located on North Sunrise Boulevard in Roseville. The closest station that monitors CO concentrations is the Blackfoot Way station in North Highlands.

Both CARB and EPA use this monitoring data to designate the area's attainment status for criteria air pollutants (attainment designations are summarized above in Table 4.3-1).

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 noncarcinogens 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 (presented in Table 4.3-4). Cancer risk from TACs is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure.

According to the *California Almanac of Emissions and Air Quality*, most of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM (PM emitted with exhaust from diesel engines) (CARB 2013a:5-2). 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 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 for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs. Based on receptor modeling techniques, CARB estimated the level of cancer risk associated with the inhalation of diesel PM to be 360 in 1 million in the SVAB in 2000 (CARB 2009:5-83). Overall, statewide emissions of diesel PM are forecasted to decline by 71 percent between 2000 and 2035 (CARB 2013a:3-8).

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). The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell minute quantities of specific substances; others may not have the same sensitivity to odors in general; and still others may have variable sensitivity dependent on specific substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant or coffee roaster). 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. Land uses that are major sources of odor typically include landfills, materials recovery facilities (MRFs) (i.e., facilities that receive recyclable materials), composting operations, wastewater treatment and pumping facilities, and various industrial uses such as chemical manufacturing and food processing (see also the list of odors identified by PCAPCD in Section 4.3.3, Regulatory Setting, which also identifies painting/coating operations, feed lots/dairies, and transfer stations as odor sources).

Existing Odor Sources

There are several odor sources in the SAP area, including the Western Regional Sanitary Landfill (WRSL) and associated composting operation and materials recovery facility (MRF), owned and operated by the Western Placer Waste Management Authority (WPWMA) (Springsteen, pers. comm., 2018). Other odor sources include the Rio Bravo biomass facility, the City of Lincoln Wastewater Treatment and Reclamation Facility (WWTRF), dairy and poultry farms, and a propane dealer (WPWMA 2017). Occasional manure spreading on agricultural fields at and near the project site can also be a source of unpleasant odors.

An odor study was conducted for the WRSL in 2015 (EMC 2015). The assessment included the collection of 97 samples from the landfill face, inactive landfill surfaces, the MRF, compost windrows, and the leachate pond. Samples were analyzed in the field for hydrogen sulfide, then shipped to a laboratory for odor analysis by an odor panel. The study concluded that the composting operation had comparatively low odor emissions for a windrow composting operation; however, the composting windrows made up the largest single source of odor sampled at the WRSL. Odor emissions from the MRF were low compared to other MRFs. The active face of the landfill had odor emissions typical of municipal solid waste (MSW) landfills but the biosolids and fines used as alternative daily cover (ADC) (non-earthen material used to cover the landfill's active face) had high

odor compared to the MSW refuse. It is believed that the inactive landfill samples may have been collected during upset conditions (an unavoidable and unintentional failure of a process to operate in a normal manner) because of changes in energy plant operations that limited the amount of landfill gas extracted for use in the plant. During the sampling period, the inactive areas of the landfill (landfill gas) were the second largest odor source, and it was recommended that resampling the source during standard (non-upset) conditions be completed (SCS Engineers 2017). Inactive areas of the landfill may not be such high sources of odor during non-upset conditions

Existing Odor Controls

Odor management practices at landfills, MRFs, and composting facilities exist to prevent excessive odor impacts from those facilities at nearby neighborhoods, which could rise to the levels of a public nuisance. WPWMA routinely engages with stakeholders and the public regarding odor emissions from WRSL operations. An Odor Workshop is held annually to discuss regional odor sources and odor monitoring, odor reduction efforts, and the status of future planning efforts. WPWMA has implemented many of the recommended odor mitigation measures identified in odor studies. Additional data are provided in Appendix J, "Review of Odor Management at Western Regional Sanitary Landfill." The following is a general overview of odor control activities at the WRSL, by operation:

- **Composting:** WPWMA operates according to an odor impact minimization plan. Measures include good housekeeping, processing the compost quickly into piles, and monitoring temperature and moisture so rotation occurs at the appropriate time. Measures calling for scheduling activities at specific times are not always feasible, as materials must eventually be processed regardless of, for example, weather conditions. Liquids are also directed to compost leachate ponds, which are aerated. Additionally, the facility utilizes a compost turner that reaches all layers of compost down to the concrete pad.

- **Landfill:** The active face of the landfill (the portion where the refuse is actively being placed) is a source of odor. The WRSL has a relatively small active face of about 0.5 acre. Although the WRSL is permitted to operate 7 days per week, it does not operate on the weekends, which is beneficial from an odor generation standpoint. WPWMA also aims to cover more-odorous loads (e.g., sludge) as fast as possible. WPWMA is limited in the ways in which it can change its operations in response to weather conditions that may exacerbate odor perception; at times, WPWMA must bury waste and cannot wait for weather conditions to become ideal. The WPWMA uses MSW fines as ADC, which can increase odor. WPWMA is limited to using MRF fines for ADC in areas where subsequent waste disposal operations will occur within 24 hours.

- **Landfill gas:** Just a small amount of landfill gas can be perceptible. In January 2018, WPWMA completed upgrades to the landfill gas collection and control system that was originally constructed in 1995. The upgrades are anticipated to fully accommodate landfill gas flows over the next 15 years and optimize operational efficiency through redundancy of key system components to avoid operational interruptions (WPWMA 2018a).

In addition, WPWMA installed a continuous odor monitoring system in 2014 to track odors moving offsite and conducted a comprehensive facility evaluation in 2015 to improve the accuracy of the system. Ongoing monitoring serves a valuable purpose in informing potential future odor-control actions.

Odor Complaint/Notification History

Table 4.3-3 summarizes the number of odor notifications attributed to WRSL facilities from 2012 through 2017 and reported to the WPWMA, and odor complaints are illustrated by complaint location in Exhibit 4.3-1.

WPWMA uses an air dispersion model that includes data from an on-site weather station to investigate odor notifications and further uses the weather data to discern whether WPWMA's operations were a likely source or contributor to the odor experienced by the individual making the notification report.

For 2012 through 2017, a complaint/notification was considered valid and attributable to the landfill if it was not attributable to livestock, the WWTRF, or the nearby Rio Bravo facility. This methodology may over-attribute odor complaints to the WRSL, but the complaints would be consistently over-attributed for the years evaluated. The number of complaints does not show a significant trend and varies from year to year but indicates that there are consistently odor complaints every year. From examining the source most likely to result in odor complaints within the data, the landfill and the compost operation are the two sources most likely to result in odor complaints when compared to the MRF, off-site sources, and other sources.

The odor impact minimization plan indicates that the general direction of wind during winter months is to the south-southeast (from the north-northwest) and to the south-southwest (from the north-northeast) in the summer months (WPWMA 2016). Indeed, most complaints/notifications received since 2015 are clustered in residential areas of north Roseville that are south of the WRSL (WPWMA 2018b).

Table 4.3-3 Odor Complaints by Year Attributed to the Western Regional Sanitary Landfill

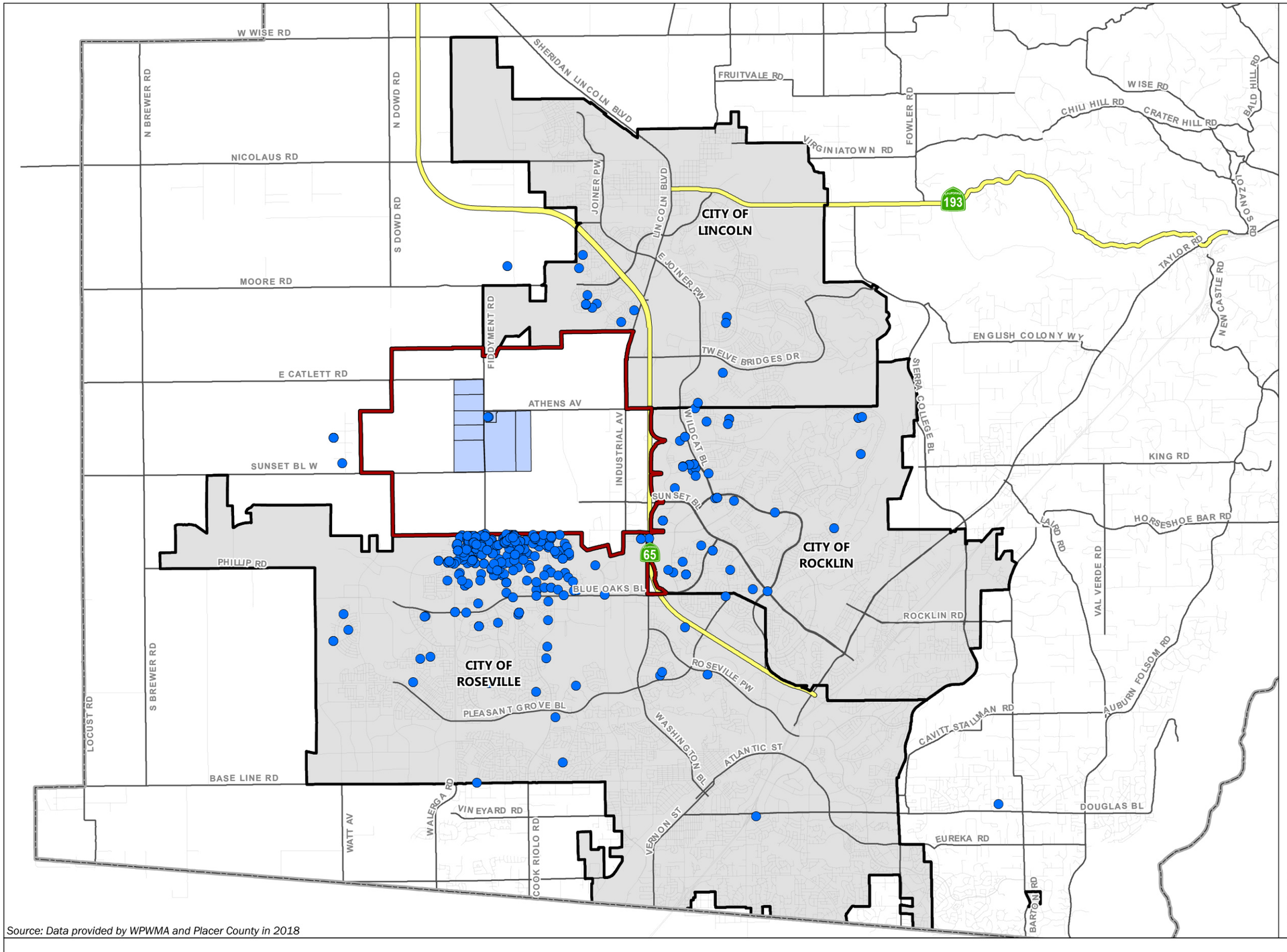
Year	Number of Complaints[1]
2012	148
2013	212
2014	93
2015	333
2016	88
2017[2]	162

Notes:
[1] The number of complaints includes odors associated with the landfill and sources co-located with the landfill including the composting operation and MRF.
[2] January through September 2017, the date at which SCS commenced preparation of its Review of Odor Management at Western Regional Sanitary Landfill.
Source: SCS Engineers 2017:13

Monitoring is ongoing. In January 2018, WPWMA received 109 odor complaints, 79 of which were received between January 29 and January 31. WPWMA staff reviewed conditions at the WRSL that could have resulted in increased odors. The investigation indicated there was no significant change in facility operating conditions, that weather conditions were likely a key factor in odor distribution, that there was increased awareness of WPWMA's online odor reporting tool, and that odors potentially attributable to the WRSL were likely related to landfill gas (WPWMA 2018c). Odor notifications since that time have decreased, and WPWMA staff indicated they receive about two to five notifications per week (Oddo, pers. comm., 2018).

PCAPCD also keeps records of odor complaints for other facilities in the area, which are summarized here (Springsteen, pers. comm., 2018). PCAPCD received one odor complaint for the Rio Bravo Rocklin biomass power facility in 2011 from a neighbor claiming offensive odors from the smoking boiler exhaust stack, but PCAPCD was unable to confirm this was the source of the complaint. PCAPCD staff have observed "very mild odor" from fuel pile wood chips during field inspection visits to the biomass facility.

Approximately 10 years ago PCAPCD received some odor complaints about the City of Lincoln WWTRF, which is located approximately 0.5 mile north of the project site. The odors were attributed to the solar drying of waste sludge in a greenhouse-like structure at the plant. Complaints were no longer received after the wastewater treatment plant stopped this practice. Since that time PCAPCD has received seven complaints from the same complainant but has not been able to verify that the wastewater treatment plant was the source of the complaint. PCAPCD staff have observed "very mild odor" during frequent patrols at the perimeter and during annual field inspection visits to the WWTRF.



Source: Data provided by WPWMA and Placer County in 2018

DATA DISCLAIMER:
The features on this map were prepared for geographic purposes only and are not intended to illustrate legal boundaries or supercede local ordinances. Official information concerning the features depicted on this map should be obtained from recorded documents and local governing agencies

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Exhibit 4.3-1

Odor Complaints

ASCENT ENVIRONMENTAL

PCAPCD has not received any odor complaints for the following facilities located on the project site:

- Green Solutions and More, a green waste acceptance service located at 2915 Lesvos Court;
- the wastewater treatment plant at Thunder Valley Casino Report at 1200 Athens Avenue;
- Energy 2001, which produces electricity using landfill gas at 3195 Athens Avenue;
- Inviro-Tec Disposal, a freight shipping and trucking company at 2480 Athens Avenue that accepts septage and separates the liquids from the solids (with liquids discharged to the sanitary sewer and solids typically transported to the WRSL for disposal); and
- the poultry farm on the south side of East Catlett Road and approximately 0.8 miles west of Fiddyment Road.

PCAPCD also has not received any odor complaints for the following off-site facilities:

- Mallard Creek Inc., at 4095 Duluth Avenue in Rocklin, which accepts and processes wood waste for livestock bedding material, fuel pellets, industrial fibers, and landscaping applications;
- Fg Dairy, a dairy farm at 6241 East Catlett Road and approximately 0.8 mile west of the project site; and
- Roseville Energy Park Power Plant, which is approximately 1.2 miles southwest of the project site and uses natural gas to generate electricity.

Future WPWMA Operations

The WPWMA is currently developing a Renewable Placer Waste Action Plan consisting of site concepts and facility modifications designed to meet future needs as they relate to regional growth, regulatory changes, increasing rates of diversion, improving operational efficiencies, and compatibility between operations and neighboring developments (WPWMA 2018a). Through the planning process, WPWMA will identify physical expansion of facilities that would increase capacity of the landfill, recycling, and compost operations (Oddo, pers. comm., 2018) as well as operational improvements, such as new odor-reducing waste processing technologies such as use of aerated static piles (ASP) for composting. WPWMA is currently conducting a pilot study to evaluate use of ASP for composting and moving away from composting materials exclusively using a windrowing method. It is also examining other ways to enhance landfill gas collection and control that are more responsive to barometric conditions. The Renewable Placer Waste Action Plan will identify potential odor control measures WPWMA could implement, whether or not there is new development closer to the WRSL, as well as odor reduction measures that could be implemented in response to development closer to the WRSL. WPWMA has conducted a robust stakeholder outreach program and performed specific analyses of Waste Action Plan concepts to better assess their ability to meet WPWMA's operational and financial objectives. On December 13, 2018, the WPWMA Board of Directors will be considering initiation of an environmental review process to evaluate facility site layout concept(s) that could involve expanding WPWMA operations onto undeveloped WPWMA-owned parcels to the east and west of the existing WPWMA facilities. The environmental review process will allow WPWMA to refine the details of the plan concept(s) and amend its operating permits to allow the proposed changes. However, it will not dictate how or when changes are implemented; this would remain a decision of the WPWMA Board of Directors. The exact nature, timing, and implementation of the plan and its elements are unknown at this time.

SENSITIVE LAND USES

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the elderly. Residential dwellings, schools, daycare facilities, playgrounds, hospitals, residential care facilities, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and/or the potential for increased and prolonged exposure of individuals to pollutants.

The closest sensitive receptor to the project site is a residential development in the City of Roseville, adjacent to the southern project area boundary.

4.3.3 Regulatory Setting

FEDERAL

U.S. Environmental Protection Agency

EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

Criteria Air Pollutants

The CAA required EPA to establish NAAQS. As shown in Table 4.3-4, 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. The primary standards protect the public health and the secondary standards protect public welfare. The CAA also required each state to prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. 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.

Table 4.3-4 Ambient Air Quality Standards

Pollutant	Averaging Time	California[a,b]	National[c]	
			Primary[b,d]	Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 µg/m³)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m³)	0.070 ppm (147 µg/m³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m³)	9 ppm (10 mg/m³)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 µg/m³)	53 ppb (100 µg/m³)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	–
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m³)	–	–
	3-hour	–	–	0.5 ppm (1300 µg/m³)
	1-hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m³	–	Same as primary standard
	24-hour	50 µg/m³	150 µg/m³	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
	24-hour	–	35 µg/m³	Same as primary standard

Table 4.3-4 Ambient Air Quality Standards

Pollutant	Averaging Time	California[a,b]	National[c]	
			Primary[b,d]	Secondary[b,e]
Lead[f]	Calendar quarter	–	1.5 µg/m^3	Same as primary standard
	30-Day average	1.5 µg/m^3	–	–
	Rolling 3-Month Average	–	0.15 µg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	25 µg/m^3		
Vinyl chloride[f]	24-hour	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

[a] California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California Ambient Air Quality Standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°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.

[c] National standards (other than ozone, particulate matter, 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 1. 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 the U.S. Environmental Protection Agency for further clarification and current federal policies.

[d] National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

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

[f] The California Air Resources Board 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 2017

Hazardous Air Pollutants and Toxic Air Contaminants

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology—MACT standards. These standards are authorized by Section 112 of the 1970 CAA and the regulations are published in 40 CFR Parts 61 and 63.

STATE

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). The CCAA, which was adopted in 1988, required CARB to establish CAAQS (Table 4.3-4).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing PM, 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 attain and maintain the CAAQS by the earliest date practical. The CCAA specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides air districts with the authority to regulate indirect sources.

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 and adopted EPA's list of HAPs as TACs. Most recently, PM exhaust from diesel engines (diesel PM) was added to CARB's list of TACs.

After 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 (BACT) for toxics to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level 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.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of 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) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000 (CARB 2000). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

Compostable Materials Handling Operations and Facilities

Title 14 section 17863.4 requires that compostable material handling operations and facilities prepare, implement, and maintain a site-specific odor impact minimization plan. The plan provides guidance to on-site operation personnel by describing the following, among other items:

- odor monitoring and data collection protocol for on-site odor sources,
- a description of meteorological conditions affecting mitigation of odors and/or transport of odor-causing material off-site,
- a complaint response and recordkeeping protocol,
- a description of design considerations and/or ranges of optimal operation to minimize odor, and
- a description of operating procedures to minimize odor.

LOCAL

Placer County Air Pollution Control District

Criteria Air Pollutants

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 land use development under the action alternatives may include but are not limited to the following:

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

- **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 225—Wood-Burning Appliances.** This rule establishes limits on the rate of particulate matter emissions from operation of a wood-burning appliance.

- **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.

Off-Site Air Quality Mitigation Fund

PCAPCD Policy regarding Land Use Air Quality Mitigation Funds was adopted on April 17, 2001 and amended on December 11, 2008. The guidelines for the Air Quality Mitigation Fund are listed below (PCAPCD 2008).

- PCAPCD shall continue to consider permanent on-site air quality mitigation the preferred method of reducing a project's emissions including criteria air pollutants. However, if sufficient measures cannot be implemented on-site to adequately reduce a project's emissions, then payment into PCAPCD's Off-Site Air Quality Mitigation Fund is preferred. PCAPCD shall continue to allow new development projects to contribute to PCAPCD's Off-Site Air Quality Mitigation Fund as a means to offset air quality impacts from their development. Projects funded by PCAPCD's Off-Site Air Quality Mitigation Fund are determined at the direction of PCAPCD. Typically, funds are used to purchase cleaner on- and off-road vehicles for county projects or cleaner buses for schools.

- Calculate the amount of the payment for the criteria pollutants into the Off-Site Air Quality Mitigation Fund based on the total amount of ROG/NO_x emissions exceeding the daily thresholds for a single ozone season (i.e., May through October).

- Apply a cost effectiveness factor [a rate of $18,260 per ton at the time of preparing this EIR (PCAPCD 2017b:1)] to calculate the funds required to attain the reduction through an off-site emission reduction program. The cost effectiveness factor may be adjusted by the California Consumer Price Index (CPI), starting in 2018.

- An emission reduction project is eligible for mitigation funding only if source of the emissions reduction (public or private project) is not required by existing state or federal law to reduce its emissions to the levels proposed by the project.

- For criteria air pollutants, the source of the emissions reduction should be located within Placer County, specifically within the SVAB, and the source operates primarily within the nonattainment area classified by the NAAQS.

- For the criteria air pollutants to be reduced that are of localized concern (PM, CO), it is preferred that the location of the emissions reduction be as close as possible to the project that is to be mitigated.

- The type of emissions to be reduced are of the same type as those emissions for which the Air Quality Mitigation Fee was paid.

- Leveraging of the mitigation funds to reduce the direct contribution of mitigation funds to achieve emission reductions is preferred.

- Examples of the types of emissions reduction projects that may be qualifying but not limited to:

  - Provide monetary incentives to homeowners to replace high polluting non-EPA certified woodstoves with new EPA certified low emission wood, pellet or gas burning appliances.

  - Purchase wood chippers for the California Department of Forestry and Fire Protection and/or local fire departments to be used in a residential chipper program.

  - Provide monetary incentives to local transit operators, public and private owners of heavy duty diesel on-road trucks and off-road equipment to replace older high emission diesel engines with new, low-emission diesel or compressed/liquefied natural gas engines.

  - Provide funding for regional air quality improvements such as the “Mow Down” program implemented by the Sacramento Metropolitan Air Quality Management District.

  - Use as matching funds to obtain “Carl Moyer” funding for public and private air quality improvement projects.

  - Provide monetary incentives to the agricultural industry to replace high-polluting, diesel-powered water pumps with new cleaner burning diesel or natural gas powered agricultural pumps.

  - Alternative project designs or locations that conserve energy and water, projects that reduce VMT by fossil-fueled vehicles, projects that contribute to established regional or programmatic mitigation strategies, and projects that sequester carbon to offset the emissions generating from the land use development project.

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"), PCAPCD Rule 513 ("Toxics New Source Review"), 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 [HRA]) 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 BACT for TACs to reduce emissions. If a source cannot reduce the risk below the standard of significance even after 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.

Odors

Common types of facilities in Placer County are known to produce odors: wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations. Because offensive odors rarely cause any physical harm, and federal and state air quality regulations do not contain any requirements for their control, PCAPCD has no rules or standards directly related to odor emissions other than its nuisance rule, Rule 205, presented above. Any actions taken by PCAPCD related to odors are based on citizen complaints to local governments and the air districts.

Placer County General Plan

The *Placer County General Plan* includes the following goals and policies related to air quality in Placer County (2013):

GOAL 6.F: To protect and improve air quality in Placer County.

- **Policy 6.F.5:** The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of Countywide indirect and areawide source programs and transportation control measures programs. Project review shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.

- **Policy 6.F.6:** The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.

- **Policy 6.F.7:** The County shall encourage development to be located and designed to minimize direct and indirect air pollutants.

- **Policy 6.F.8:** The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.

- **Policy 6.F.9:** In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.

- **Policy 6.F.10:** The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with PCAPCD's 1991 Air Quality Attainment Plan (or 2017 Draft).

- **Policy 6.F.11:** The County shall apply the buffer standards described in Part 1 of this Policy Document [Land Use/Circulation Diagrams and Standards] and meteorological analyses to provide separation between possible emission/nuisance sources (such as industrial and commercial uses) and residential uses.

The *Placer County General Plan* also requires the use of buffer zones in several types of development. Part 1 of the Placer County General Plan, "Land Use/Circulation Diagrams and Standards," defines planning standards for between specific land uses. The following standards are relevant to air quality:

- **Industrial/Residential Buffers.** These buffer zones are required to separate residential land uses from areas designated Business Park/Industrial where noise from vehicles and equipment, the use of hazardous materials in manufacturing processes, truck traffic, and otherwise heavy traffic volumes would be incompatible with nearby residential uses.
  - **Buffer Dimensions:** Generally, industrial/residential buffers shall be minimum width of 300 feet, but may be reduced to not less than 100 feet where the buffer includes such features as screening walls, landscaped berms, and/or dense landscaping, with guarantees of proper, ongoing landscaping maintenance.
  - **Uses Allowed in Buffer:** Commercial and office uses; open space and recreation uses such as greenbelts, parks, and playfields.
- **Public Facility Buffers.** These buffer zones are required to protect the long-term viability of critical public facilities such as solid waste transfer and disposal sites, sewage treatment plants, and airports that may have significant nuisance characteristics. Public facility buffer zones are intended to separate residential, commercial, and other land uses continuously or frequently occupied by people from the uses stated above and/or from areas designated Public Facility where odors, wind-borne debris, noise from vehicles, equipment and aircraft, and the potential for the presence of hazardous materials would likely be perceived as a nuisance or otherwise be incompatible with other land uses.
  - **Buffer Dimensions:** The noise and odors produced by certain public facility operations that can be experienced off the site of the facility are the most important factors contributing to land use conflicts when development occurs adjacent to airports or solid waste or waste treatment facilities. Public facility buffer zones are required between the identified types of public facilities and the Land Use Diagram designations shown in Table 1-5 of Part 1 of this Policy Document, wherein minimum widths are based on the type of adjacent land use.
  - **Uses Allowed in Buffer:** All public facility buffer zones may include greenbelt and open space uses. Buffers may also include the following uses, depending on the type of public facility being protected:
    - **Airports:** May also include industrial and recreation uses consistent with the buffer requirements of Table 1-5 of Part 1 of this Policy Document for recreational uses.
    - **Wastewater Treatment Plants:** May also include industrial uses consistent with the buffer requirements of Table 1-5 of Part 1 of this Policy Document for industrial uses.
    - **Solid Waste Transfer Stations:** May also include commercial and industrial uses.
    - **Solid Waste Disposal Sites:** May also include industrial and recreation uses consistent with the buffer requirements of Table 1-5 of Part 1 of this Policy Document for recreational uses.

GOAL 6.G: To integrate air quality planning with the land use and transportation planning process.

- **Policy 6.G.1:** The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways. This includes traffic signals and traffic signal coordination, parallel

roadways, and intra- and inter-neighborhood connections where significant reductions in overall emissions can be achieved.

- **Policy 6.G.2:** The County shall continue and, where appropriate, expand the use of synchronized traffic signals on roadways susceptible to emissions improvement through approach control.

- **Policy 6.G.3:** The County shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.

- **Policy 6.G.4:** The County shall consider instituting disincentives for single-occupant vehicle trips, including limitations in parking supply in areas where alternative transportation modes are available and other measures identified by the Placer County Air Pollution Control District and incorporated into regional plans.

- **Policy 6.G.5:** The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.

- **Policy 6.G.6:** The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots, if suitably located.

- **Policy 6.G.7:** The County shall require stationary-source projects that generate significant amounts of air pollutants to incorporate air quality mitigation in their design.

Placer County Code

The Placer County Code (Placer County 2018) includes the following provisions related to air quality:

Section 10.14. Limitation on Engine Idling

The Placer County board of supervisors finds that:

A. Air pollution is a major public health concern in California. The Sacramento region is currently designated as non-attainment for the one-hour federal ozone standard, as well as the more stringent state ozone standard. Air pollution can cause or aggravate lung illnesses such as acute respiratory infections, asthma, chronic bronchitis, emphysema, and lung cancer. In addition to health impacts, air pollution imposes significant economic costs and negative impacts on our quality of life (nuisance).

B. Exhaust from vehicles (both on- and off-road) is a substantial source of ozone precursors in the Sacramento region. Vehicle exhaust is also a source of carbon monoxide, particulate matter, toxic air contaminants, and greenhouse gases. Although new engines have become cleaner due to improved emission control technologies; the slow turn over in their inventory and the number miles/hours these vehicles idle year is hindering progress to improving regional air quality.

C. Public agencies can play an important role in improving air quality by limiting the amount of time engines are allowed to idle within their jurisdiction. Public agencies have the responsibility to lead the effort to improve air quality by adopting ordinances that are cost effective in reducing ozone precursors emissions and toxic air contaminants. This article is based on and derived from the Sacramento Ozone Summit Model Engine Idling Ordinance.

D. A study of idling exhaust emissions conducted by the U.S. EPA (EPA420-R-02-025, October 2002) indicates that a typical 1980s-2001 model year truck operating on diesel fuel emits 144 grams per hour of nitrogen oxide and 8,224 grams per hour of carbon dioxide emissions and consumes about 0.82 gallons of diesel fuel while idling.

E. TIAX, a consultant for the Sacramento Air Quality Management District, estimated idling exhaust emissions from heavy heavy-duty diesel trucks, medium heavy-duty diesel trucks and off-road construction equipment to be 2.3 tons per day of nitrogen oxide emissions and 0.23 tons per day of reactive organic gas emissions (Control Measures OFMS 52 and ONMS 45, April 2003). The maximum emissions reductions from full implementation of the Limitation on Engine Idling Ordinance in the Sacramento region was estimated to be 1.725 tons per day of nitrogen oxides emissions and 0.173 tons per day of reactive organic gas emissions (assuming a 75 percent compliance).

F. Under this article, a limitation on engine idling is established by the board of supervisors to discourage the idling of engines in the unincorporated Placer County (Ord. 5271-B, 2003).

Section 10.20. Trip Reduction Program

The primary purposes of this article include the following:

A. Reduce total vehicle emissions in Placer County and South Placer region by reducing the number of vehicular trips that might otherwise be generated by home-to-work commuting.

B. Reduce traffic congestion in Placer County by reducing both the number of vehicular trips and the vehicular miles traveled that might otherwise be generated by home-to-work commuting.

C. Reduce or delay the need for major transportation facility improvements and reduce congestion by making efficient use of existing facilities.

D. Reduce present and future motor vehicle emissions as a contribution for complying with federal and state ambient air quality standards.

E. Implement measures that will work towards attainment of ambient air quality standards and compliance with congestion management program (CMP) requirements.

F. Increase the average vehicle ridership (AVR) during the weekday commute period ("peak period") to work towards goals set forth in the California Clean Air Act.

Specifically, Section 10.20.060 includes the detailed provisions for Trip Reduction Programs, including requiring employers to encourage use of alternative commute modes and, for employers of over 100 employees, identification of a transportation coordinator and preparation of a transportation plan designed to reduce vehicle trips. Section 10.20.070 outlines the requirements for transportation control measures (TCMs), such as designation of an employee transportation coordinator, posting ridesharing information and information about alternate transportation modes, bicycle parking facilities, and preferential carpool/vanpool parking. Several optional TCMs are also identified.

4.3.4 Analysis, Impacts, and Mitigation

STANDARDS OF SIGNIFICANCE

Based on the Placer County CEQA checklist and Appendix G of the State CEQA Guidelines, a project would result in a potentially significant impact on air quality if it would:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under any applicable NAAQS or CAAQS (including releasing emissions that exceed mass emission level standards for ozone precursors);

- expose sensitive receptors to substantial pollutant concentrations (including TACs); or
- create objectionable odors affecting a substantial number of people.

As stated in Appendix G of the State CEQA Guidelines, the significance criteria established by the applicable air district, in this instance PCAPCD, may be relied upon to make the above determinations. PCAPCD significance criteria are substantially similar to those of Appendix G, but with some additional specificity. As identified by PCAPCD, an air quality impact is considered significant if implementation of the project would result in (PCAPCD 2017a):

- construction-generated criteria air pollutant or precursor emissions that would exceed the PCAPCD-recommended threshold of 82 pounds per day (lb/day) for ROG, NO_X, or PM_{10} (PCAPCD 2017a:21), or operation-related (regional) emissions of ROG or NO_X that exceed a mass emission threshold of 55 lb/day, and emissions of PM_{10} that exceed 82 lb/day. While PCAPCD has not established a mass emission threshold for $PM_{2.5}$, which is a subset of PM_{10}, this analysis considers project-generated emissions of $PM_{2.5}$ to be significant if PCAPCD's thresholds for PM_{10} are exceeded (PCAPCD 2017a:21);
- long-term operational local mobile-source CO emissions that would result in an exceedance of the NAAQS and CAAQS for CO (PCAPCD 2017a:21);
- exposure of sensitive receptors to TAC emissions, from a single source, that would exceed 10 in 1 million for the carcinogenic risk (i.e., the risk of contracting cancer) or a noncarcinogenic Hazard Index of 1 for the maximally exposed individual (PCAPCD 2017a:58–62); or
- creation of an objectionable odor affecting a substantial number of people.

PCAPCD recommends that CO dispersion modeling be conducted if a project would result in emissions exceeding 550 lb/day of CO from mobile sources and if any roadway intersections affected by project traffic meet either of the following criteria:

- A traffic study for the project indicates that the peak-hour level of service (LOS) on one or more streets or at one or more intersections (signalized or unsignalized) in the project vicinity would be degraded from an acceptable LOS (e.g., A, B, C, or D) to an unacceptable LOS (e.g., E or F).
- A traffic study indicates that the project would substantially worsen an already unacceptable peak-hour LOS on one or more streets or at one or more intersections in the project vicinity. "Substantially worsen" includes situations in which a delay would increase by 10 seconds or more when project-generated traffic is included.

Projects emitting less than 550 lb/day of CO from mobile sources are not anticipated to exceed the NAAQS and CAAQS for CO (PCAPCD 2017a:38).

METHODS AND APPROACH

Regional and local criteria air pollutant emissions and associated impacts, as well as impacts from TACs, CO concentrations, and odors were assessed in accordance with Placer County- and PCAPCD-recommended methodologies.

Consistency with Air Quality Plans

Consistency of the project with air quality plans in the SVAB is based on whether the levels of growth associated with land use development under these plans were accounted for in the growth projections of the air quality plans adopted by PCAPCD.

Construction

Construction-related emissions of criteria air pollutants and precursors were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 computer program and Sacramento Metropolitan Air Quality Management District (SMAQMD) Roadway Construction Emissions Model, as recommended by PCAPCD. Modeling was based on project-specific information (e.g., size, number of units being built, acreage, energy information) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and proposed land use types.

Although the actual construction schedule is unknown, construction of the project area, South Basin of the Pleasant Grove Retention Facility, and off-site transportation and utility improvements were assumed to begin as early as 2021. Construction of the North Basin of the Pleasant Grove Retention Facility was assumed to begin as early as 2026. Actual construction may begin later than assumed; therefore, this assumption is conservative because emissions generated by construction are expected to decrease in the future with increased emission controls and standards. Construction of the land uses under the SAP is anticipated to last 80 years, and this analysis assumes the pace of construction will be consistent during this 80-year period. While buildout of the plan is anticipated to be 20 years, construction under the PRSP is anticipated to last 18 years and would be driven by market demand.

Construction of both North and South Basins of the Pleasant Grove Retention Facility are anticipated to last 5 years each with construction of the South Basin beginning in 2021 and finishing in 2025 and construction of the North Basin beginning in 2026 and finishing in 2030. Construction of each off-site transportation and utility improvement was assumed to last between 6 months and 1 year, depending on improvement type and size. For a detailed description of model input and output parameters and related assumptions, refer to Appendix K.

Operation

Operational emissions of criteria air pollutants and precursors were evaluated in accordance with PCAPCD-recommended methodologies. Emission modeling was conducted using CalEEMod Version 2016.3.1 and CARB's 2014 Emission Factor model (EMFAC2014). Emission estimates include long-term operational emissions of ozone precursors (i.e., ROG, NO_X) and criteria air pollutants (e.g., PM_{10}, $PM_{2.5}$) associated with mobile sources (i.e., vehicle trips) and stationary sources (e.g., area-wide and energy consumption). Overall, operational modeling was based on project-specific information, where available, and CalEEMod defaults. For detailed modeling inputs and results, refer to Appendix K.

Regarding area sources, specifically wood-burning appliances, CalEEMod defaults for the unmitigated analysis assume a portion of all residential types include some wood-burning and some natural gas operated appliances. However, per PCAPCD Rule 225, wood-burning appliances are prohibited within new multi-family residential units in Placer County. Thus, CalEEMod defaults were adjusted by replacing the default number of wood-burning appliances in multi-family residential land uses with natural gas appliances. Default wood-burning appliances for single-family residential land uses were not altered. Emissions associated with building energy use were based on proposed land uses and CalEEMod defaults for energy consumption.

To estimate mobile-source emissions associated with the project, CalEEMod modeling was performed using traffic data provided by the traffic study conducted for the project (Fehr & Peers 2018). The project-specific traffic study estimated daily VMT associated with operation of the land uses developed under the SAP and PRSP, separately. CalEEMod estimates exhaust emissions of criteria air pollutants and precursors as well as emissions of fugitive road dust consisting of both PM_{10} and $PM_{2.5}$, which are a function of VMT. In estimating mobile-source emissions, CalEEMod uses EMFAC2014-sourced emission factors for every calendar year in which operations would occur through 2030 and then every 5 years past 2030 (i.e., 2035, 2040, 2045, etc.) These emission factors are reflective of legislative requirements for on-road motor vehicles in place at the time of writing this EIR. However, CalEEMod and EMFAC2014 only have emission factors through calendar year 2050. Because the 80-year buildout period of the net SAP area would extend beyond 2050, emission factors for 2050 are used for all years after 2050. Emission factors for 2040 are used for the PRSP area. CalEEMod VMT default assumptions were adjusted to match project-specific VMT. See Appendix K for modeling inputs and assumptions.

Mobile CO Emissions

CO dispersion modeling was conducted using CALINE 4 Version 2.1, available from the California Department of Transportation (Caltrans) (Caltrans 2011). The modeling assumptions were based on guidance provided in the CO Protocol recommended by Caltrans (Caltrans 2010). Each intersection was modeled for the 1-hour CO concentration, conservatively using worst-case assumptions, as identified below. Concentrations were modeled for four receptors located 3 meters from the edge of the intersection roadway, one in each corner. Intersection dimensions were based on the anticipated number of lanes by roadway segment for each plan scenario, as provided by Fehr & Peers (Shafer, pers. comm., 2018).

The primary modeling inputs and assumptions are as follows:

- The suburban aerodynamic roughness coefficient was selected to best characterize the suburban terrain profile in the project area.
- The model's minimum wind speed of 0.5 meter per second (m/s) and atmospheric stability class of 7 (<3.5 m/s) were selected to represent stable wind conditions with low levels of mixing and dispersion.
- The mixing height was assumed to be 1,000 meters to represent the height of the atmospheric boundary layer.
- Based on meteorological data for the Lincoln Regional Airport, the ambient temperature assumption was 48°F, representative of temperatures between 2015 and 2017 (NOAA 2018). This is consistent with the worst-case temperature adjustment in the CO Protocol, which recommends an ambient temperature of 5°F above the lowest January average minimum evening temperature over a representative 3-year period (NOAA 2018; Caltrans 2010: Table B.7). The identified intersections exceed PCAPCD screening criteria in the p.m. peak hour.
- The background 1-hour CO concentration was conservatively assumed to be 2.3 parts per million (ppm), based on highest recorded values at the North Highlands-Blackfoot station in the three most recent years of available data, as shown in Table 4.3-2.
- An average vehicle CO emission factor (2.74 grams per mile) was calculated from EMFAC 2017 emission factors for the 5-mile-per-hour speed bin, 2020 calendar year, and Placer County SVAB subarea across all vehicle categories. Given that project buildout would not occur until after 2030 and that vehicle emissions decline over time, 2020 emission factors were used as a conservative assumption.

A generalized persistence factor of 0.6 was applied to the resulting 1-hour concentration to estimate the 8-hour concentration from the modeled 1-hour concentration estimates, as recommended in the CO Protocol for suburban areas (Caltrans 2010:Table B.15). Additional detailed assumptions are found in Appendix K.

Health Risk

Health risks from project-generated construction- and operational-related emissions of TACs were assessed qualitatively. This assessment is based on the location from which construction- or operational-related TAC emissions would be generated by land uses developed under the project relative to nearby sensitive receptors as construction occurs, as well as the duration of TAC exposure.

Odors

The determination of whether implementing the project would create objectionable odors affecting a substantial number of people is based on their proximity to existing odor sources, including the WRSL; odor complaint history of those sources; direct and indirect contribution of the project to future odors; and potential future odor-abatement measures that may be implemented.

PROPOSED SUNSET AREA PLAN GOALS, OBJECTIVES, AND POLICIES

The following proposed goals, objectives, and policies in the Natural Resources section of the SAP address air quality:

GOAL NR-5: To protect and improve air quality in the Sunset Area.

- **Policy NR-5.1: PCAPCD Review.** The County shall submit new development proposals to the PCAPCD for review and comment in compliance with CEQA prior to project consideration by the appropriate decision-making body.

- **Policy NR-5.2: Air Quality Analysis and Mitigation Plan.** Developments that meet or exceed thresholds of significance for ozone precursor pollutants and GHG emissions, as adopted by the Placer County Air Pollution Control District (PCAPCD), shall be deemed to have a significant environmental impact. The County shall require submittal of an Air Quality Analysis and Mitigation Plan prior to project approval, subject to review and recommendation as to technical adequacy by the PCAPCD.

- **Policy NR-5.3: Air Quality Analysis.** The County shall require discretionary projects under CEQA review, where the project exceeds the PCAPCD's screening criteria, to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures to reduce potentially significant air quality impacts, to the extent feasible.

- **Policy NR-5.4: Construction Emission/Dust Control Plan.** For discretionary projects, where ground disturbance activity will exceed one acre, the County shall require approval of a Construction Emission/Dust Control Plan from PCAPCD, prior to ground breaking activity.

- **Policy NR-5.5: Construction Exhaust Emissions.** The County shall require new development to incorporate the use of Best Available Control Technologies (BACT) for the control of construction exhaust emissions. PCAPCD shall be consulted to determine the appropriate BACT measures available (e.g., regular tune-ups, cleaner burning conventional fuels, alternative fueled vehicles and equipment).

- **Policy NR-5.6: Emission Reduction Compliance.** The County shall review new development to demonstrate to the County and the PCAPCD compliance with California State Air Resources Board (CARB) and PCAPCD Rules and Regulations to reduce emissions from fuel consumption, energy consumption, surface coating operations, and solvent usage.

- **Policy NR-5.7: Buffers for Air Pollution and Odor.** The County, in coordination with the PCAPCD, shall require the establishment of buffers and/or other appropriate mitigation on a project-by-project basis to provide for protection of sensitive receptors from sources of air pollution or odor.

- **Policy NR-8: Chlorofluorocarbon Recovery.** The County shall require the recovery of chlorofluorocarbons (CFCs) when older air conditioning and refrigeration units are serviced or disposed.

- **Policy NR-5.9: Cool Community Strategies.** The County shall promote Cool Community strategies to cool the urban heat island, reduce energy use and ozone formation, and maximize air quality benefits by requiring new development to implement four key strategies: plant trees, selective use of vegetation for landscaping, install cool roofing, and install cool pavements.

- **Policy NR-5.10: Particulate Matter Control.** The County shall support PCAPCD's particulate matter control for residential wood-burning and fugitive dust.

GOAL NR-7: To integrate air quality improvement with the land use and transportation planning process.

- **Policy NR-7.1: Vehicle Emission Reduction Through Project Design.** The County shall evaluate new development projects which have the potential to generate a significant amount of vehicle emissions

due to high employment levels or due to a high level of patronage and shall require that effective mitigation strategies be incorporated in the project design.

- **Policy NR7.2: Alternative Transportation.** The County shall require that new development projects be designed to promote pedestrian/bicycle access and circulation to encourage residents and employees to use alternative transportation modes to reduce air contaminant emission. This includes providing secure bicycle parking and storage.

- **Policy NR-7.4: Transit Funding.** The County shall support the Placer County Transportation Planning Agency's efforts to secure adequate transit funding to increase the effectiveness and viability of transit. The County shall require new development to pay its fair share of the cost of transit facilities required to serve the new development.

- **Policy NR-7.5: Transportation Control Measures.** The County shall require project proponents to consult with the County early in the planning process regarding the applicability of countywide indirect and area-wide source-reduction programs and transportation control measure programs. County review of new development projects shall also address energy-efficient building and site designs and proper storage, use, and disposal of hazardous materials.

- **Policy NR-7.6: Mixed-Use, Increased Intensity Development.** The County shall promote mixed-use development and increased development intensity along existing and proposed transit corridors to reduce the length and frequency of vehicle trips.

- **Policy NR-7.7: Efficient Traffic Control.** The County shall implement high-efficiency traffic control strategies such as synchronized signals and roundabouts to reduce vehicle emissions.

- **Policy NR-7-8: Roadway Infrastructure Demand Reduction.** The County shall encourage vehicle trip reduction and improved air quality by requiring new development projects that exceed PCAPCD's significance thresholds for operational emissions to provide on-going, cost-effective mechanisms for transportation services that help reduce the demand for existing roadway infrastructure.

- **Policy NR-7.9: Dedicated Land for Park-and-Ride Lots.** The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots.

- **Policy NR-7-10: Construction Worker Vehicle Trip Reduction.** The County shall require new development to consult the County and PCAPCD concerning feasible transportation alternatives to reduce construction worker vehicle trips and associated vehicle exhaust emissions.

- **Policy NR-7-11: County Facilities and Operations.** The County shall comply with CARB and PCAPCD Rules and Regulations for Placer County facilities and operations to reduce emissions from fuel consumption, energy consumption, surface coating operations, and solvent usage.

- **Policy NR-7.12: Air Quality Monitoring Improvements.** The County shall support PCAPCD's development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of the County plans and proposals.

- **Policy NR-7.13: Tailpipe Emissions Standards.** The County shall support intergovernmental efforts directed at stricter tailpipe emissions standards.

- **Policy NR-7.14: Vehicle Idling Restriction**. The County shall prohibit the idling of on-and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period greater than five minutes in any one-hour period.

- **Policy NR-7.15: Alternative Fuel Vehicle Infrastructure.** To the extent feasible, the County shall require the incorporation of alternative vehicle charging and fuel stations, such as electric vehicle charging

stations, bio-diesel fueling stations, and hydrogen fueling stations, that are accessible to the public to reduce use of fossil fuel and other nonrenewable resources. This includes the design of an electric box in all residential unit garages and at places of employment to promote electric vehicle usage and the provision of charging stations for electric vehicles at multi-family residences and retail, light industrial, office, hotel, entertainment, and mixed-use buildings.

- **Policy NR-7.16: Low-Emission Fleet Vehicles.** The County shall encourage businesses to purchase low-emission, fuel-efficient vehicles and phase out use of diesel-fuel vehicles wherever feasible.

PROPOSED PLACER RANCH SPECIFIC PLAN DEVELOPMENT STANDARDS AND DESIGN GUIDELINES

Neither the PRSP Development Standards nor the Design Guidelines include material that addresses air quality, however the PRSP will comply with the goals and policies contained within the SAP.

IMPACTS AND MITIGATION MEASURES

Impact 4.3-1: Consistency with applicable air quality plans

PCAPCD and other air districts in the SVAB developed air quality plans to enable the region to achieve attainment of the federal 8-hour ozone standard and the California 1-hour and 8-hour ozone standards. These air quality plans are based on an inventory of existing emission sources as well as projections about the future level of land use development in the SVAB. Because the levels of growth associated with the project were accounted for in these projections of emissions-generating activity, the project would be consistent with applicable air quality plans. This impact would be **less than significant.**

Net SAP Area

PCAPCD and other air districts with jurisdiction in the SVAB developed the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (Draft 2017 SIP Revisions)* to address attainment of the 8-hour NAAQS for ozone (El Dorado County Air Quality Management District et al. 2017). Similarly, the *2015 Triennial Progress Report* addresses the attainment of the 1-hour and 8-hour CAAQS for ozone (SMAQMD 2016). A project in the SVAB, including a land use development plan, has the potential to conflict with the *Draft 2017 SIP Revisions* if the level of ozone precursor emissions associated with the project would be greater than the projection used in the *Draft 2017 SIP Revisions*. Regional emission inventories in the *Draft 2017 SIP Revisions* are developed based on anticipated growth in population, housing, and other parameters, which are based on the zoning designations of local general plans. The *Placer County General Plan* is the applicable local general plan for the SAP. Development under the 1997 *Sunset Industrial Area Plan* (which the proposed project updates) was accounted for in the *Placer County General Plan*.

In general, a land use development project or plan would not interfere with the applicable air quality plans if it is consistent with the growth assumptions used to form the applicable air quality plans. Impacts to regional air quality are controlled through policies and provisions of PCAPCD, the *Placer County General Plan*, the *Draft 2017 SIP Revisions*, and the *2015 Triennial Progress Report*.

The Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy 2036 (MTP/SCS 2036) EIR is based on growth assumptions from all general plans in the region, including the 2013 *Placer County General Plan* (SACOG 2015). Because SACOG's MTP/SCS 2036 must demonstrate consistency with regional air quality planning efforts, it is consistent with both the *Draft 2017 SIP Revisions* and the *2015 Triennial Progress Report*. The SAP area, which is referred to as the Sunset Industrial Community Plan area in SACOG's MTP/SCS 2036, was identified as a "developing community" in SACOG's MTP/SCS 2036 (SACOG 2016:132 in Appendix E-3). A developing community is defined in SACOG's MTP/SCA as the next increment of urban expansion (SACOG 2016:3-27). Therefore, development under the SAP would be consistent with all applicable air quality plans. This impact would be less than significant.

PRSP Area

Development under the PRSP was considered in the MTP/SCS 2036 at an intensity greater than what is analyzed in this EIR. The MTP/SCS 2036 assumed that the land use development under the PRSP would support 6,740 housing units and 20,155 jobs (SACOG 2016:25 in Appendix E-3) whereas the PRSP area is planned to support 5,827 housing units and 16,488 jobs. Because the level of development assumed was more intensive in the MTP/SCS, development under the PRSP would be consistent with the MTP/SCS 2036 and, in turn, consistent with all applicable air quality plans. Consistent with the conclusion identified for the SAP, above, this impact would be less than significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

After its construction, operation of the Pleasant Grove Retention Facility would not involve the direct operation of stationary or area sources of emissions or the generation of new vehicle trips. Thus, operation of Pleasant Grove Retention Facility would not conflict with or obstruct implementation of the applicable air quality plans. There would be no impact.

Off-Site Transportation and Utility Improvements

After their construction, the off-site transportation and utility improvements would not directly result in an increase in emissions of criteria air pollutants or precursors. While the off-site transportation improvements would accommodate increased vehicle trips in the region, the associated mobile-source emissions are accounted for in the above analyses of the net SAP area and PRSP area. Therefore, these off-site improvements would not conflict with or obstruct implementation of the applicable air quality plans. There would be no impact.

Conclusion

Development under the project was considered in SACOG's MTP/SCS 2036 and in the *Placer County General Plan*. Therefore, development under the project would be consistent with applicable air quality plans. The impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.3-2: Construction emissions of criteria air pollutants and ozone precursors

Construction-related activities would result in project-generated emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from site preparation, off-road equipment, material and equipment delivery trips, worker commute trips, building construction, and other miscellaneous activities. Construction activities would result in mass emissions of ROG, NO_X, and PM_{10} that exceed PCAPCD's thresholds of 82 lb/day. Therefore, construction-generated emissions of criteria air pollutants and ozone precursors could contribute to the existing nonattainment status of the SVAB with respect to the NAAQS and the CAAQS for ozone and the CAAQS for PM_{10}. Because $PM_{2.5}$ is a subset of PM_{10}, it is anticipated that construction-generated emissions of $PM_{2.5}$ could contribute to the nonattainment status of the SVAB with respect to the NAAQS for $PM_{2.5}$. This impact would be **significant**.

The project's construction-related activities would result in emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ (a subset of PM_{10}) from site preparation (e.g., excavation, clearing), off-road equipment, material delivery, worker commute trips, building construction, and other miscellaneous activities (e.g., asphalt paving, application of architectural coatings). Fugitive dust emissions of PM_{10} and $PM_{2.5}$ are associated primarily with grading during the site preparation phase and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and VMT on and off the site. Emissions of ozone precursors, ROG, and NO_X are associated primarily with construction equipment and on-road mobile exhaust. Paving and the application of architectural coatings result in off-gas emissions of ROG. PM_{10} and $PM_{2.5}$ are also contained in vehicle exhaust.

Typical construction activities would require all-terrain forks, forklifts, cranes, pick-up and fuel trucks, compressors, loaders, backhoes, excavators, dozers, scrapers, pavement compactors, welders, concrete pumps, concrete trucks, off-road haul trucks, as well as other diesel-fueled equipment as necessary. On-road haul trucks would be used to deliver equipment and supplies, and on-road passenger vehicles would be used for worker commute trips.

Table 4.3-5 below summarize construction emissions from project construction by development area and infrastructure project and by the calendar year when construction activity may occur.

Net SAP Area

Construction of land uses under the net SAP could begin as early as 2021 and last approximately 80 years. The emission estimates presented in Table 4.3-5 assume construction would take place at a consistent pace over an 80-year period. Ultimately, however, construction phasing would be driven by market conditions in any given year. Thus, the level of construction activity and associated emissions would likely be higher some years than in others. As construction continues in the future, equipment exhaust emission rates would decrease as newer, more emission-efficient construction equipment replaces older, less efficient equipment. For specific assumptions and modeling inputs, refer to Appendix K.

Table 4.3-5 summarizes the modeled maximum daily emissions from the construction activities for the net SAP area in 10-year increments. The table shows how emissions are expected to decrease as the fleet of older construction equipment is replaced by a newer, more emission-efficient fleet. However, emission reductions are only known through the year 2050, as the effect of existing regulation extends until that time. Thus, emission modeling ends at 2050 for the purposes of this analysis, even though buildout of the net SAP is expected to extend beyond 2050.

As shown in Table 4.3-5, if construction were to occur at a consistent pace during an 80-year buildout period, maximum daily emissions of ROG, NO_X, or PM_{10} would not exceed applicable thresholds through the anticipated buildout period. However, the amount of new construction that would occur under the net SAP would vary from year to year based on market conditions. There could be no new construction during some years and a boom in construction during other years. During boom periods, the level of construction activity could generate daily emission levels of ROG and NO_X substantially higher than the levels show in Table 4.3-5 that exceed PCAPCD's threshold of 82 lb/day. For instance, if six times the average rate of construction took place during the same period, then associated emissions of ROG would exceed PCAPCD's threshold of 82 lb/day. Similarly, if two times the average rate of construction took place during the same period, then associated emissions of NO_X could exceed PCAPCD's threshold of 82 lb/day. Moreover, the mass emission threshold for PM_{10} would be exceeded if five times the average rate of construction took place during the same period. Thus, there may be periods during the buildout of the net SAP area when construction-related emissions of ozone precursors, ROG and NO_X, as well as emissions of PM_{10} would exceed PCAPCD's recommended thresholds and thereby contribute to the existing nonattainment status of the SVAB with respect to the CAAQS and NAAQS for ozone, PM_{10}, and $PM_{2.5}$. This impact would be significant.

PRSP Area

The PRSP area construction activities could begin as early as 2021 and be complete as early as 2038. Ultimately, construction phasing and activities would be driven by prevailing market conditions in any given year. Annual construction intensity was based on the maximum level of development anticipated for the PRSP and assumed a constant level of construction over the 18-year build out period. For specific assumptions and modeling inputs, refer to Appendix K.

Table 4.3-5 summarizes the modeled maximum daily emissions from construction activities by year over the 18-year buildout period (ending in 2038). Note that although the buildout period is estimated to last 18 years, it is assumed that construction of all the land uses proposed under the PRSP would be completed by 2041. As actual construction phasing is unknown, it is possible that emissions may exceed or be below the emissions shown in Table 4.3-5 during any single year.

Table 4.3-5 Summary of Maximum Daily Emissions of Criteria Air Pollutants and Ozone Precursors Associated with Project Construction (Unmitigated)

Year	ROG (lb/day)					NO_X (lb/day)					PM_{10} (lb/day)															$PM_{2.5}$ (lb/day)				
											Fugitive					Exhaust					Total									
	SAP	PRSP	PG	OI	Total[1]	SAP	PRSP	PG	OI	Total[1]	SAP	PRSP	PG	OI	Total[1]	SAP	PRSP	PG	OI	Total[1]	SAP	PRSP	PG	OI	Total[1]	SAP	PRSP	PG	OI	Total[1]
2021	16	26	13	15	**70**	46	280	184	159	**670**	18	95	48	13	**174**	2	13	5	7	**27**	20	108	54	20	**201**	12	60	31	9	**113**
2022	16	45	12	6	**77**	46	146	159	55	**407**	18	13	34	10	**75**	2	7	5	3	**16**	20	20	39	13	**91**	12	9	17	4	**43**
2023	16	6	10	6	**37**	46	58	134	55	**293**	18	31	34	10	**93**	2	2	4	3	**11**	20	33	38	13	**103**	12	19	17	4	**52**
2024	16	22	10	6	**53**	46	36	127	55	**264**	18	4	34	10	**66**	2	1	4	3	**9**	20	5	38	13	**76**	12	2	17	4	**35**
2025	16	15	9	6	**45**	46	139	114	55	**354**	18	90	34	10	**153**	2	6	3	3	**13**	20	96	37	13	**166**	12	54	16	4	**87**
2026	16	58	3	6	**83**	46	93	33	55	**228**	18	16	18	10	**62**	2	3	1	3	**9**	20	19	19	13	**71**	12	7	11	4	**34**
2027	16	16	3	0	**35**	46	153	33	0	**233**	18	100	9	0	**127**	2	6	1	0	**9**	20	106	10	0	**136**	12	6	5	0	**23**
2028	16	54	3	0	**73**	46	124	33	0	**204**	18	4	9	0	**31**	2	5	1	0	**8**	20	9	10	0	**39**	12	6	5	0	**23**
2029	16	14	3	0	**32**	46	130	33	0	**209**	18	84	9	0	**111**	2	5	1	0	**8**	20	90	10	0	**119**	12	51	5	0	**68**
2030	15	46	3	0	**65**	14[2]	56	19	0	**88**	18	7	9	0	**34**	0	2	0	0	**3**	19	8	9	0	**36**	10	3	4	0	**18**
2031	15	25	0	0	**40**	14	121	0	0	**135**	18	135	0	0	**153**	0	4	0	0	**4**	19	138	0	0	**157**	10	77	0	0	**87**
2032	15	131	0	0	**147**	14	121	0	0	**135**	18	27	0	0	**45**	0	2	0	0	**3**	19	28	0	0	**47**	10	8	0	0	**19**
2033	15	22	0	0	**37**	14	97	0	0	**111**	18	120	0	0	**138**	0	3	0	0	**4**	19	123	0	0	**142**	10	69	0	0	**79**
2034	15	67	0	0	**83**	14	96	0	0	**110**	18	17	0	0	**35**	0	2	0	0	**3**	19	18	0	0	**37**	10	6	0	0	**16**
2035	15	21	0	0	**36**	14	91	0	0	**104**	18	129	0	0	**147**	0	2	0	0	**3**	19	131	0	0	**150**	10	73	0	0	**83**
2036	15	80	0	0	**96**	14	91	0	0	**104**	18	14	0	0	**32**	0	1	0	0	**2**	19	15	0	0	**33**	10	5	0	0	**15**
2037	15	8	0	0	**23**	14	35	0	0	**49**	18	48	0	0	**67**	0	1	0	0	**2**	19	49	0	0	**68**	10	27	0	0	**38**
2038	15	28	0	0	**43**	14	35	0	0	**49**	18	5	0	0	**23**	0	1	0	0	**1**	19	5	0	0	**23**	10	1	0	0	**12**
2040-2048	15	0	0	0	**15**	12	0	0	0	**12**	18	0	0	0	**18**	0	0	0	0	**1**	18	0	0	0	**18**	10	0	0	0	**10**
2049-Buildout	15	0	0	0	**15**	12	0	0	0	**12**	18	0	0	0	**18**	0	0	0	0	**0**	18	0	0	0	**18**	10	0	0	0	**10**
PCAPCD Threshold of Significance	**82**					**82**					**82**															**NA**				

Notes: ROG = reactive organic gases; NO_X = nitrous oxide; PM_{10} = particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less; PRSP = Placer Ranch Specific Plan area; SAP = net Sunset Area Plan area; PG = Pleasant Grove; OI = off-site transportation and utility improvements.

[1] Totals may not sum exactly due to rounding.

[2] NO_X emissions decrease when more stringent vehicle emission standards take effect, per state legislation.

Net SAP area construction assumed to take place at a constant pace over an 80-year buildout period. PRSP area construction assumed to last 18 years, following order of infrastructure phasing plan. Pleasant Grove Retention Facility assumed to last 5 years for each basin (10 years total). Off-site transportation and utility improvements assumed to be constructed simultaneously over 7-year period.

Source: Modeling conducted by Ascent Environmental in 2018

As shown in Table 4.3-5, maximum daily emissions of ROG, NO_X, and PM_{10} could potentially exceed applicable thresholds during various years of the estimated 18-year buildout period. Based on the assumptions used in the modeling maximum daily emissions of ROG, NO_X, and PM_{10} could be as high as 131 lb/day, 280 lb/day, and 138 lb/day, respectively. Thus, there would be periods during the buildout of the SAP area when construction-related emissions of ozone precursors, ROG and NO_X, as well as emissions of PM_{10} would exceed PCAPCD's recommended thresholds and thereby contribute to the existing nonattainment status of the SVAB with respect to the CAAQS and NAAQS for ozone, PM_{10}, and $PM_{2.5}$. This impact would be significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

Construction of the South Basin of the Pleasant Grove Retention Facility was assumed to begin in 2021 and conservatively estimated to be complete in 5 years. Construction of the 10-acre North Basin of the Pleasant Grove Retention Facility was assumed to begin in 2026 and also estimated to take 5 years. Construction of both retention basins would involve the excavation and movement of 1,251,900 cubic yards of earthen material from 93 acres of the basin area to 154 acres of upland area on the site. This would be a more intense level of earth movement and associated heavy-duty, off-road equipment than the grading phases of land uses developed under the project. For specific assumptions and modeling inputs, refer to Appendix K.

As shown in Table 4.3-5, maximum daily emissions of ROG and PM_{10} would not exceed applicable thresholds during the construction of the Pleasant Grove Retention Facility. However, NO_X emissions generated during construction of these facilities would exceed the PCAPCD-recommended threshold. Based on the assumptions used in the modeling maximum daily emissions of NO_X could be as high as 184 lb/day, and thereby contribute to the existing nonattainment status of the SVAB with respect to the CAAQS and NAAQS for ozone. This impact would be significant.

Off-Site Transportation and Utility Improvements

It was assumed that construction of off-site transportation and utility improvements would begin in 2021 and each improvement would be completed in approximately 6 months; except the bridge connection on Foothills Boulevard South, which would be completed in 12 months. Reported emissions represent a conservative estimate of maximum daily emissions because all improvements were expected to be constructed simultaneously. However, actual construction phasing of off-site improvements is unknown at this time. For specific assumptions and modeling inputs, refer to Appendix K.

As shown in Table 4.3-5, maximum daily emissions of ROG and PM_{10} would not exceed applicable thresholds throughout the buildout period. However, NO_X emissions associated with construction of the bridge connection on Foothills Boulevard South would exceed the PCAPCD-recommended threshold of 82 lb/day. Based on the assumptions used in the modeling maximum daily emissions of NO_X could be as high as 159 lb/day and thereby contribute to the existing nonattainment status of the SVAB with respect to the CAAQS and NAAQS for ozone. This impact would be significant.

Conclusion

Construction emissions associated with the net SAP, PRSP, Pleasant Grove Retention Facility, and the off-site transportation and utility improvements would exceed applicable thresholds for ROG, NO_X, and PM_{10}, and thus contribute to the existing nonattainment status of the SVAB with respect to the CAAQS and/or NAAQS for ozone, PM_{10}, and $PM_{2.5}$. This impact would be **significant**.

Mitigation Measures

Mitigation Measure 4.3-2a: Implement PCAPCD's recommended construction mitigation measures (Net SAP Area and PRSP Area)

Project proponents shall require their construction contractors to implement all of PCAPCD's recommended construction mitigation measures in place at the time of grading / improvement plan submittal. At the time of

writing this EIR, PCAPCD's recommended construction mitigation measures include measures to address exhaust emissions and dust control (PCAPCD 2017a). This measure would assist the project in achieving compliance with SAP Policies NR-5.4 and NR-5.5.

- Prior construction activity, the contractor shall submit a Construction Emission/Dust Control Plan to Placer County Air Pollution Control District (PCAPCD) when the project area to be disturbed is greater than one acre. The Dust Control Plan shall be submitted to the APCD a minimum of 21 days before construction activity is scheduled to commence. The Dust Control Plan can be submitted online via the fill-in form: http://www.placerair.org/dustcontrolrequirements/dustcontrolform.

- The contractor shall submit to the PCAPCD a comprehensive equipment inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower of 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 contractor shall contact the PCAPCD before the new equipment being utilized. At least three business days before the use of subject heavy-duty off-road equipment, the project representative shall provide the PCAPCD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman.

- With submittal of the equipment inventory, the contractor shall provide a written calculation for approval to PCAPCD demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project (i.e., owned, leased, and subcontractor vehicles), will achieve a project-wide fleet-average of 20 percent of NO_X and 45 percent of diesel PM reduction as compared to the CARB statewide fleet average emissions. Acceptable options for reducing emissions may include the 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. The following link shall be used to calculate compliance with this condition and shall be submitted to the APCD as described above: http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation (click on the current "Construction Mitigation Tool" spreadsheet under Step 1. If, due to increasingly stringent emissions standards and decreasing CARB statewide fleet average emissions, construction contractors cannot demonstrate the aforementioned emissions reductions, the following would apply.

    - Incorporate all PCAPCD-recommended emission control measures available at the time of grading or improvement plan submittal, and comply with the State Off-Road Regulation by using diesel construction equipment meeting CARB's Tier 3 standard, or the highest tier available, for on-road and off-road heavy-duty diesel engines. Proof shall be submitted along with the written calculation of the emissions reduction achieved, incorporated additional measures, and engine model-year to be used for all equipment. Proof shall also include submittal of the CARB compliance certificate of the construction fleet to be used.

Dust Control Measures

Include the following standard notes on all Grading or Improvement Plans submitted for construction within the net SAP area or PRSP area:

- The contractor shall suspend all grading operations when fugitive dust exceeds PCAPCD Rule 228 Fugitive Dust limitations. Fugitive dust is not to exceed 40 percent opacity, nor go beyond the property boundary at any time. Lime or other drying agents utilized to dry out wet grading areas shall not exceed PCAPCD Rule 228 limitations.

- The contractor shall be responsible for keeping adjacent public thoroughfares clean of silt, dirt, mud, and debris, and shall "wet broom" the streets (or use another method to control dust as approved by the individual jurisdiction) if silt, dirt, mud or debris is carried over to adjacent public thoroughfares. (PCAPCD Rule 228)

- During construction activity, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less. (PCAPCD Rule 228)

- The contractor shall apply methods such as surface stabilization, the establishment of a vegetative cover, paving, (or use another method to control dust as approved by Placer County) to minimize wind-driven dust.
- The contractor shall apply water or use another method to control dust impacts offsite. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site. (PCAPCD Rule 228)
- The contractor shall suspend all grading operations when wind speeds (including instantaneous gusts) are excessive, and dust is impacting adjacent properties. (PCAPCD Rule 228)

Exhaust Control Measures

Include the following standard notes on Grading or Improvement Plans submitted for construction:

- The contractor shall ensure all construction equipment is maintained properly according to manufacturer's specifications.
- The contractor shall fuel all off-road and portable diesel-powered equipment with CARB-certified motor vehicle diesel fuel (non-taxed version suitable for off-road use). The contractor shall not discharge into the atmosphere volatile organic compounds (VOCs) caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance unless such manufacture or use complies with the provisions of Rule 217.
- The contractor shall utilize existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators and use electrified equipment when feasible.
- During construction activity, no open burning of removed vegetation shall be allowed unless permitted by the District. All removed vegetative material shall be either chipped on site or taken to an appropriate recycling site, or if a site is not available, a licensed disposal site. (District Regulation 3)
- The contractor shall minimize idling time to a maximum of 5 minutes for all diesel-powered equipment. (Placer County Code Chapter 10, Article 10.14; SAP Policy NR-7.14).
- Idling of construction-related equipment and construction-related vehicles is not permitted within 1,000 feet of any sensitive receptor (i.e., house, hospital, or school).
- Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors.
- Construction equipment exhaust emissions shall not exceed PCAPCD Rule 202 Visible Emissions limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified by the PCAPCD to cease operations, and the equipment must be repaired within 72 hours. (PCAPCD Rule 202)
- Operators of vehicles and equipment found to exceed opacity limits will be notified by the PCAPCD, and the equipment must be repaired within 72 hours. (PCAPCD Rule 228)
- Any device or process that discharges 2 pounds per day or more of air contaminants into the atmosphere, as defined by Health and Safety Code Section 39013, may require a PCAPCD permit.
- Developers/contractors should contact the PCAPCD before construction and obtain any necessary permits before the issuance of a Building Permit. (PCAPCD Rule 501)
- The contractor shall submit to the PCAPCD a comprehensive equipment inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower of 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 contractor shall contact the PCAPCD before the new equipment being utilized. At least three business days before the use of subject heavy-duty off-road equipment, the project representative shall provide the PCAPCD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman.

- With submittal of the Dust Control Plan to the PCAPCD, the contractor shall provide a written calculation for approval to PCAPCD demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project (i.e., owned, leased, and subcontractor vehicles), will achieve a project-wide fleet-average of 20 percent of NO_X and 45 percent of diesel PM reduction as compared to the CARB statewide fleet average emissions. Acceptable options for reducing emissions may include the 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. If, because of increasingly stringent emissions standards and decreasing CARB statewide fleet average emissions, construction contractors cannot demonstrate the aforementioned emissions reductions, the following would apply.

Mitigation Measure 4.3-2b: Implement PCAPCD's recommended construction mitigation measures (Other Supporting Infrastructure)

To ensure construction contractors for activities occurring outside of Placer County incorporate all available and feasible construction mitigation measures to reduce fugitive dust and exhaust emissions, Placer County shall coordinate with the City of Roseville to include specific requirements for dust suppression and exhaust emission reductions, as outlined above in Mitigation Measure 4.3-2a, as notes on Grading or Improvement Plans submitted for construction.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-2a would reduce fugitive dust PM emissions by approximately 54 percent (SMAQMD 2018), NO_X by up to 20 percent, and exhaust PM emissions by up to 45 percent. Based on requirements included in Mitigation Measure 4.3-2a, achievable reductions were calculated and are shown in Table 4.3-6. Mitigation Measure 4.3-b would achieve the same level of reductions as Mitigation Measure 4.3-2a but would only apply to construction activities occurring at the Pleasant Grove Retention Facility site and off-site transportation and utility improvements, areas outside the project area and the jurisdiction of Placer County. Because Placer County does not have land use authority over activities occurring beyond the county lines, emissions reductions attributed to Mitigation Measure 4.3-2b cannot be guaranteed and were not included in the mitigated emissions summary in Table 4.3-6. Implementation of Mitigation Measures 4.3-2a and 4.3-2b would also reduce greenhouse gas emissions associated with project construction.

With incorporation of all available mitigation measures, construction emissions associated with the net SAP and PRSP alone, not considering the other supporting infrastructure, would continue to exceed PCAPCD-recommended thresholds of significance for NO_x and PM_{10}. NO_X emissions associated with the Pleasant Grove Retention Facility and off-site transportation and utility improvements would exceed PCAPCD thresholds of significance for some years of construction and mitigation measures for these activities cannot be enforced.

In summary, because of the scale and extent of construction activities that would occur, as well as the uncertainty of specific construction activities and timing, construction activities could overlap, resulting in emissions that exceed PCAPCD's daily construction thresholds and contribute further to the nonattainment status of the SVAB. This impact would remain **significant and unavoidable.**

Table 4.3-6 Summary of Maximum Daily Emissions of Criteria Air Pollutants and Ozone Precursors Associated with Project Construction (Mitigated)

Year	ROG (lb/day)					NO_X (lb/day)					PM_{10} (lb/day)															$PM_{2.5}$ (lb/day)				
											Fugitive					Exhaust					Total									
	SAP	PRSP	PG	OI	**Total**	SAP	PRSP	PG	OI	**Total**	SAP	PRSP	PG	OI	**Total**	SAP	PRSP	PG	OI	**Total**	SAP	PRSP	PG	OI	**Total**	SAP	PRSP	PG	OI	**Total**
2021	16	26	13	15	**70**	37	237	184	159	**618**	8	49	48	13	**118**	1.1	8.3	5	7	**22**	10	57	54	20	**140**	6	31	31	9	**77**
2022	16	45	12	6	**77**	37	66	159	55	**381**	8	1	34	10	**54**	1.1	5.1	5	3	**13**	10	17	39	13	**77**	6	5	17	4	**33**
2023	16	6	10	6	**37**	37	46	134	56	**273**	8	14	34	10	**66**	1.1	1.3	4	3	**9.0**	10	15	38	13	**75**	6	9	17	4	**36**
2024	16	22	10	6	**53**	37	29	127	56	**249**	8	2	34	10	**54**	1.1	0.6	4	3	**8.0**	10	3	38	13	**62**	6	1	17	4	**28**
2025	16	15	9	6	**45**	37	111	114	56	**318**	8	42	34	10	**94**	1.1	3.1	3	3	**10**	10	45	37	13	**104**	6	26	16	4	**52**
2026	16	58	3	6	**83**	37	74	33	56	**201**	8	7	18	10	**44**	1.1	1.5	1	3	**6.4**	10	9	19	13	**50**	6	3	11	4	**24**
2027	16	16	3	0	**35**	37	123	33	0	**193**	8	46	9	0	**63**	1.1	3.4	1	0	**5.7**	10	49	10	0	**69**	6	26	5	0	**39**
2028	16	54	3	0	**73**	37	99	33	0	**170**	8	2	9	0	**19**	1.1	2.9	1	0	**5.1**	10	5	10	0	**24**	6	3	5	0	**14**
2029	16	14	3	0	**32**	37	104	33	0	**174**	8	39	9	0	**56**	1.1	2.9	1	0	**5.2**	10	42	10	0	**61**	6	24	5	0	**35**
2030	15	46	3	0	**65**	11	45	19	0	**74**	8	3	9	0	**20**	0.3	0.8	0	0	**1.6**	9	4	9	0	**22**	5	2	4	0	**11**
2031	15	25	0	0	**40**	11	97	0	0	**108**	8	62	0	0	**73**	0.3	2.0	0	0	**2.3**	9	64	0	0	**73**	5	36	0	0	**41**
2032	15	131	0	0	**147**	11	97	0	0	**108**	8	12	0	0	**22**	0.3	1.3	0	0	**1.6**	9	14	0	0	**22**	5	5	0	0	**10**
2033	15	22	0	0	**37**	11	77	0	0	**88**	8	55	0	0	**66**	0.3	1.8	0	0	**2.0**	9	57	0	0	**66**	5	32	0	0	**37**
2034	15	67	0	0	**83**	11	77	0	0	**88**	8	8	0	0	**18**	0.3	1.2	0	0	**1.5**	9	9	0	0	**18**	5	3	0	0	**8**
2035	15	21	0	0	**36**	11	72	0	0	**84**	8	59	0	0	**69**	0.3	1.2	0	0	**1.5**	9	61	0	0	**69**	5	34	0	0	**38**
2036	15	80	0	0	**96**	11	72	0	0	**84**	8	6	0	0	**16**	0.3	0.7	0	0	**1.0**	9	7	0	0	**16**	5	2	0	0	**7**
2037	15	8	0	0	**23**	11	28	0	0	**39**	8	22	0	0	**31**	0.3	0.5	0	0	**0.7**	9	23	0	0	**31**	5	13	0	0	**18**
2038	15	28	0	0	**43**	11	28	0	0	**39**	8	2	0	0	**11**	0.3	0.3	0	0	**0.5**	9	2	0	0	**11**	5	1	0	0	**6**
2040-2048	15	0	0	0	**15**	9	0	0	0	**9**	8	0	0	0	**9**	0.1	0	0	0	**0.1**	9	0	0	0	**9**	5	0	0	0	**5**
2049 to Buildout	15	0	0	0	**15**	9	0	0	0	**9**	8	0	0	0	**9**	0.1	0	0	0	**0.1**	9	0	0	0	**9**	5	0	0	0	**5**

Notes: ROG = reactive organic gases; NO_X = nitrous oxide; PM_{10} = particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less; PRSP = Placer Ranch Specific Plan; SAP = net Sunset Area Plan; PG = Pleasant Grove; OI = Off-site transportation and utility improvements.

Net SAP area construction assumed to take place at a constant pace over an 80-year buildout period. PRSP area construction assumed to last 18 years, following order of infrastructure phasing plan. Pleasant Grove Retention Facility assumed to last 5 years for each basin (10 years total). Off-site transportation and utility improvements assumed to be constructed simultaneously over 7-year period.

Source: Modeling conducted by Ascent Environmental in 2018

Impact 4.3-3: Long-term operational emissions of criteria air pollutants and ozone precursors

Operation of the project after full buildout would generate emissions of ROG and NO_X, which are precursors to ozone, and PM_{10} that exceed the applicable mass emission thresholds recommended by PCAPCD. Thus, long-term operational emissions of ROG, NO_X, and PM_{10} could conflict with the air quality planning efforts and contribute substantially to the nonattainment status of SVAB with respect to the NAAQS and CAAQS for ozone and the CAAQS for PM_{10}. Because $PM_{2.5}$ is a subset of PM_{10}, it is anticipated that operational emissions of $PM_{2.5}$ could contribute to the nonattainment status of the SVAB with respect to the NAAQS for $PM_{2.5}$. This impact would be **significant**.

Project operations would result in the generation of long-term operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from mobile, stationary, and area-wide sources. Mobile-source emissions of criteria air pollutants and ozone precursors would result from vehicle trips generated by residents of proposed homes, users of the proposed parks, students of the proposed elementary/middle schools and Sac State–Placer Center, employees of proposed nonresidential uses, and other associated vehicle trips (e.g., delivery of supplies, maintenance vehicles for commercial land uses, shoppers). Stationary and area-wide sources would include the combustion of natural gas for space and water heating and wood-burning and natural gas fireplaces, the use of landscaping equipment and other small equipment, and the periodic application of architectural coatings. Note that long-term operational emissions of CO are addressed under Impact 4.3-4.

Net SAP Area

Table 4.3-7 summarizes the maximum daily operation-related emissions of criteria air pollutants and precursors at full buildout of the net SAP area. As shown in Table 4.3-7, operational activities would result in project-generated emissions of ROG, NO_X, and PM_{10} that exceed the PCAPCD-recommended thresholds of significance. This would be a significant impact.

Table 4.3-7 Summary of Maximum Daily Operational Emissions of Criteria Air Pollutants and Precursors at Full Buildout of the Net SAP Area (Unmitigated)

Source Type	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO (lb/day)
Summer					
Area Sources	742	33	3	3	187
Natural Gas Combustion (on-site)	25	230	18	18	191
Mobile-Sources (Vehicle Trips)[1]	292	2,490	2,269	612	3,362
Total	1,060	2,754	2,290	633	3,740
Winter					
Area Sources	742	33	3	3	187
Natural Gas Combustion (on-site)	25	230	18	18	191
Mobile-Sources (Vehicle Trips)[1]	234	2,531	2,269	612	3,118
Total	1,001	2,795	2,290	633	3,496
PCAPCD Threshold of Significance	55	55	82	NA	NA
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	**NA**	**NA**

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less; lb/day = pounds per day; CO = carbon monoxide; PCAPCD = Placer County Air Pollution Control District.

[1] Full buildout of the net Sunset Area Plan is expected to occur past 2050, the latest year for which mobile-source emission factors are provided by the EMFAC2014 model.

Source: Modeling conducted by Ascent Environmental in 2018

PRSP Area

Table 4.3-8 summarizes the maximum daily operation-related emissions of criteria air pollutants and precursors at full buildout of the PRSP area. As shown in Table 4.3-8, operational activities would result in project-generated emissions of ROG, NO_X, and PM_{10} that exceed the PCAPCD-recommended thresholds of significance. This would be a significant impact.

Table 4.3-8 Summary of Maximum Daily Operational Emissions of Criteria Air Pollutants and Ozone Precursors at Full Buildout (2041) of PRSP Area (Unmitigated)

Source Type	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO (lb/day)
Summer					
Area Sources	5,485	162	871	871	6,772
Natural Gas Combustion (on-site)	10	89	7	7	61
Mobile Sources (Vehicle Trips)	80	536	1,074	290	1,057
Total	5,575	787	1,952	1,168	7,890
Winter					
Area Sources	5,485	162	871	871	6,772
Natural Gas Combustion (on-site)	10	89	7	7	61
Mobile Sources (Vehicle Trips)	74	575	1,071	287	1,305
Total	5,569	826	1,949	1,165	8,138
PCAPCD Threshold of Significance	55	55	82	NA	NA
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	**NA**	**NA**

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less; lb/day = pounds per day; CO = carbon monoxide; PCAPCD = Placer County Air Pollution Control District.

Source: Modeling conducted by Ascent Environmental in 2018

Other Supporting Infrastructure

Pleasant Grove Retention Facility

After its construction, operation of the Pleasant Grove Retention Facility would not involve the direct operation of stationary or area sources of emissions or the generation of new vehicle trips. Thus, there would be no increase in emissions of criteria air pollutants or precursors associated with operation of the Pleasant Grove Retention Facility. There would be no impact.

Off-Site Transportation and Utility Improvements

After their construction, the off-site transportation and utility improvements would not directly result in an increase in emissions of criteria air pollutants or precursors. While the off-site transportation improvements would accommodate increased vehicle trips in the region the associated mobile-source emissions are accounted for in the above analyses of the project. There would be no impact.

Conclusion

As shown in Tables 4.3-7 and 4.3-8 above, NO_X, PM_{10}, and $PM_{2.5}$ emissions associated with the operation of land uses developed under the project would exceed applicable mass emission thresholds recommended by PCAPCD. For this reason, these emissions could contribute substantially to the nonattainment status of SVAB with respect to the NAAQS and CAAQS for ozone, CAAQS for PM_{10}, and NAAQS for $PM_{2.5}$. This would be the case even though no direct emissions would be associated with operation of the Pleasant Grove Retention Facility and the off-site transportation and utility improvements. This impact would be **significant**.

Mitigation Measures

Mitigation Measure 4.3-3a: Reduce area-source emissions associated with land use development (Net SAP Area and PRSP Area)

The County will require project proponents of development proposed under the project to incorporate the following measures to reduce area-source emissions to the extent feasible.

Transportation

- All truck loading/unloading facilities shall be equipped with one 110/208-volt power outlet for every two dock doors or truck parking spaces. For the purpose of this mitigation measure, a truck loading/unloading facility is defined as any truck distribution yard, truck loading dock, or truck loading or unloading area where more than one truck with three or more axles will be present for more than 10 minutes per week, on average. A minimum 2-foot-by-3-foot sign shall be clearly visible at each loading dock that indicates, "Diesel engine idling limited to a maximum of 5 minutes." The sign shall include instructions for diesel trucks idling for more than 5 minutes to connect to the 110/208-volt power to run any auxiliary equipment. This measure is recommended in PCAPCD's *CEQA Handbook* (PCAPCD 2017a) and is also consistent with measure VT-1 in the California Air Pollution Control Officers Association (CAPCOA) guide (CAPCOA 2010:300–303).

Building Energy

- Single family residential units constructed within the net SAP area and the PRSP area shall be designed to achieve a 30 percent reduction in energy use compared to a standard 2016 Title 24 code-compliant unit. Reductions in energy use shall be achieved by following the energy efficiency performance standards set forth in Tier 2 of the 2016 California Green Building Standards Code, Section A4.203.1.2.2. These reductions shall be achieved by employing energy efficient design features and/or solar photovoltaics. Compliance shall be demonstrated using CEC-approved residential energy modeling software.

- Multi-family residential buildings of three stories or fewer constructed within the net SAP area and the PRSP area shall be designed to achieve a 15 percent reduction in energy use compared to a standard 2016 Title 24 code-compliant building. Reductions in energy use shall be achieved by following the energy efficiency performance standards set forth in Tier 1 of the 2016 California Green Building Standards Code, Action A4.203.1.2.1. These reductions shall be achieved by employing energy efficient design features and/or solar photovoltaics. Compliance shall be demonstrated using CEC-approved residential modeling software.

- Commercial buildings (including multi-family residential buildings four stories or higher) shall be designed to achieve a 10 percent or greater reduction in energy use compared to a standard 2016 Title 24 code-compliant building. Reductions in energy use shall be achieved through energy efficiency measures consistent with Tier 1 of the 2016 California Green Building Standards Code, Section A5.203.1.2.1. Alternatively, this could be met by installing on-site renewable energy systems that achieve equivalent reductions in building energy use.

- All project buildings shall be designed to include Cool Roofs in accordance with the requirements set forth in Tier 2 of the 2016 California Green Building Energy Code, Sections A4.106.5 and A5.106.11.2.

- All project buildings shall comply with requirements for water efficiency and conservation as described in the 2016 California Green Building Standards Code, Divisions 4.3 and 5.3.

- Multiple electrical receptacles shall be included on the exterior of all non-residential buildings and accessible for purposes of charging or powering electric landscaping equipment and providing an alternative to using fossil fuel-powered generators. The electrical receptacles shall have an electric potential of 100 volts. There should be a minimum of one electrical receptacle on each side of the building and one receptacle every 100 linear feet around the perimeter of the building. This measure is consistent

with SAP Policy NR-6.6, which encourages installation of electric outlets to promote the use of electric landscape maintenance equipment.

- Energy Star®-certified appliances and fixtures shall be installed in all buildings developed under the project are if an Energy Star®-certified model of the application is available. Types of Energy Star®-certified appliances include boilers, ceiling fans, central and room air conditioners, clothes washers, compact fluorescent light bulbs, computer monitors, copiers, consumer electronics, dehumidifiers, dishwashers, external power adapters, furnaces, geothermal heat pumps, programmable thermostats, refrigerators and freezers, residential light fixtures, room air cleaners, transformers, televisions, vending machines, ventilating fans, and windows (EPA 2018c). If EPA's Energy Star® program is discontinued and not replaced with a comparable certification program before appliances and fixtures are selected, then similar measures which exceed the 2016 California Green Building Standards Code may be used.

- On-demand (tankless, instantaneous, or recirculating) hot water heaters shall be installed in all residential units and commercial areas that are not served by a central water boiler in the building. This measure is consistent with SAP Policy NR-6.7 that aims to improve building energy efficiency.

Mitigation Measure 4.3-3b: Reduce mobile-source emissions (Net SAP Area and PRSP Area)

Before Design Review approval, the project proponent shall include the following features (or features determined by the County to be equally or more effective at reducing mobile-source emissions) in finished buildings. These features shall be conditions of building permits:

- For each single-family residential unit, install a listed raceway, associated overcurrent protective device and the balance of a dedicated 208/240-volt branch circuit at 40 amperes (amp) minimum. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or unit subpanel and shall terminate into a listed cabinet, box, or other enclosure near the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible, or concealed areas and spaces. The service panel and/or subpanel shall provide capacity for a 40-amp minimum dedicated branch circuit. All electrical circuit components and Electric Vehicle Service Equipment (EVSE), including a receptacle or box with a blank cover, related to this section shall be installed in accordance with the California Electrical Code.

- Multi-family residential buildings shall design at least 10 percent of parking spaces to include EVSE or a minimum of two spaces to be installed with EVSE for buildings with 2-10 parking spaces. EVSE includes EV charging equipment for each required space connected to a 208/240-volt, 40-amp panel with conduit, wiring, receptacle, and overprotection devices.

- Non-residential buildings shall design at least 10 percent of parking spaces to include EVSE, or a minimum of two spaces to be installed with EVSE for buildings with 2-10 parking spaces. EVSE includes EV charging equipment for each required space connected to a 208/240-volt, 40-amp panel with conduit, wiring, receptacle, and overprotection devices.

- Non-residential land uses with 20 or more on-site parking spaces shall dedicate preferential parking spaces to vehicles with more than one occupant and ZEVs (including battery electric vehicles and hydrogen fuel cell vehicles). The number of dedicated spaces should be no less than two spaces or 5 percent of the total parking spaces on the individual project site, whichever is greater. These dedicated spaces shall be in preferential locations such as near the main entrances to the buildings served by the parking lot and/or under the shade of structures or trees. These spaces shall be clearly marked with signs and pavement markings. This measure shall not be implemented in a way that prevents compliance with requirements in the California Vehicle Code regarding parking spaces for disabled persons or disabled veterans.

- Bicycle parking areas shall be provided near entrances to all nonresidential land uses, including retail, light industrial, office, hotel, entertainment, educational, and mixed-use buildings. This measure is consistent with SAP Policy NR-7.2 and TM-2.5 that encourage installation if bicycle-related facilities.

Mitigation Measure 4.3-3c: Purchase ROG and NO_X offsets through PCAPCD's Off-Site Mitigation Fee Program (Net SAP Area and PRSP Area)

After implementing on-site mitigation (identified in Mitigation Measures 4.3-3a and 4.3-3b, above), the net SAP area and PRSP area would still exceed the PCAPCD significance thresholds of 55 lb/day for ROG and NO_X. During the summer ozone season, ROG and NO_X emissions are estimated to exceed PCAPCD thresholds by 1,003 lb/day and 2,687 lb/day, respectively (equivalent to 339.48 tons per year of combined ROG and NO_X emissions) for the net SAP area and by 536 lb/day and 683 lb/day, respectively (equivalent to 112.15 tons per year of combined ROG and NO_X emissions) for the PRSP area. To mitigate the net SAP area and PRSP area long-term operational criteria pollutant emissions, the County will require project proponents of development proposed under the project to participate in one of the following off-site mitigation programs:

- Establish mitigation off-site within the west Placer County by participating in an off-site mitigation program, coordinated by PCAPCD. Examples include, but are not limited to: participation in a b 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 to reduce emissions.

- Participate in the District's Off-site Mitigation Fee Program by paying the equivalent amount of money, which is equal to the net SAP area's and PRSP area's contribution of pollutants (ROG and NO_X) that exceeds the 55 lb/day threshold for a one-year period.

  - For the net SAP area, the total ROG and NO_X emission offset requirement is 339.5 tons. The estimated mitigation fee is $6,378,829 (equivalent to $0.86 per square foot for non-residential and $295 per residential unit), based upon PCAPCD's adopted cost-effectiveness of $18,790 per ton and current California Consumer Price Index rate.

  - For the PRSP, the total combined ROG and NO_X emission offset requirement is 112.15 tons for a one-year period. The estimated mitigation fee is $2,107,261, equivalent to $295 per residential unit (based on a total of 7,146 units (PRSP: 5,636; University: 1,510). Detailed calculations for the Off-Site Mitigation Fee Program can be found in Appendix K.

- Any combination of the above measures, as determined feasible by PCAPCD.

Mitigation Measure 4.3-3d: Reduce PM_{10} emissions (Net SAP Area and PRSP Area)

The County will require project proponents of development proposed under the project to incorporate the following measures to reduce PM_{10} emissions to the extent feasible.

- Wood-burning fireplaces and pellet appliances shall be prohibited in all residences. Only natural gas or propane-fired fireplace appliances would be permitted. These appliances shall be clearly delineated on the floor plans submitted in conjunction with the Building Permit application. This measure is consistent with SAP Policy NR-5.10 that aims to reduce particulate matter emissions from wood-burning appliances within Placer County. Where natural gas is available, gas outlets shall be provided in residential backyards for use with outdoor cooking appliances such as gas barbecues.

- Project proponents shall participate in an off-site mitigation project by paying the equivalent cost, equal to the net SAP area's and PRSP area's contribution of PM_{10} emissions that exceeds the 82-lb/day threshold for a period of one year, coordinated through Placer County and in consultation with the PCAPCD. Emission reductions achieved through the off-site mitigation program must be real and quantifiable, as determined by the County, PCAPCD, or a consultant selected by the County. Examples of an offset program include but are not limited to: participation in a biomass program that provides emission benefits; retrofitting, repowering, or replacing heavy-duty engines from mobile sources (e.g., replacing residential woodstoves, buses, construction equipment, on-road haul trucks); or other programs to reduce PM_{10} emissions.

For the net SAP area, the total PM_{10} emission offset requirement is 199.7 tons. At the time of preparation of this EIR, the estimated mitigation fee for the net SAP area is $1,209,053.45 (equivalent to $0.16 per square foot for nonresidential uses and $77.51 per residential unit), based upon the current cost differential of $40 per bone dry ton of biomass waste removal.

For the PRSP, the total PM_{10} emission offset requirement is 91.2 tons. At the time of preparation of this EIR, the estimated mitigation fee for the PRSP is $553,852.76, equivalent to $77.51 per dwelling unit (based on a total of 7,146 units (PRSP: 5,636; University: 1,510), and upon the current cost differential of $40 per bone dry ton of biomass waste removal. Detailed calculations for the Off-Site Mitigation Fee Program can be found in Appendix K.

The actual amount to be paid shall be determined, based on the selected program and applicable cost effectiveness rate at the time of map recordation. This measure shall be satisfied prior to the recordation of each small lot map, or approval of the first building permit when a small lot map is not required.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-3a would decrease emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with on-site combustion of natural gas for space and water heating. Implementation of Mitigation Measure 4.3-3b would reduce mobile-source emissions by supporting the use of electric vehicles and bicycles. Implementation of Mitigation Measure 4.3-3d would decrease ROG, NO_X, PM_{10}, and $PM_{2.5}$ by eliminating the use of wood-burning appliances. Tables 4.3-9 shows the effects of Mitigation Measures 4.3-3a, 4.3-3b, and 4.3-3d on operational emissions for the net SAP area, and Table 4.3-10 shows the effects of Mitigation Measures 4.3-3a, 4.3-3b, and 4.3-3d on operational emissions for the PRSP area.

As shown in Tables 4.3-9 and 4.3-10, emissions of ROG, NO_X, and PM_{10} would remain above the PCAPCD-recommended thresholds with implementation of Mitigation Measures 4.3-3a, 4.3-3b, and 4.3-3d. As required by Mitigation Measure 4.3-3c, proponents of individual projects would be required to offset emissions of ROG and NO_X that exceed the 55-lb/day threshold by paying into PCAPCD's Off-Site Mitigation Fee Program. Per Mitigation Measure 4.3-3d, project proponents would be required to offset emissions of PM_{10} through participating in an off-site mitigation program.

Table 4.3-9 Summary of Maximum Daily Operational Emissions of Criteria Air Pollutants and Precursors at Full Buildout of the Net SAP Area (Mitigated)

Source Type	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO (lb/day)
Summer					
Area	741	21	2	2	182
Energy	25	230	18	18	191
Mobile	292	2,490	2,269	612	3,362
Total	1,058	2,742	2,289	632	3,735
Winter					
Area	741	21	2	2	182
Energy	25	230	18	18	191
Mobile	234	2,531	2,269	612	3,118
Total	1,000	2,782	2,269	632	3,491
PCAPCD Thresholds of Significance	55	55	82	NA	NA
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	**NA**	**NA**

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less; lb/day = pounds per day; CO = carbon monoxide; PCAPCD = Placer County Air Pollution Control District.

Source: Modeling conducted by Ascent Environmental in 2018

Nonetheless, the operational emissions of some projects developed under the net SAP and PRSP would not individually generate emissions of ROG and/or NO_X that exceed PCAPCD's operational threshold of 55 lb/day but, as shown in this analysis, the combined level of operational emissions of ROG and/or NO_X associated with multiple developments would exceed PCAPCD's threshold. Because participation in a verified PM_{10} offset program cannot be assured, operational emissions of some projects developed under the net SAP and PRSP could exceed the PCAPCD threshold of significance. No additional feasible mitigation measures are available to reduce this impact, and this impact would be **significant and unavoidable.**

Table 4.3-10 Summary of Maximum Daily Operational Emissions of Criteria Air Pollutants and Ozone Precursors at Full Buildout (2041) of the Placer Ranch Specific Plan (Mitigated)

Source Type	ROG (lb/day)	NO_X (lb/day)	PM_{10} (lb/day)	$PM_{2.5}$ (lb/day)	CO (lb/day)
Summer					
Area	501	113	12	12	635
Energy	10	89	7	7	61
Mobile	80	536	1,074	290	1,057
Total	591	738	1,093	309	1,753
Winter					
Area	501	113	12	12	635
Energy	10	89	7	7	61
Mobile	74	575	1,071	287	1,305
Total	585	777	1,090	306	2,001
PCAPCD Thresholds of Significance	55	55	82	NA	NA
Exceeds Threshold?	**Yes**	**Yes**	**Yes**	**NA**	**NA**

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = particulate matter with a diameter of 10 microns or less; $PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or less; lb/day = pounds per day; CO = carbon monoxide; PCAPCD = Placer County Air Pollution Control District.

Source: Modeling conducted by Ascent Environmental in 2018

Impact 4.3-4: Mobile-source concentrations of carbon monoxide

Though buildout of the project area would result in additional vehicle trips on the surrounding roadway network, these land uses would not result in increases in traffic congestion such that NAAQS and CAAQS for CO concentrations would be exceeded. Therefore, the project would not result in exposure of sensitive receptors to unhealthy levels of CO. This impact would be **less than significant.**

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO from off-site locations is extremely limited because, under normal meteorological conditions, it disperses rapidly with distance from the source. However, under certain meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels at nearby sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. As a result, it is recommended that CO be analyzed at the local level instead of at the regional level.

Mobile source emissions of CO would exceed PCAPCD's screening criterion for CO dispersion modeling. As shown in Table 4.3-7, the full buildout of the net SAP area would result in more than 550 lb/day of mobile-source CO. Based on PCAPCD screening criterion and according to the traffic study conducted for the project, traffic volumes would also unacceptably worsen at 66 unique intersections across five different project scenarios, including cumulative scenarios (i.e., Existing plus Placer Ranch, Existing Plus Project, Cumulative Plus Placer Ranch, Cumulative Plus Project [20-year scenario], and Cumulative Plus Placer Ranch Plus SAP [20-Year Absorption]) (PCAPCD 2017a:38; Fehr & Peers 2018:Appendix M). CO dispersion modeling was performed for the intersection with the highest total traffic volume and the intersection with the highest

traffic volume on any given link (i.e., the north, south, east, or west roadway segment at an intersection). This approach was used because the CO concentrations vary by receptor location at each corner of an intersection.

If these worst-case intersections result in CO concentrations less than the NAAQS and CAAQS for CO, it is reasonable to assume that all other intersections in the net SAP and PRSP areas and across all studied scenarios would also meet the NAAQS and CAAQS for CO.

Net SAP Area and PRSP Area

The Pleasant Grove Boulevard/Roseville Parkway and Blue Oaks Boulevard/Foothills Boulevard intersections were identified as the two intersections with the highest total traffic volume and highest roadway link volume, respectively. These volumes would occur under the traffic study's "Cumulative Plus Placer Ranch Plus SAP (20-Year Absorption)" scenario during the p.m. peak period. This traffic condition reflects the cumulative traffic impact of the net SAP and PRSP areas. Table 4.3-11 summarizes the maximum traffic volumes and modeled CO concentrations resulting at these intersections, based on modeling conducted using CALINE 4.

Table 4.3-11 Maximum Mobile-Source CO Concentrations at Intersections with Highest Traffic Volumes

Parameter	Cumulative Plus Placer Ranch Plus SAP (20-Year Absorption)[1]	
	Pleasant Grove Boulevard/Roseville Parkway Intersection[2]	Blue Oaks Boulevard/Foothills Boulevard Intersection[3]
Traffic Volumes (vph)		
North Link	2,787	2,444
South Link	4,124	2,313
East Link	4,323	5,471
West Link	4,028	4,864
Total	15,262	15,092
Worst-Case CO Concentration[4] (ppm)		
1-Hour	3.7	4.3
1-Hour CAAQS/NAAQS	20/35	20/35
Exceeds 1-Hour Standards?	**No**	**No**
8-Hour[5]	2.2	2.6
8-Hour CAAQS/NAAQS	9/9	9/9
Exceeds 8-Hour Standards?	**No**	**No**

Notes: CO = carbon monoxide; SAP = Sunset Area Plan; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; vph = vehicles per hour.

[1] Shows the traffic volumes for the two intersections with the highest total traffic volume or highest traffic volume on a given roadway link. Both instances occur under the "Cumulative Plus Placer Ranch Plus SAP" conditions.

[2] Modeled based on a six-lane roadway width in each direction based on the number of anticipated lanes under the "Cumulative Plus Placer Ranch Plus SAP" scenario (Shafer, pers. comm., 2018).

[3] Modeled based on eight- and six-lane roadway widths for Blue Oaks Boulevard and Foothills Boulevard, respectively, based on the number of anticipated lanes under the "Cumulative Plus Placer Ranch Plus SAP" scenario (Shafer, pers. comm., 2018).

[4] As modeled at any of the four receptors (one located in each corner of an intersection of two roadways). Includes a background 1-hour CO concentration of 2.3 ppm (EPA 2018a).

[5] Calculated from the 1-hour CO concentration based on a persistence factor of 0.6 for suburban areas, as recommended in the CO Protocol (Caltrans 2010).

See Appendix K for additional modeling assumptions.

Source: Modeling conducted by Ascent Environmental in 2018 using CALINE 4 and traffic volume data provided by Fehr & Peers.

As shown in Table 4.3-11, even the intersections with the highest traffic volumes affected by cumulative 20-year development of the net SAP and PRSP areas and modeled with worst-case assumptions would not have 1-hour and 8-hour CO concentrations that exceed the CAAQS or NAAQS. Also, because of stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, future CO emissions would likely be lower than those shown in Table 4.3-11, which are based on emission factors modeled for calendar year 2020.

Because the modeled worst-case mobile-source CO concentrations would not exceed the CAAQS and NAAQS for CO, other intersections with lower traffic volumes affected by the net SAP and PRSP areas would also not exceed the CAAQS and NAAQS for CO for all analyzed traffic scenarios. This impact would be less than significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

After its construction, operation of the Pleasant Grove Retention Facility would not involve the direct operation of stationary or area sources of CO emissions or the generation of new vehicle trips. Thus, there would be no increase in emissions of CO associated with operation of the Pleasant Grove Retention Facility. There would be no impact.

Off-Site Transportation and Utility Improvements

After their construction, the off-site transportation and utility improvements would not directly result in an increase in emissions of CO. While the off-site transportation improvements would accommodate increased vehicle trips in the region the associated mobile-source emissions are accounted for in the above analyses of the project. Moreover, the increased capacity created by intersection and roadway improvements would alleviate the idling of long queues of vehicles on the roadway network. There would be no impact.

Conclusion

As discussed, the identified intersections with the highest traffic volumes would not have mobile source CO concentrations that exceed the CAAQS or NAAQS for CO. By reference, other affected intersections with lower traffic volumes would also not exceed the CAAQS or NAAQS for CO. Thus, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the NAAQS and CAAQS for CO. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.3-5: Exposure of sensitive receptors to TACs

Construction of new land uses under the project, the off-site transportation and utility improvements, and the development of new stationary sources of TACs subject to the permitting requirements of PCAPCD, would not result in the exposure of sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0. However, the net SAP area could include the development of new residential land uses or other sensitive receptors within 500 feet of a freeway or high-volume roadway, which is the setback distance recommended by CARB. Further, the development of land uses under the project with truck loading near residences, schools, and child daycares could result in the exposure of these sensitive receptors to a level of cancer risk greater than 10 in 1 million. This impact would be **significant**.

Net SAP Area and PRSP Area

The potential for exposure of sensitive receptors to TACs and associated health risk from freeways, construction activity, new permitted sources of TACs, and nonpermitted TAC-emitting truck activity is discussed separately below.

New Sensitive Receptors Near Existing TAC Sources

PCAPCD does not recommend a threshold of significance for evaluating the levels of health risk exposure at sensitive land uses from TAC-emitting vehicle travel on freeways (PCAPCD 2017a:60). However, to protect sensitive receptors from TAC-related health risk, CARB recommends that new sensitive receptors not be placed within 500 feet of freeways or urban roads with traffic volumes that exceed 100,000 vehicles per day (CARB 2005:10). The segments of SR 65 between Blue Oaks Boulevard and Twelve Bridges Drive are the highest-volume roadway segments near the project area. Based on the traffic analysis prepared for this EIR, these segments of SR 65 would carry traffic volumes greater than 100,000 vehicles per day under cumulative-plus-buildout conditions. Land use designations for the net SAP allows residential development in the General Commercial and Light Industrial land uses, which would be within 500 feet of SR 65, as shown in Figure 1-1 of the SAP. The traffic volumes under the cumulative-plus-buildout conditions on SR 65 would exceed the roadway volumes for which CARB recommends a setback distance. Therefore, development of residential uses under the SAP could result in excessive health risk exposure from TAC-emitting vehicles traveling on high-volume roadways.

Construction

Construction of new land uses and infrastructure under the project would result in temporary, intermittent emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing); grading; paving; application of architectural coatings; on-road truck travel; and other miscellaneous activities. For construction activity, diesel PM is the primary TAC of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay in a single location for long durations.

Particulate exhaust emissions from diesel-fueled engines (i.e., diesel PM) was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (i.e., noncancer risk, short-term acute risk) and health impacts from other TACs (CARB 2003). Regarding exposure of diesel PM, the dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher level of health risk for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period. According to the Office of Environmental Health Hazard Assessment, HRAs, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70- or 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2012:11-3). Accordingly, it is important to consider that the use of off-road heavy-duty diesel equipment would be limited to the periods of construction, during the multiple-decade buildout period when new facilities would be constructed (i.e., approximately 80 years for the net SAP area and 20 years for the PRSP area). Studies show that diesel PM is highly dispersive (as an example, diesel PM concentrations decrease by 70 percent at 500 feet from the source) (Zhu et al. 2002), and receptors must be in close proximity to emission sources to result in the possibility of exposure to concentrations of concern. As construction progresses, activity intensity and duration would vary through the project site. As such, no single existing or future receptor (i.e., as part of the project) would be exposed to construction-related emissions of diesel PM for an extended period; that is, the dose of diesel PM at any one receptor would be limited.

Considering the relatively short duration in which diesel PM-emitting construction activity would take place at any one location of the project area, the distance to the nearest off-site sensitive receptors, and the highly dispersive properties of diesel PM, construction-related TAC emissions would not expose existing sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0.

Moreover, as explained above, the use of late-year diesel engines, alternative fuels, in all construction equipment, as required by Mitigation Measure 4.3-2a, would reduce emissions to the extent feasible. Implementation of Mitigation Measure 4.3-2a, which requires staging areas to be set back from sensitive receptors, and SAP Program N-4, which requires construction staging areas to be located as far as possible

from sensitive receptors, would have the added benefit of further limiting the amount of time diesel construction equipment operates near sensitive receptors.

Operation of New Permitted Sources

PCAPCD is responsible for the control of TACs generated by stationary sources within Placer County, including any new stationary sources of TACs developed under the project, such as gasoline stations, backup diesel generators, or industrial emission stacks. As part of the permitting process for new stationary sources of emissions, pursuant to PCAPCD Regulation 5 (Permits) and Rule 513 (Toxics New Source Review), PCAPCD reviews the permit application and determines whether the source would have the potential to generate levels of TACs that would expose the local population to an incremental increase in cancer risk that exceeds 10 in 1 million or a noncarcinogenic Hazard Index of 1 for the maximally exposed individual. If either of these criteria are exceeded, then PCAPCD requires that the source incorporate BACT and/or limit its operations to ensure that these criteria would not be exceeded. As a result, operation of any single new stationary source would not result in exposure of sensitive receptors to levels of health risk that would exceed PCAPCD's thresholds of significance. However, should multiple new stationary sources be sited in proximity to one another, the combined emissions could result in higher levels of TAC concentrations.

Truck Activity Area

Development of commercial, industrial, and institutional land uses, under the project, including the university campus under the PRSP, would include facilities with loading docks and loading areas where diesel PM-emitting trucks are active on a regular basis. Some of this activity could include trucks with transport refrigeration units (TRUs), which are typically diesel powered. Although TRUs have relatively small diesel-powered engines, in the normal course of business, their emissions can pose a health risk to nearby receptors (CARB 2005:11). A truck distribution center could also be developed under the net SAP. In its *Air Quality and Land Use Handbook,* CARB recommends a setback distance of 1,000 feet between sensitive receptors and a truck distribution center that accommodates more than 100 trucks per day, more than 40 trucks with operating TRUs per day, or where TRU unit operations exceed 300 hours per week (CARB 2005:15). Development of new truck loading docks could occur but specific daily operational, emissions levels, and proximity to existing or future planned sensitive receptors are unknown. Thus, depending on the location and operation of new trucking facilities, these sources could result in substantial TAC concentrations at sensitive receptors.

Summary

Implementing the net SAP would involve developing 2,691 acres of retail, commercial, and industrial land uses, and implementing the PRSP would involve developing 1,208 acres of residential, retail, commercial, and industrial land uses, as well as a 300-acre university campus. The General Commercial and Light Industrial land use designations under the net SAP could include the development of new residences. These residences could be located within 500 feet of a freeway that experiences daily traffic volumes exceeding 100,000 vehicles. Details regarding new diesel trucking activities are not known at the time of writing this EIR, including their proximity to sensitive receptors, the frequency of truck activity and whether visiting trucks would include TRUs. These details would be determined during the site design phase of individual projects. Under the project, there would be the potential that new residences be located in proximity to a freeway and that loading docks and truck activity areas could be located close to sensitive receptors. Diesel PM emitted by these freeway and truck activities could result in the exposure of nearby residences, schools, or daycare facilities to level of health risk that exceed PCAPCD's recommended threshold of 10 in 1 million. This impact would be significant.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

The Pleasant Grove Retention Facility would not result in any new operational TAC sources, so this discussion focuses on construction. As described in the air quality analysis under Impact 4.3-2, construction of the Pleasant Grove Retention Facility would be grading-intensive, involving the excavation and movement of 1,251,900 cubic yards of earthen material from 93 acres of the basin area to 154 acres of upland area on the site, and was assumed to last up to five years. The excavation areas and soil disposal areas are

shown in Exhibit 3-23. This would be a more intense level of earth movement and associated use of heavy-duty, off-road equipment than the grading phases of land uses developed under the project. However, as shown in Table 4.3-5 above, maximum daily emissions of diesel exhaust PM_{10}, considered a surrogate for diesel PM, would not exceed approximately 5 lb/day during the year with the highest estimated emissions (i.e., 2021). All subsequent years of construction would result in less emissions of diesel PM because of increasingly stringent emissions standards and variability in construction intensity.

Regarding existing sensitive receptors, residences are located approximately 600 feet southeast of proposed grading activities associated with the Pleasant Grove Retention Facility. Studies show that diesel PM is highly dispersive, and receptors must be in close proximity for extended periods of time to emission sources to result in the possibility of exposure to concentrations of concern. Given the relatively low level of diesel PM emissions, the anticipated lower emissions over construction duration, the short duration (i.e., 5 years) of construction activity, and the substantial distance of existing sensitive receptors from construction activities, sensitive receptors would not be exposed to an incremental increase in cancer risk that exceeds 10 in 1 million. This impact would be less than significant.

Off-Site Transportation and Utility Improvements

The off-site transportation and utility improvements would not involve operation of any new, long-term source of stationary-source TACs. Diesel PM would be emitted by heavy-duty equipment and trucks during construction of each off-site improvement project. Based on the emissions modeling conducted and presented in Table 4.3-5, maximum daily emissions of diesel exhaust PM_{10}, considered a surrogate for diesel PM, would not exceed approximately 7 lb/day for the construction of off-site infrastructure improvements. As construction progresses, activity intensity and duration would vary through the project site. As such, no single existing receptor or future receptor (i.e., as part of the project) would be exposed to construction-related emissions of diesel PM for extended periods of time.

Considering the relatively low mass of diesel PM emissions that would be generated by construction, the relatively short duration of diesel PM-emitting construction activity at any one location of the project area, and the highly dispersive properties of diesel PM, construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0. This impact would be less than significant.

Conclusion

In summary, construction of new land uses under the project, construction of off-site transportation and utility improvements, and the development of new stationary sources of TACs subject to the permitting requirements of PCAPCD, would not result in the exposure of sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0. However, development of land uses under the SAP could place new residences within 500 feet of a freeway or high-volume roadway, exposing new receptors to excessive TAC concentrations. Further, the development of commercial, industrial, and institutional land uses (i.e., the university campus) with truck loading areas near residences, schools, and child daycares could result in the exposure of these sensitive receptors to a level of cancer risk greater than 10 in 1 million. This impact would be **significant**.

Mitigation Measures

Mitigation Measure 4.3-5a: Incorporation of design features at truck loading areas to reduce health-risk exposure at sensitive receptors (Net SAP Area and PRSP Area)

Before Design Review approval, project proponents shall design developments so that truck loading/unloading facilities and sensitive receptors are not located within 1,000 feet of each other, if feasible considering site design parameters. For the purpose of this mitigation measure, a truck loading/unloading facility is defined as any truck distribution yard, truck loading dock, or truck loading or unloading area where more than one truck with three or more axles will be present for more than 10 minutes per week, on average; and sensitive receptors include residential land uses, campus dormitories and student housing, residential care facilities, hospitals, schools, parks, playgrounds, or daycare facilities. A truck loading/unloading facility and a sensitive

receptor can be located within 1,000 feet of each other only if a project proponent prepares a qualified, site-specific HRA showing that the associated level of cancer risk at the sensitive receptors would not exceed 10 in 1 million. The HRA shall be conducted in accordance with guidance from PCAPCD and shall be approved by PCAPCD. If the HRA determines that a nearby sensitive receptor would be exposed to an incremental increase in cancer risk greater than 10 in 1 million then design measures shall be incorporated to reduce the level of risk exposure to less than 10 in 1 million. Design measures may include but are not limited to the following:

- Implement Mitigation Measure 4.3-3a, which requires all truck loading/unloading facilities to be equipped with one 110/208-volt power outlet for every two-truck loading/unloading facility. A minimum 2-foot-by-3-foot sign shall be clearly visible at each loading dock that indicates, "Diesel engine idling limited to a maximum of 5 minutes." The sign shall include instructions for diesel trucks idling for more than 5 minutes to connect to the 110/208-volt power to run any auxiliary equipment. This measure is recommended in PCAPCD's *CEQA Handbook* (PCAPCD 2017a) and is also consistent with measure VT-1 in the CAPCOA guide (CAPCOA 2010:300–303).

- The use of electric-powered "yard trucks" or fork lifts to move truck trailers around a truck yard or truck loading/unloading facility.

- The use of buildings or walls to shield commercial activity from nearby residences or other sensitive land uses.

- The use of EPA-rated Tier 4 Final engines in diesel-fueled construction equipment when construction activities are adjacent to existing sensitive receptors.

- Plant and maintain a vegetative buffer between the truck loading/unloading facility and nearby sensitive residences, schools, and daycare facilities. As part of detailed site design, a landscape architect licensed by the California Landscape Architects Technical Committee shall identify all locations where trees should be located, accounting for areas where shade is desired such as along pedestrian and bicycle routes, the locations of solar photovoltaic panels, and other infrastructure.

Mitigation Measure 4.3-5b: Setback requirements for residential units near freeways (Net SAP Area)

Before approval of tentative subdivision maps, project proponents shall demonstrate that residential developments are located at least 500 feet from any freeway or urban road with traffic volumes that exceed 100,000 vehicles per day, as recommended by CARB, if feasible, considering site design parameters. New residences can be located within 500 feet of a new or existing freeway or urban road with traffic volumes that exceed 100,000 vehicles per day only if a project proponent prepares a qualified, site-specific HRA, approved by Placer County, showing that the associated level of cancer risk at the new residences would not exceed 10 in 1 million. The HRA shall be conducted in accordance with guidance from PCAPCD and approved by PCAPCD. If the HRA determines that a nearby sensitive receptor would be exposed to an incremental increase in cancer risk greater than 10 in 1 million then design measures shall be incorporated to reduce the level of risk exposure to less than 10 in 1 million. Design mitigation measures may include, but are not limited to the following:

- install high-efficiency indoor air filters to filter particulates and other chemical matter from entering residences;
- plant and maintain vegetative barriers between new residences and SR 65;
- orient residential buildings away from SR 65; and
- design windows in residences to reduce PM exposure (e.g., windows nearest to the freeway do not open).

Significance after Mitigation

Implementation of Mitigation Measure 4.3-5a would ensure that a sensitive receptor (residence, school, or daycare facility) and a truck loading/unloading facility would not be located within 1,000 feet of each other, which is the CARB-recommended setback distance (CARB 2005:15), unless a site-specific, PCAPCD-approved HRA shows that the associated level of cancer risk at the sensitive receptors would not exceed 10

in 1 million. Implementation of Mitigation Measure 4.3-5b would ensure that new residences would not be located within 500 feet of freeways adjacent to the SAP area, which is the CARB-recommended setback distance (CARB 2005:10), unless a site-specific, PCAPCD-approved HRA shows that the associated level of cancer risk at the sensitive receptors would not exceed 10 in 1 million. In addition, as the project continues to develop over time, new TAC sources (stationary and mobile) would likely increase the background risk levels in the area, thus potentially exposing receptors to levels greater than 10 in 1 million. Further, because of the scale of development, the uncertainty in the number, type, and location of TAC sources, and the level of associated health risk exposure that would result at any one location, it cannot be determined with certainty that future TAC concentrations would not expose any receptors to levels that exceed 10 in 1 million. This impact would remain **significant and unavoidable.**

Impact 4.3-6: Create objectionable odors affecting a substantial number of people

The project would generate waste that would be received, processed, and disposed of at WRSL, thereby contributing to sources of landfill odor over time. Aside from this, the project would not *create* objectionable odors, as described further herein, but it would establish residential and other land uses that would bring people closer to an existing odor source. With regard to creation of odors, implementing the land uses proposed in the SAP, including the PRSP, would involve construction of new facilities over the period of the planning horizon and beyond. Some new facilities, such as industrial uses, restaurants, breweries, and coffee roasters, may generate odors in commercial and industrial areas following buildout. Construction activities and the odors they generate would be temporary and intermittent. New odor sources would be subject to PCAPCD's Rule 205, which regulates nuisances from odors. Because of the broad geography and long time frame to which the SAP applies, particularly in the net SAP area, it is not possible to predict the odor impacts of specific, future projects that may be proposed. However, because sufficient regulations and policies are in place, and because future proposals will be subject to project-specific environmental review, analysis, and mitigation, there is no evidence to suggest that implementation of the SAP or PRSP would create objectionable odors affecting a substantial number of people.

The proposed project includes an amendment to County General Plan Policy 4.G.11, which reduces the 1-mile (5,280-foot) buffer for residential uses around the WRSL to 2,000 feet and if approved with a specific plan the buffer could be further reduced to 1,000 feet. Therefore, this General Plan amendment could result in development of residential uses within 1 mile of the WRSL in currently undeveloped areas. Based on review of existing data regarding nuisance complaints from residents beyond 1 mile, and on modeling and analysis of post-project landfill odor, it is expected new residents and users within the project area would be exposed to objectionable odors, would complain about such odors from WRSL operations, and that the overall number of complaints lodged about nuisance odors would increase. WPWMA is in the process of developing a Waste Action Plan to address regional growth, regulatory changes, and other operational objectives, including odor control. However, because odor impacts are subjective and there are no quantifiable thresholds of significance, and specific odor-control measures (and their effectiveness) to be implemented by WPWMA are unknown at this time, odor impacts resulting from implementation of the project would be **significant**.

In its opinion in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, the California Supreme Court addressed the issue as to whether CEQA requires analysis of the effect of the existing environment on the residents and users of a proposed project, in this instance, future residents, workers, students, and other users of the SAP area. In answering this question, the Court held that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users."

Odors from the WRSL are part of the existing environment in the project area. While residential, commercial, industrial, and institutional uses that will ultimately be developed in the SAP area will generate solid waste of all types (e.g., industrial waste, food waste, compost) that will be received and processed at the landfill, that

fact alone is not sufficient to determine that odors emanating from the landfill would be exacerbated by the project. The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; distance from the odor source; and the sensitivity of the affected receptor. Increase in volume of material alone would not necessarily result in an increase, or exacerbation of odorous emissions. That said, on remand from the California Supreme Court, the First District Court of Appeal limited the scope of potential application of the Supreme Court's opinion concerning voluntary analysis by public agencies of environmental conditions on end users. It agreed that "while CEQA does not generally require an evaluation of existing conditions upon future occupants or users of a proposed project, a public agency retains the discretion to make such an evaluation when conducting an analysis of its own project." Therefore, while not strictly required to do so, Placer County opts to evaluate and draw significance conclusions with respect to impacts of existing odor sources on future residents and visitors.

Net SAP Area and PRSP Area

Construction

Odorous emissions generated by heavy-duty diesel equipment and the laying of fresh asphalt during project-related construction activities would be intermittent and temporary, and would dissipate rapidly from the source with an increase in distance. While construction of the SAP would be implemented over approximately 80 years, and the PRSP would be implemented over approximately 20 years, these types of odor-generating activities would not occur in a single location, or within proximity to off-site receptors, for an extended period. The type and level of construction activity would be typical of new development on a large site, and associated odor sources would not remain in any one part of the project area throughout all construction phases. Given the temporary and intermittent nature of odor-generating construction activities, construction of the land uses developed under the project would not expose a substantial number of people to objectionable odors for an extended period. This impact would be less than significant.

New Non-Waste Odor Sources

Various new commercial and industrial land uses developed under the SAP and new commercial land uses developed under the PRSP could potentially result in the siting of new sources of odors, including those identified as potential major odor sources by PCAPCD (PCAPCD 2017a:63 and 64). Development under the SAP may include food manufacturing and processing facilities, coffee roasters, or painting/coating operations, and restaurants. Restaurants, breweries, and coffee roasters may also be developed in commercial areas of the PRSP. Because no specific projects or sites have been identified for such future uses, however, the degree of impact with respect to potential odors associated with future projects and their effects on adjacent receptors is uncertain. Regardless, emissions of odors would be subject to PCAPCD's Rule 205, Nuisance, which simply prohibits the discharge of air contaminants or other materials that would cause detriment, nuisance, or annoyance to any number of people. This impact would be less than significant.

Existing and Post-Project Landfill Odor

As described above, there are several existing odor sources in and near the project area, including the WRSL operations. An amendment of County General Plan Policy 4.G.11 is proposed to permit a reduction in the 1-mile (5,280-foot) buffer for residential uses to 2,000 feet. While the PRSP proposes residential uses 2,000 feet from the landfill property line, the amended General Plan Policy 4.G.11 would allow for future specific plans to propose, residential uses to be developed as close as 1,000 feet from the landfill property line. In addition, while residential use is not a central feature of proposed land uses in the net SAP area, housing may be incorporated as a subordinate use into net SAP area projects in the, Innovation Center, Entertainment Mixed-Use, and Light Industrial land use designations. This provision would allow people to live and work in the same region, shorten commute times, and reduce vehicle miles traveled, but could put additional residential uses in closer proximity to the landfill, substantially increasing the exposure of people to objectionable odors.

Placer County engaged SCS Engineers to assess the incremental increase in odor emissions and odor impact that would result from implementation of the SAP, including the PRSP (SCS Engineers 2018; Appendix J). Odor monitoring and modeling data were reviewed, and the volume of waste of different types received, processed, and disposed at WRSL were calculated for the 2018 baseline condition; for 2058, the

projected year of landfill closure (which assumes an annual waste stream increase due to regional growth); and for the proposed project, conservatively assumed to build out over 20 years. The comparison of project-buildout-level waste stream to 2018 conditions, although an assumed scenario, is illustrative of the size of the waste stream. At buildout, and assuming no improved odor management practices at the WRSL, the project would represent 16 percent of the 2018 waste stream and 8.6 percent of the 2058 waste stream.

Using odor emission rates for the various odor sources at WRSL (i.e., composting, landfill gas, landfill active face, and MRF) derived from the November 2015 Odor Assessment and existing location-based monitoring data, the study calculates odor emissions generated by the project and estimates the project's incremental effect on the intensity of odors at specific locations. Intensity of odor impact is often expressed in terms of dilutions to threshold (D/T or DT), which defines odor in terms of how much fresh air would have to mix with the odorous air such that half of the population could no longer detect the odor. The unit DT can also be thought of as the detection threshold (DT). Odor is considered likely to be offensive when it exceeds 10 DT, may be offensive when it exceeds 8 DT, and is sometimes offensive when it exceeds 5 DT. While these values have been used by some entities as nuisance standards and as design values in odor modeling, odor impacts are still subjective and highly variable. Neither Placer County nor PCAPCD has adopted nor subscribes to any specific scheme of odor standards or thresholds.

The study concludes that project-generated waste processed and disposed at WRSL will contribute to odor impacts in the vicinity. Based on June 2018 monitoring data, the project would cause the number of exceedances of specific odor levels (10 DT, 8 DT, and 5 DT) to increase, with the number of exceedances logically decreasing with distance from the source (SCS Engineers 2018:7). As odor generation is generally proportionate to the volume of waste generated and processed, the project would, at its peak, conservatively represent 16 percent of the odor currently generated at WRSL, and at the time of landfill closure in 2058, it would represent approximately 8 percent of odor emissions.

As described above, WPWMA is actively engaged in odor reduction efforts at WRSL (e.g., landfill gas collection and control system, MRF odor management), has ongoing pilot studies to assess odor-reduction technologies (e.g., ASP composting, odor neutralizer), and is developing its Renewable Placer Waste Action Plan, out of which additional odor abatement strategies may emerge. WPWMA has demonstrated commitment to being a good neighbor through its annual odor workshop and odor reporting and monitoring programs reports. WPWMA also regularly engages with Placer County staff with regard to the compatibility of the Renewable Placer Waste Action Plan with the SAP and PRSP (WPWMA 2018d). WPWMA is likewise expected to continue to monitor odor, implement effective odor-control measures, and take advantage of advanced technologies as they become available and financially feasible.

While the impact analysis of the incremental contribution of odors from project-generated waste is conservative for many reasons (e.g., no additional odor abatement or enhanced operations are assumed and rapid buildout of the project is assumed), the fact remains that, even without project-generated odors, the SAP and PRSP would result in development that would place people in close proximity to an existing odor source, a source that already generates nuisance complaints from residents over 1 mile away. Implementation of odor control measures by WPWMA over time is expected to reduce adverse impacts on residents and visitors, but effectiveness cannot be predicted or assured. Implementation of the project would expose a substantial number of people to objectionable odors. This would be a significant impact.

Other Supporting Infrastructure

Pleasant Grove Retention Facility

Construction of the Pleasant Grove Retention Facility would not result in long-term odorous emissions. Construction would involve the use of odor-emitting heavy-duty diesel equipment, but these odors would be periodic and would dissipate rapidly from the source with an increase in distance. The receptor nearest to the Pleasant Grove site is a farmhouse located approximately 600 feet southwest of the site's southwest corner. It is estimated that construction of the retention facilities would take approximately 5 years. Because construction activity would be concentrated in different areas of the Pleasant Grove site over the construction period, and because only a single receptor is in proximity, construction and use of the Pleasant

Grove Retention Facility would not expose a substantial number of people to objectionable odors. This impact would be less than significant.

Off-Site Transportation and Utility Improvements

Construction of the off-site transportation and utility improvements would not result in the long-term operation of any source of odorous emissions. Like construction of the urban land uses under the project, odorous emissions generated by heavy-duty diesel equipment and the laying of fresh asphalt during project-related construction activities would be intermittent and temporary, and would dissipate rapidly from the source with an increase in distance. These types of odor-generating activities would not occur in a single location, or within proximity to off-site receptors, for an extended period. The type and level of construction activity would not be atypical of urban areas. Given the temporary and intermittent nature of odor-generating construction activities construction of the off-site improvements project construction is not anticipated to expose a substantial number of people to objectionable odors for an extended period. This impact would be less than significant.

Conclusion

Construction of new urban land uses under the project, as well as construction of the Pleasant Grove Retention Facility and new off-site improvements, would not expose a substantial number of people to objectionable odors for an extended period. Operation of the project, that is, establishment of land uses that could result in creation of odors (e.g., industrial uses, restaurants, breweries, coffee roasters) could generate perceptible odors in commercial and industrial areas following buildout. However, because new odor sources would be subject to project-specific environmental review and to PCAPCD's Rule 205, the project would not result in odor impacts. While WPWMA is actively engaged in a planning process expected to result in facility improvements, including odor abatement strategies, the nature and effectiveness of those strategies are as yet unknown, there are no quantifiable thresholds of significance for odor impacts, and there is no existing fee program or other mechanism by which to fund odor mitigation. This impact would be **significant**.

Mitigation Measures

Reducing the 1-mile buffer around WRSL to accommodate development is an element of the proposed project. One approach to mitigation, as stated in the State CEQA Guidelines Section 15370, is to avoid the impact altogether by not taking a certain action or parts of an action. Placer County acknowledges that maintaining the 1-mile buffer, which would be a feature of the no-project alternative (see Chapter 6, "Project Alternatives") would reduce impacts by reducing the exposure of people to objectionable odors. However, after careful consideration, Placer County has determined that this measure would prevent the County from achieving its project objectives to provide for diversity of development in the project area (including postsecondary education facilities and employment generating uses and associated residential development), provide a diversity of housing types, create a balanced mix of land uses, establish a site for a CSU, meet the County's regional housing needs allocation, ensure economic viability, and achieve consistency with the Sacramento Region Blueprint.

Another common approach to mitigating regional issues involves establishment of a regional mitigation fee program whereby fees are collected on a pro-rata basis from program beneficiaries and then spent on meaningful improvements that specifically reduce the impact in question. Placer County considered the merits of such a program to address odor impacts of the project but determined that establishment of a mitigation fee program would be infeasible. To establish such a program, performance standards would need to be developed to determine program objectives; specific improvements that would achieve the standards would need to be identified; cost estimates for construction, operation, and maintenance of those improvements would need to be developed; the type and geographic scope of fee program participants would need to be established; the pro-rata share per given development unit would need to be defined; and administrative processes and procedures would need to be crafted. Because there is no program currently in place; odor impacts are subjective, highly variable, and weather dependent; and because odor management and abatement are the responsibility of WPWMA, this mitigation approach would be infeasible.

While mitigation for odor issues would be beyond the control of Placer County, feasible measures are available to WPWMA, which owns and operates WRSL and MRF, including composting operations. WPWMA is already engaged in assessment, research, and pilot studies designed to minimize odors to the degree feasible. The following are examples of measures either have been, or can and should be, adopted by WPWMA (CEQA Statute Section 21081; State CEQA Guidelines Section 15091):

- **Implement Revised Composting Methodology**. To reduce odors associated with composting operations, the greatest source of objectionable odors at WRSL, WPWMA can and should implement a revised composting methodology, consisting of either aerated static pile (ASP) technology; covered (CASP) technology, in which ASPs are covered with an organic or synthetic cover; and/or partial or total enclosure of the composting operation. If CASP technology is employed, VOC emissions could be reduced by approximately 72 percent, substantially reducing objectionable odors (SCS Engineers 2018:18).

- **Minimize Use of Fines as Alternative Daily Cover**. Use of fines derived from municipal solid waste (MSW) and the materials recovery facility (MRF) as alternative daily cover (ADC) can generate more objectionable odors than the MSW waste stream because of its large surface area and potential to generate odorous gases. To reduce odors associated with composting operations, WPWMA can and should minimize use of fines as ADC to the degree feasible, and should cover MRF and MSW fines with MSW, soil, or other daily cover to reduce odor emissions from fines used overnight as ADC.

- **Immediately Cover or Bury Sludge Waste**. To reduce odors associated with sludge received by WRSL from the Roseville Wastewater Treatment Plant (WWTP), WPWMA can and should immediately cover or bury sludge waste. This practice can prevent sludge from off-gassing for extended periods and reduce odorous emissions that may migrate offsite.

As noted above, WPWMA is engaged with the community regarding odor management, is assessing the viability of odor-reducing approaches through pilot studies, and is actively planning facility and operational improvements as part of its Renewable Placer Waste Action Plan to address regional growth, regulatory requirements, and other goals and objectives, including odor control. However, because these specific measures are beyond the jurisdiction of Placer County, and because the nature, degree, and effectiveness of future odor control measures that may be implemented by WPWMA are unknown, odor impacts resulting from the project would be **significant and unavoidable**.

CUMULATIVE IMPACTS

Cumulative Impact 4.3-7: Construction emissions of criteria air pollutants and precursors

Placer County and the SVAB are in nonattainment for ozone (i.e., ROG and NO_X) and PM_{10} with respect to the CAAQS, and in nonattainment for ozone and $PM_{2.5}$ with respect to the NAAQS. Construction activities in the region would add particulate matter and ozone emissions into the SVAB that may conflict with attainment efforts. Cumulative development identified in Table 4.0-2, while required to mitigate for adverse air quality impacts, will contribute to regional emissions, resulting in a significant adverse cumulative impact.

Project-related construction emissions of ROG, NO_X, and PM_{10} would exceed the applicable mass emission thresholds established by PCAPCD. PCAPCD considers these thresholds to be the criteria for determining whether emissions generated by an individual project would be cumulatively considerable (PCAPCD 2017a:21). Incorporation of Mitigation Measures 4.3-2a and 4.3-2b would reduce NO_X emissions by up to 20 percent and PM_{10} by up to 45 percent. However, because of the scale and extent of construction activities that would occur, as well as the uncertainty of specific construction activities and timing, construction activities could overlap, resulting in emissions that exceed PCAPCD's daily construction thresholds. Therefore, project construction emissions would be **cumulatively considerable**. Because no additional mitigation is available beyond that recommended for project-specific construction emissions, the cumulative impact would be **significant and unavoidable.**

Cumulative Impact 4.3-8: Long-term operational emissions of criteria air pollutants and precursors

Ozone impacts are the result of cumulative emissions from numerous sources in the region and transport from outside the region. Reasonably foreseeable regional development identified in Table 4.0-2 will add urban development on over 50,000 acres of primarily undeveloped land in the region, resulting in more than 100,000 new residences and millions of square feet of commercial, office, and industrial floor area. All of this regional development will increase emissions that contribute to ozone impacts. Ozone is formed in chemical reactions involving NO_X, ROG, and sunlight. All but the largest individual sources emit NO_X and ROG in amounts too small to have a measurable effect on ambient ozone concentrations by themselves. However, when all sources throughout the region are combined, they can result in ambient concentrations of ozone that exceed the NAAQS and CAAQS.

PM_{10} and $PM_{2.5}$ have a similar regional cumulative impacts when particulates are entrained in the air and build to unhealthful concentrations over time. PM_{10} and $PM_{2.5}$ also have the potential to cause significant local problems during periods of dry conditions accompanied by high winds, and during periods of heavy earth disturbing activities. PM_{10} and $PM_{2.5}$ may have cumulative local impacts if, for example, several unrelated grading or earth moving activities are underway simultaneously at nearby sites. Several cumulative projects are large-scale developments in close enough proximity (e.g., Amoruso Ranch, Creekview Specific Plan, West Roseville Specific Plan, Whitney Ranch, Twelve Bridges Specific Plan, and Lincoln Village 5) such that localized PM_{10} and $PM_{2.5}$ effects could occur. Operational PM_{10} and $PM_{2.5}$ are less likely to result in local cumulative impacts as operational sources of PM_{10} and $PM_{2.5}$ tend to be spread throughout the region (i.e., vehicles traveling on roads), not affecting any one receptor. Therefore, emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from cumulative development are significant in the air basin. The project's contribution to the nonattainment status of the SVAB with respect to the CAAQS and NAAQS would be **cumulatively considerable.** Because no additional mitigation is available beyond that recommended for project-specific operational emissions, the cumulative impact would be **significant and unavoidable.**

Cumulative Impact 4.3-9: Mobile-source CO concentrations

CO, concentrations of which are examined in Impact 4.3-4, is a pollutant of localized concern because CO disperses rapidly with distance from the source under normal meteorological conditions. Thus, it is unlikely that the concentration of CO at a single receptor would be the result of more than one source of CO, unless multiple sources of CO are located close together. The analysis under Impact 4.3-4, which examines whether vehicle trips generated under the SAP and PRSP could result in localized CO concentrations that exceed the NAAQS and CAAQS for CO, is inherently cumulative. By examining whether the SAP- and PRSP-related traffic would result in an affected intersection experiencing more than 31,600 vehicles per hour, the analysis accounts for traffic generated by existing, proposed, and other future land uses that would use the same intersections. Moreover, the 31,600-vehicles-per-hour screening criterion accounts for the ambient background concentrations of CO in the region. Consequently, the project's contribution to cumulative CO impacts would not be considerable and therefore, **less than significant.**

Cumulative Impact 4.3-10: Exposure of sensitive receptors to TACs

TACs, which are examined under Impact 4.3-5, are also pollutants of localized concern. Diesel PM emissions are the primary TAC of concern regarding the construction and operation of new urban land uses and infrastructure. The health risk-based significance criteria used to evaluate TACs under Impact 4.3-5 are also inherently cumulative. This impact examines whether implementing the SAP and PRSP would result in the exposure of sensitive receptors to TAC emissions that would result in cancer risk of 10 in 1 million or a noncarcinogenic Hazard Index of 1 at any receptor. Thus, the analysis focuses on the incremental increase in health risk from project-related sources of TAC emissions. Although Mitigation Measures 4.3-5a and 4.3-5b would reduce project-generated TACs, its contribution is significant because of the scale of development, the uncertainty in the number, type, and location of TAC sources, and the level of associated health risk exposure that would result at any one location. It cannot be determined with certainty that future TAC concentrations would not expose any receptors to levels that exceed 10 in 1 million when combined with other projects. Consequently, the project's contribution to cumulative TACs impact would be **cumulatively considerable**. Because no additional mitigation is available beyond that recommended for TAC impacts, the cumulative impact would be **significant and unavoidable**.

Cumulative Impact 4.3-11: Exposure of sensitive receptors to odors

The creation of objectionable odors affecting a substantial number of people, which is examined under Impact 4.3-6, is also an impact of localized concern. Construction and operation of land uses under the SAP and PRSP would not result in the development of new odor sources atypical of developed urban areas and odor-generating construction activity would be temporary. Any new odor sources would be subject to future environmental review, and to PCAPCD Rule 205, Nuisance. Implementation of the SAP, PRSP, and cumulative development that would make use of WRSL for waste disposal, composting, and materials recovery would substantially increase the incoming waste stream and thus, odor emissions from the facility. While odor abatement approaches and technologies may be implemented by WRSL in the future, potentially as part of its Renewable Placer Waste Action Plan, the nature and effectiveness of these measures are unknown at this time, and cumulative odor impacts would be significant. As described in Impact 4.3-6, above, the project would involve locating additional new urban land uses, including residential uses, within 1 mile of the WRSL and other odor sources that already generate a substantial number of odor complaints. Because implementation of the project would contribute substantial waste, and therefore odor emissions, to WRSL, and would result in exposure of a substantial number of people to objectionable odors, the impact of the project relative to odor impacts would be **cumulatively considerable**. While feasible mitigation for odor impacts at the WRSL is available and can and should be implemented by WPWMA, such measures are beyond the control of Placer County. Therefore, the cumulative impact would be **significant and unavoidable**.