

5. AIR QUALITY AND GREENHOUSE GAS EMISSIONS

5.1 INTRODUCTION

The Air Quality and Greenhouse Gas Emissions chapter of the EIR describes the potential impacts of the proposed project on local and regional air quality. The chapter includes a discussion of the existing air quality and greenhouse gas (GHG) setting, construction-related air quality impacts resulting from grading and equipment emissions, direct and indirect emissions associated with the project, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts. This chapter is based on the Placer County General Plan¹ and associated EIR,² the Dry Creek-West Placer Community Plan (DCWPCP),³ the Placer County Air Pollution Control District's (PCAPCD) *CEQA Air Quality Handbook*,⁴ PCAPCD's *Review of Land Use Projects Under CEQA*,⁵ and technical analysis performed by Raney Planning and Management, Inc.

5.2 EXISTING ENVIRONMENTAL SETTING

The following information provides an overview of the existing environmental setting in relation to air quality within the proposed project area. Air basin characteristics, ambient air quality standards (AAQS), attainment status and regional air quality plans, local air quality monitoring, odors, sensitive receptors, and greenhouse gases are discussed.

Air Basin Characteristics

The proposed project site is located in western Placer County, which falls within the Sacramento Valley Air Basin (SVAB) and is within the jurisdictional boundaries of the PCAPCD. Air flows into the SVAB through the Carquinez Strait, moves across the Delta and carries pollutants from the heavily populated San Francisco Bay Area into the SVAB. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storms. From May to October, the region's intense heat and sunlight lead to high ozone concentrations. Prevailing winds are from the south and southwest, and as a result of prevailing winds coming generally from south to southwest, air quality in the area is heavily influenced by mobile and stationary sources of air pollution located upwind in the Sacramento Metropolitan Area.

Most precipitation in the SVAB results from air masses moving in from the Pacific Ocean during the winter months. Storms usually move through the area from the west or northwest. During the winter rainy season (November through February) over half the total annual precipitation falls while the average winter temperature is a moderate 49 degrees Fahrenheit. During the summer, daytime temperatures can exceed 100 degrees Fahrenheit. Dense fog occurs mostly in mid-winter and rarely in the summer. Daytime temperatures from April through October average between 60 and 80 degrees Fahrenheit with low humidity. The inland location and surrounding

¹ Placer County. *Countywide General Plan Policy Document*. August 1994 (updated May 2013).

² Placer County. *Countywide General Plan EIR*. July 1994.

³ Placer County, Planning Services Division. *Dry Creek-West Placer Community Plan*. May 14, 1990.

⁴ Placer County Air Pollution Control District. *CEQA Air Quality Handbook*. November 21, 2017.

⁵ Placer County Air Pollution Control District. *Review of Land Use Projects Under CEQA*. October 13, 2016.



mountains shelter the valley from much of the ocean breeze that keeps the coastal regions moderate in temperature. The only breach in the mountain barrier is the Carquinez Strait, which exposes the midsection of the valley to the coastal air mass.

Air quality in Placer County is also affected by inversion layers, which occur when a layer of warm air traps a layer of cold air, preventing vertical dispersion of air contaminants. The presence of an inversion layer results in higher concentrations of pollutants near ground level. Summer inversions are strong and frequent, but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Air quality in the project vicinity is influenced by both local and distant emission sources. Air pollutant sources in the immediate project vicinity include emissions from vehicle traffic on nearby roadways, as well as emissions from locomotives within the Roseville Railyard. Other sources of air pollutants in the area include activities associated with commercial, residential, and industrial land uses.

Ambient Air Quality Standards

Both the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. The federal standards are divided into primary standards, which are designed to protect the public health, and secondary standards, which are designed to protect the public welfare. The ambient air quality standards for each contaminant represent safe levels that avoid specific adverse health effects. Pollutants for which air quality standards have been established are called “criteria” pollutants. Table 5-1 identifies the major pollutants, characteristics, health effects and typical sources. The federal and California ambient air quality standards (NAAQS and CAAQS, respectively) are summarized in Table 5-2. The NAAQS and CAAQS were developed independently with differing purposes and methods. As a result, the federal and State standards differ in some cases. In general, the State of California standards are more stringent than the federal standards, particularly for ozone and particulate matter (PM).

A description of each criteria pollutant and its potential health effects is provided in the following section.

Ozone

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere, ozone is a product of the photochemical process involving the sun's energy, and is a secondary pollutant formed as a result of a complex chemical reaction between reactive organic gases (ROG) and oxides of nitrogen (NO_x) emissions in the presence of sunlight. As such, unlike other pollutants, ozone is not released directly into the atmosphere from any sources. In the stratosphere, ozone exists naturally and shields Earth from harmful incoming ultraviolet radiation. The primary source of ozone precursors is mobile sources, including cars, trucks, buses, construction equipment, and agricultural equipment. Ground-level ozone reaches the highest level during the afternoon and early evening hours. High levels occur most often during the summer months. Ground-level ozone is a strong irritant that could cause constriction of the airways, forcing the respiratory system to work harder in order to provide oxygen. Ozone at the Earth's surface causes numerous adverse health effects and is a major component of smog. High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments.



**Table 5-1
Summary of Criteria Pollutants**

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive gas produced by the photochemical process involving a chemical reaction between the sun's energy and other pollutant emissions. Often called photochemical smog.	<ul style="list-style-type: none"> • Eye irritation • Wheezing, chest pain, dry throat, headache, or nausea • Aggravated respiratory disease such as emphysema, bronchitis, and asthma 	Combustion sources such as factories, automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	An odorless, colorless, highly toxic gas that is formed by the incomplete combustion of fuels.	<ul style="list-style-type: none"> • Impairment of oxygen transport in the bloodstream • Impaired vision, reduced alertness, chest pain, and headaches • Can be fatal in the case of very high concentrations 	Automobile exhaust, combustion of fuels, and combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	A reddish-brown gas that discolors the air and is formed during combustion of fossil fuels under high temperature and pressure.	<ul style="list-style-type: none"> • Lung irritation and damage • Increased risk of acute and chronic respiratory disease 	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
Sulfur Dioxide	A colorless, irritating gas with a rotten egg odor formed by combustion of sulfur-containing fossil fuels.	<ul style="list-style-type: none"> • Aggravation of chronic obstruction lung disease • Increased risk of acute and chronic respiratory disease 	Diesel vehicle exhaust, oil-powered power plants, and industrial processes.
Particulate Matter (PM ₁₀ and PM _{2.5})	A complex mixture of extremely small particles and liquid droplets that can easily pass through the throat and nose and enter the lungs.	<ul style="list-style-type: none"> • Aggravation of chronic respiratory disease • Heart and lung disease • Coughing • Bronchitis • Chronic respiratory disease in children • Irregular heartbeat • Nonfatal heart attacks 	Combustion sources such as automobiles, power generation, industrial processes, and wood burning. Also from unpaved roads, farming activities, and fugitive windblown dust.
Lead	A metal found naturally in the environment as well as in manufactured products.	<ul style="list-style-type: none"> • Loss of appetite, weakness, apathy, and miscarriage • Lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract 	Industrial sources and combustion of leaded aviation gasoline.

Sources:

- **California Air Resources Board. California Ambient Air Quality Standards (CAAQS). Available at: <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>. Accessed May 2019.**
- **Sacramento Metropolitan, El Dorado, Feather River, Placer, and Yolo-Solano Air Districts, Spare the Air website. Air Quality Information for the Sacramento Region. Available at: <http://www.sparetheair.com/health.cfm?page=healthoverall>. Accessed May 2019.**
- **California Air Resources Board. Glossary of Air Pollution Terms. Available at: <http://www.arb.ca.gov/html/gloss.htm>. Accessed May 2019.**



**Table 5-2
 Ambient Air Quality Standards**

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary	Secondary
Ozone	1 Hour	0.09 ppm	-	Same as primary
	8 Hour	0.070 ppm	0.070 ppm	
Carbon Monoxide	8 Hour	9 ppm	9 ppm	-
	1 Hour	20 ppm	35 ppm	
Nitrogen Dioxide	Annual Mean	0.030 ppm	53 ppb	Same as primary
	1 Hour	0.18 ppm	100 ppb	-
Sulfur Dioxide	24 Hour	0.04 ppm	-	-
	3 Hour	-	-	0.5 ppm
	1 Hour	0.25 ppm	75 ppb	-
Respirable Particulate Matter (PM ₁₀)	Annual Mean	20 ug/m ³	-	Same as primary
	24 Hour	50 ug/m ³	150 ug/m ³	
Fine Particulate Matter (PM _{2.5})	Annual Mean	12 ug/m ³	12 ug/m ³	15 ug/m ³
	24 Hour	-	35 ug/m ³	Same as primary
Lead	30 Day Average	1.5 ug/m ³	-	-
	Calendar Quarter	-	1.5 ug/m ³	Same as primary
Sulfates	24 Hour	25 ug/m ³	-	-
Hydrogen Sulfide	1 Hour	0.03 ppm	-	-
Vinyl Chloride	24 Hour	0.010 ppm	-	-
Visibility Reducing Particles	8 Hour	see note below	-	-

ppm = parts per million
 ppb = parts per billion
 ug/m³ = micrograms per cubic meter

Note: Statewide Visibility Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Source: California Air Resources Board. Ambient Air Quality Standards. May 4, 2016. Available at: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Accessed May 2019.

Reactive Organic Gas

Reactive Organic Gas (ROG) is a reactive chemical gas composed of hydrocarbon compounds typically found in paints and solvents that contributes to the formation of smog and ozone by involvement in atmospheric chemical reactions. A separate health standard does not exist for ROG. However, some compounds that make up ROG are toxic, such as the carcinogen benzene.

Oxides of Nitrogen

Oxides of Nitrogen (NO_x) are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_x, nitrogen dioxide (NO₂), is a reddish-brown gas that discolors the air and is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of NO_x. NO_x reacts with ROG to form smog, which could result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_x emissions are a major component of acid rain. Health



effects related to NO_x include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels such as gasoline, oil, and wood. When CO enters the body, the CO combines with chemicals in the body, which prevents blood from carrying oxygen to cells, tissues, and organs. Symptoms of exposure to CO can include problems with vision, reduced alertness, and general reduction in mental and physical functions. Exposure to CO can result in chest pain, headaches, reduced mental alertness, and death at high concentrations.

Sulfur Dioxide

Sulfur Dioxide (SO_2) is a colorless, irritating gas with a rotten egg odor formed primarily by the combustion of sulfur-containing fossil fuels from mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum refining and metal processing. Similar to airborne NO_x , suspended sulfur oxide particles contribute to poor visibility. The sulfur oxide particles are also a component of PM_{10} .

Particulate Matter

Particulate matter, also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health impacts. The USEPA is concerned about particles that are 10 micrometers in diameter or smaller (PM_{10}) because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, the particles could affect the heart and lungs and cause serious health effects. USEPA groups particle pollution into three categories based on their size and where they are deposited:

- "Inhalable coarse particles ($\text{PM}_{2.5-10}$)," which are found near roadways and dusty industries, are between 2.5 and 10 micrometers in diameter. $\text{PM}_{2.5-10}$ is deposited in the thoracic region of the lungs.
- "Fine particles ($\text{PM}_{2.5}$)," which are found in smoke and haze, are 2.5 micrometers in diameter and smaller. $\text{PM}_{2.5}$ particles could be directly emitted from sources such as forest fires, or could form when gases emitted from power plants, industries, and automobiles react in the air. They penetrate deeply into the thoracic and alveolar regions of the lungs.
- "Ultrafine particles (UFP)," are very, very small particles (less than 0.1 micrometers in diameter) largely resulting from the combustion of fossil fuels, meat, wood, and other hydrocarbons. While UFP mass is a small portion of $\text{PM}_{2.5}$, their high surface area, deep lung penetration, and transfer into the bloodstream could result in disproportionate health impacts relative to their mass. UFP is not currently regulated separately, but is analyzed as part of $\text{PM}_{2.5}$.

PM_{10} , $\text{PM}_{2.5}$, and UFP include primary pollutants, which are emitted directly to the atmosphere and secondary pollutants, which are formed in the atmosphere by chemical reactions among precursors. Generally speaking, $\text{PM}_{2.5}$ and UFP are emitted by combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM_{10} sources include the same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent a source of airborne dust. Long-term PM pollution, especially fine particles, could result in significant health problems including, but not limited to, the following: increased respiratory



symptoms, such as irritation of the airways, coughing or difficulty breathing; decreased lung function; aggravated asthma; development of chronic respiratory disease in children; development of chronic bronchitis or obstructive lung disease; irregular heartbeat; heart attacks; and increased blood pressure.

Lead

Lead is a relatively soft and chemically resistant metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, and, thus, essentially persists forever. Lead forms compounds with both organic and inorganic substances. As an air pollutant, lead is present in small particles. Sources of lead emissions in California include a variety of industrial activities. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels. The use of leaded fuel has been mostly phased out, with the result that ambient concentrations of lead have dropped dramatically. However, because lead was emitted in large amounts from vehicles when leaded gasoline was used, lead is present in many soils (especially urban soils) as a result of airborne dispersion and could become re-suspended into the air.

Because lead is only slowly excreted by the human body, exposures to small amounts of lead from a variety of sources could accumulate to harmful levels. Effects from inhalation of lead above the level of the ambient air quality standard may include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms could include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children. Lead also causes cancer.

Sulfates

Sulfates are the fully oxidized ionic form of sulfur and are colorless gases. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. The sulfur is oxidized to SO₂ during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO₂ to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The sulfates standard established by CARB is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, because they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide

Hydrogen Sulfide (H₂S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. Hydrogen sulfide is extremely hazardous in high concentrations, especially in enclosed spaces (800 ppm can cause death).

Vinyl Chloride

Vinyl Chloride (C₂H₃Cl, also known as VCM) is a colorless gas that does not occur naturally, but is formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC) which is used



to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Visibility Reducing Particles

Visibility Reducing Particles are a mixture of suspended particulate matter consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. The standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are also a category of environmental concern. TACs are present in many types of emissions with varying degrees of toxicity. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Common stationary sources of TACs include gasoline stations, dry cleaners, and diesel backup generators, which are subject to PCAPCD stationary source permit requirements. The other, often more significant, common source type is on-road motor vehicles, such as cars and trucks, on freeways and roads, and off-road sources such as construction equipment, ships, and trains.

Fossil fueled combustion engines, including those used in cars, trucks, and some pieces of construction equipment, release at least 40 different TACs. In terms of health risks, the most volatile contaminants are diesel particulate matter (DPM), benzene, formaldehyde, 1,3-butadiene, toluene, xylenes, and acetaldehyde. Gasoline vapors contain several TACs, including benzene, toluene, and xylenes. Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust, DPM, is composed of carbon particles and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of such chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and NO_x. Due to the published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects, the CARB has identified DPM from diesel-fueled engines as a TAC. Although a variety of TACs are emitted by fossil fueled combustion engines, the cancer risk due to DPM exposure represents a more significant risk than the other TACs discussed above.⁶

More than 90 percent of DPM is less than one micrometer in diameter, and, thus, DPM is a subset of PM_{2.5}. As a California statewide average, DPM comprises about eight percent of PM_{2.5} in outdoor air, although DPM levels vary regionally due to the non-uniform distribution of sources throughout the State. Most major sources of diesel emissions, such as ships, trains, and trucks, operate in and around ports, rail yards, and heavily-traveled roadways. Such areas are often located near highly populated areas. Thus, elevated DPM levels are mainly an urban problem, with large numbers of people exposed to higher DPM concentrations, resulting in greater health consequences compared to rural areas.

Due to the high levels of diesel activity, high volume freeways, stationary diesel engines, rail yards and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Construction-related activities also have the potential

⁶ California Air Resources Board. *Reducing Toxic Air Pollutants in California's Communities*. February 6, 2002.



to generate concentrations of DPM from on-road haul trucks and off-road equipment exhaust emissions.

The size of diesel particulates that are of the greatest health concern are fine particles (i.e., PM_{2.5}) and UFPs. UFPs have a small diameter (on the order of 0.1 micrometers).⁷ The small diameter of UFPs imparts the particulates with unique attributes, such as high surface areas and the ability to penetrate deeply into lungs. Once UFPs have been deposited in lungs, the small diameter allows the UFPs to be transferred to the bloodstream. The high surface area of the UFPs also allows for a greater adsorption of other chemicals, which are transported along with the UFPs into the bloodstream of the inhaler, where the chemicals can eventually reach critical organs.⁸ The penetration capability of UFPs may contribute to adverse health effects related to heart, lung, and other organ health.⁹ UFPs are a subset of DPM and activities that create large amounts of DPM, such as the operations involving heavy diesel-powered engines, also release UFPs. Considering that UFPs are a subset of DPM, and DPM represents a subset of PM_{2.5}, estimations of either concentrations or emissions of PM_{2.5} or DPM include UFPs.

Health risks from TACs are a function of both the concentration of emissions and the duration of exposure, which typically are associated with long-term exposure and the associated risk of contracting cancer. Health effects of exposure to TACs other than cancer include birth defects, neurological damage, and death. Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to criteria air pollutants that have established AAQS. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an AAQS or emission-based threshold.

Diesel Particulate Matter

Diesel powered engines, including locomotive engines, represent a major source of DPM in California. Because locomotive engines emit DPM during operations, areas where locomotive engines are operated in place/idle frequently or for long periods of time can experience increased atmospheric concentrations of DPM. Consequently, the CARB considers railyards to be substantial sources of TACs.

The Union Pacific J.R. Davis Yard (rail yard), located in Roseville, California, is approximately 0.7-mile away from the southeastern boundary of the project site. In 2004 the CARB and PCAPCD conducted a health risk assessment (HRA) to determine the potential public health risks from DPM emissions due to locomotive activity at the rail yard. The rail yard covers approximately 950 acres and is used for service and maintenance operations with approximately 30,000 locomotives visiting the railyard annually. The CARB concluded that operation of the rail yard resulted in the emission of approximately 25 tons of DPM in the year 2000. Moving locomotives accounted for 50 percent of the emissions, while idling locomotives accounted for 45 percent and testing accounted for five percent of the DPM emissions from the yard. The HRA showed that the potential impacts from DPM emissions originating at the rail yards to residents in the area varied with distance from the railyard.¹⁰

⁷ South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.

⁸ Health Effects Institute. *Understanding the Health Effects of Ambient Ultrafine Particles*. January 2013.

⁹ South Coast Air Quality Management District. *Final 2012 Air Quality Management Plan*. December 2012.

¹⁰ California Air Resources Board. *Roseville Rail Yard Study*. October 14, 2004.



Potential impacts related to DPM emissions were estimated based on a 70-year exposure period (i.e., a resident living a given distance from the rail yard for 70 years), and were presented as an increase in cancer risk per million residents. Representing increased cancer risk per million resident means that if a cancer risk of one per million is estimated, then in a population of one million people, one new case of cancer above the expected cancer risk may occur. At the time that the HRA was prepared for the railyards, the risks estimated based on the DPM emissions from the rail yard ranged from as high as 500 cases per million for residents in proximity to the service area, to 10 cases per million for residents farther away from the project site. At the time of the 2004 study, at least 155,000 people live within areas with increased cancer risk of 10 in one million or more.¹¹

Subsequent to the preparation of the HRA, on December 9, 2004, the PCAPCD authorized an agreement with UPRR concerning mitigation measures and continued air monitoring at the rail yard. In addition, the CARB signed a Memorandum of Understanding (MOU) with the UPRR and BNSF Railway Company to mitigate emissions from major railyards throughout the State. The PCAPCD agreement included a Mitigation Plan with four main areas of focus: 1) Reduction of unnecessary idling; 2) Introduction of low-sulfur diesel fuel for locomotives; 3) Switcher locomotive fleet replacements/upgrades; and 4) Investigate the use of emission control from the service, test, and maintenance and repair locations using stationary source type of equipment (often referred to as the “hood” or Advanced Locomotive Emission Control System [ALECS]).¹²

In 2009, the PCAPCD summarized findings from on-going monitoring of the rail yard, and concluded that by the end of 2007, DPM emissions from operations of the rail yard had been reduced from 25 tons per year in 2000 to 19 tons per year in 2007, with emission of all pollutants from the overall facility operations being reduced by 23 percent. The reduction in pollutant emissions is a result of implementation of mitigation measures one through three. While a proof-of-concept test was completed for the ALECS technology, ALECS had not been deployed within the rail yard at the time of the 2009 report summarizing the monitoring of the rail yard.¹³

Although the PCAPCD has not released any subsequent health impact analyses based on the 2009 report and measured emissions reductions, the 23 percent reduction in overall emissions would directly reduce the exposure of nearby residence to pollutants; thus, reducing health risks to residents. Since the 2009 study, continued implementation of the PCAPCD-UPRR Agreement, as well as the CARB-UPRR-BNSF MOU, is anticipated to have resulted in maintained emissions reductions or further reductions.¹⁴ However, reports summarizing emissions at the rail yards since 2009 have not yet been prepared.¹⁵

Considering the above, emissions and resulting health risks from the rail yard have decreased from the levels analyzed in the 2004 HRA. However, rail yard activity continues to involve emissions, which pose health risks to residents in the area.

Considering the proposed project’s proximity to the railyards, the conclusions of the 2004 rail yard study, and the 2009 summary of findings, the project site is anticipated to be within an area of

¹¹ California Air Resources Board. *Roseville Rail Yard Study*. October 14, 2004.

¹² Placer County Air Pollution Control District. *Memorandum: Final Update Pertaining to the Mitigation Measures and Monitoring Activities for the Union Pacific Roseville Railyard (Information)*. December 10, 2009.

¹³ *Ibid.*

¹⁴ *Ibid.*

¹⁵ Yushuo Chang, Planning & Monitoring Section Manager, PCAPCD. Personal Communication [phone] with Green, Angel, Placer County Planning Services Division, Senior Planner. August 23, 2019.



increased cancer risk due to rail yard related DPM. Because the proposed project is a residential development, future residents of the project may be exposed to increased cancer risk related to DPM from rail yard activity.

As part of the *California Building Industry Association v. Bay Area Air Quality Management District* case (CBIA case), the California Supreme Court granted limited review to the question: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users (receptors) of a proposed project? The question specifically concerned the applicability of thresholds promulgated by the Bay Area Air Quality Management District (BAAQMD), some of which related to exposure of sensitive receptors to existing TAC emissions. In the opinion published on December 17, 2015, the Supreme Court looked closely at the language and legislative intent in CEQA, and found that CEQA does not provide “enough of a basis to suggest that the term ‘environmental effects’ [. . .] is meant, as a general matter, to encompass these broader considerations associated with the health and safety of a project’s future residents or users.” Based on the Supreme Court opinion, it would be considered appropriate to evaluate a project’s potentially significant *exacerbating* effects on existing environmental hazards – effects that arise because the project brings “development and people into the area affected.” The Supreme Court stated that even in those specific instances where evaluation of a project’s potentially significant exacerbating effects on existing environmental hazards is appropriate, the evaluation of how future residents or users could be affected by the exacerbated conditions is still compelled by the project’s impact on the environment, for instance the project’s emission of TACs, and not the environment’s impact on the project, such as the exposure of proposed receptors to existing off-site TAC emissions.¹⁶

Considering the court ruling, while the future residents of the proposed project would be considered a sensitive receptor, consideration of potential impacts from existing sources of TACs, such as the existing rail yards, would only be justified if the proposed project would exacerbate existing hazardous conditions. The proposed project involves a residential development that would operate separately from the rail yard and would not have an effect on rail yard operations or rail yard related DPM emissions. Therefore, the proposed project would not be considered to exacerbate an existing hazardous condition, and analysis of potential impacts related to DPM exposure of future residents is outside of the scope of CEQA. Thus, the analysis in this chapter will focus on the potential for the proposed project to result in TAC emissions that could affect existing nearby sensitive receptors.

Naturally Occurring Asbestos

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

¹⁶ Alameda County Superior Court. *California Building Industry Association v. Bay Area Air Quality Management District*. A135335 and A136212. Filed August 12, 2016.



NOA is typically associated with fault zones, and areas containing serpentinite or contacts between serpentinite and other types of rocks. According to the *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California* prepared by the Department of Conservation, the project site is located within an area categorized as least likely to contain NOA, because faults and serpentinite outcroppings are not known to be in the project area.¹⁷

Attainment Status and Regional Air Quality Plans

The Federal Clean Air Act (FCAA) and the California Clean Air Act (CCAA) require all areas of California to be classified as attainment, nonattainment, or unclassified as to their status with regard to the NAAQS and/or CAAQS. The FCAA and CCAA require that the CARB, based on air quality monitoring data, designate portions of the State where the federal or State AAQS are not met as “nonattainment areas.” Because of the differences between the national and State standards, the designation of nonattainment areas is different under the federal and State legislation. The CCAA requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or, provide for adoption of “all feasible measures on an expeditious schedule.”

As presented in Table 5-3, under the CCAA, Placer County has been designated nonattainment for the State one-hour ozone, State and federal eight-hour ozone and State PM₁₀ standards. The County is designated attainment or unclassified for all other AAQS. Due to the nonattainment designations, the PCAPCD, along with the other air districts in the SVAB region, is required to develop plans to attain the federal and State standards for ozone and particulate matter. The air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control measures have worked, and show how air pollution would be reduced. In addition, the plans include the estimated future levels of pollution to ensure that the area would meet air quality goals. Each of the attainment plans currently in effect are discussed in further detail in the Regulatory Context section of this chapter.

Local Air Quality Monitoring

Air quality is monitored by CARB at various locations to determine which air quality standards are being violated, and to direct emission reduction efforts, such as developing attainment plans and rules, incentive programs, etc. The nearest local air quality monitoring station to the project site is the Roseville-N Sunrise Boulevard station, located at 151 North Sunrise Boulevard in Roseville CA, approximately 2.6 miles from the project site. Based on the data available for the Roseville-N Sunrise Boulevard monitoring station, Table 5-4, below, presents the number of days that the State and federal AAQS were exceeded for the three-year period from 2015 to 2017.

Odors

While offensive odors rarely cause physical harm, they can be unpleasant, leading to considerable annoyance and distress among the public and can generate citizen complaints to local governments and air districts. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative or formulaic methodologies to determine the presence of a significant odor impact do not exist.

¹⁷ California Department of Conservation, California Geological Survey. *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*. Published 2006.



**Table 5-3
 Placer County Attainment Status Designations**

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone	1 Hour	Nonattainment	Revoked in 2005
	8 Hour	Nonattainment	Nonattainment
Carbon Monoxide	8 Hour	Attainment	Attainment
	1 Hour	Attainment	Attainment
Nitrogen Dioxide	Annual Mean	Attainment	Attainment
	1 Hour	Attainment	Attainment
Sulfur Dioxide	Annual Mean	Attainment	-
	24 Hour	Attainment	-
	3 Hour	Attainment	-
	1 Hour	Attainment	-
Respirable Particulate Matter (PM ₁₀)	Annual Mean	Nonattainment	-
	24 Hour	Nonattainment	Attainment
Fine Particulate Matter (PM _{2.5})	Annual Mean	Attainment	Attainment
	24 Hour	-	Nonattainment
Lead	30 Day Average	Attainment	Attainment
	Calendar Quarter	Attainment	Attainment
	Rolling 3-Month Average	Attainment	Attainment
Sulfates	24 Hour	Attainment	-
Hydrogen Sulfide	1 Hour	-	-
Visibility Reducing Particles	8 Hour	-	-

Source: Placer County Air Pollution Control District. CEQA Air Quality Handbook. November 21, 2017.

**Table 5-4
 Air Quality Data Summary for the Roseville-N Sunrise Boulevard Station (2015-2017)**

Pollutant	Standard	Days Standard Was Exceeded		
		2015	2016	2017
1-Hour Ozone	State	1	5	4
	Federal	0	0	0
8-Hour Ozone	State	6	21	10
	Federal	6	20	9
24-Hour PM _{2.5}	Federal	0	0	0
24-Hour PM ₁₀	State	1	0	5
	Federal	0	0	0
1-Hour Nitrogen Dioxide	State	0	0	0
	Federal	0	0	0

Source: California Air Resources Board. Aerometric Data Analysis and Management (iADAM) System. Available at <http://www.arb.ca.gov/adam/welcome.html>. Accessed June 2019.



Adverse effects of odors on residential areas and other sensitive receptors warrant the closest scrutiny; but consideration should also be given to other land use types where people congregate, such as recreational facilities, worksites, and commercial areas. The potential for an odor impact is dependent on a number of variables including the nature of the odor source, distance between a receptor and an odor source, and local meteorological conditions.

One of the most important factors influencing the potential for an odor impact to occur is the distance between the odor source and receptors, also referred to as a buffer zone or setback. The greater the distance between an odor source and receptor, the less concentrated the odor emission would be when reaching the receptor.

Meteorological conditions also affect the dispersion of odor emissions, which determines the exposure concentration of odiferous compounds at receptors. The predominant wind direction in an area influences which receptors are exposed to the odiferous compounds generated by a nearby source. Receptors located upwind from a large odor source may not be affected due to the produced odiferous compounds being dispersed away from the receptors. Wind speed also influences the degree to which odor emissions are dispersed away from any area.

Odiferous compounds could be generated from a variety of source types including both construction and operational activities. Examples of common land use types that typically generate significant odor impacts include, but are not limited to wastewater treatment plants; sanitary landfills; composting/green waste facilities; recycling facilities; petroleum refineries; chemical manufacturing plants; painting/coating operations; rendering plants; and food packaging plants.

The Dry Creek Wastewater Treatment Plant is located approximately 1,800 feet to the southwest of the project site and is considered a potential source of odors. In addition, various industrial land uses and the Roseville Railyards are in proximity to the project site, and could generate odors from existing or future operations. Although existing potential sources of odors are located in proximity to the project site, the recent CBIA case, discussed above, dictates that analysis of existing environmental conditions must be limited to the effects of the proposed project on the environment as will be done in the Project-Specific Impacts and Mitigation Measures section of this Chapter.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, day care centers, playgrounds, and medical facilities. Residential developments exist directly to the east and south of the project site across Brady Lane and Vineyard Road, respectively. Additional rural residential developments exist to the northwest and west of the site. Furthermore, a residence exists within a carve out parcel in the southwestern portion of the project site, located approximately 25 feet from the parcel's northern property line and 15 feet from its eastern property line. The existing residence would be retained with implementation of the project and, thus, is considered the nearest sensitive receptor.



Greenhouse Gas Emissions

GHGs are gases that absorb and emit radiation within the thermal infrared range, trapping heat in the earth's atmosphere. Some GHGs occur naturally and are emitted into the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal GHGs that enter the atmosphere due to human activities are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated carbons. Other common GHGs include water vapor, ozone, and aerosols. The increase in atmospheric concentrations of GHG due to human activities has resulted in more heat being held within the atmosphere, which is the accepted explanation for global climate change.

The primary GHG emitted by human activities is CO₂, with the next largest components being CH₄ and N₂O. A wide variety of human activities result in the emission of CO₂. Some of the largest sources of CO₂ include the burning of fossil fuels for transportation and electricity, industrial processes including fertilizer production, agricultural processing, and cement production. The primary sources of CH₄ emissions include domestic livestock sources, decomposition of wastes in landfills, releases from natural gas systems, coal mine seepage, and manure management. The main human activities producing N₂O are agricultural soil management, fuel combustion in motor vehicles, nitric acid production, manure management, and stationary fuel combustion. Emissions of GHG by economic sector indicate that energy-related activities account for the majority of U.S. emissions. Electricity generation is the largest single-source of GHG emissions, and transportation is the second largest source, followed by industrial activities. The agricultural, commercial, and residential sectors account for the remainder of GHG emission sources.¹⁸

Emissions of GHG are partially offset by uptake of carbon and sequestration in trees, agricultural soils, landfilled yard trimmings and food scraps, and absorption of CO₂ by the earth's oceans. Additional emission reduction measures for GHG could include, but are not limited to, compliance with local, State, or federal plans or strategies for GHG reductions, on-site and off-site mitigation, and project design features. Attainment concentration standards for GHGs have not been established by the federal or State government.

Global Warming Potential

Global Warming Potential (GWP) is one type of simplified index (based upon radiative properties) that can be used to estimate the potential future impacts of emissions of various gases. According to the United States Environmental Protection Agency (USEPA), the global warming potential of a gas, or aerosol, to trap heat in the atmosphere is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." The reference gas for comparison is CO₂. GWP is based on a number of factors, including the heat-absorbing ability of each gas relative to that of CO₂, as well as the decay rate of each gas relative to that of CO₂. Each gas's GWP is determined by comparing the radiative forcing associated with emissions of that gas versus the radiative forcing associated with emissions of the same mass of CO₂, for which the GWP is set at one. Methane gas, for example, is estimated by the USEPA to have a comparative global warming potential 21 times greater than that of CO₂, as shown in Table 5-5.

¹⁸ U.S. Environmental Protection Agency. *Sources of Greenhouse Gas Emissions*. Available at: https://19january2017snapshot.epa.gov/ghgemissions/sources-greenhouse-gas-emissions_.html. Accessed August 2019.



**Table 5-5
 Global Warming Potentials and Atmospheric Lifetimes of Select
 GHGs**

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO ₂)	50-200 ¹	1
Methane (CH ₄)	12	25
Nitrous Oxide (N ₂ O)	114	298
HFC-23	230-270	14,800
HFC-134a	14	1,430
HFC-152a	1.4	124
PFC: Tetrafluoromethane (CF ₄)	50,000	7,390
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	12,200
Sulfur Hexafluoride (SF ₆)	3,200	22,800

¹ For a given amount of carbon dioxide emitted, some fraction of the atmospheric increase in concentration is quickly absorbed by the oceans and terrestrial vegetation, some fraction of the atmospheric increase will only slowly decrease over a number of years, and a small portion of the increase will remain for many centuries or more.

Source: USEPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013, April 15, 2015.

As shown in the table, at the extreme end of the scale, sulfur hexafluoride is estimated to have a comparative GWP 22,800 times that of CO₂. The “specified time horizon” is related to the atmospheric lifetimes of such GHGs, which are estimated by the USEPA to vary from 50 to 200 years for CO₂, to 50,000 years for tetrafluoromethane. Longer atmospheric lifetimes allow GHG to buildup in the atmosphere; therefore, longer lifetimes correlate with the global warming potential of a gas. The common indicator for GHG is expressed in terms of metric tons of CO₂ equivalents (MTCO₂e), which is calculated based on the global warming potential for each pollutant.

Effects of Global Climate Change

Uncertainties exist as to exactly what the climate changes will be in various areas of the Earth. According to the Intergovernmental Panel on Climate Change’s Working Group II Report, *Climate Change 2007: Impacts, Adaptation and Vulnerability*,¹⁹ climate change impacts to North America may include:

- Diminishing snowpack;
- Increasing evaporation;
- Exacerbated shoreline erosion;
- Exacerbated inundation from sea level rising;
- Increased risk and frequency of wildfire;
- Increased risk of insect outbreaks;
- Increased experiences of heat waves; and

¹⁹ Intergovernmental Panel on Climate Change, 2014: Summary for policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1-32.



- Rearrangement of ecosystems as species and ecosystems shift northward and to higher elevations.

For California, climate change has the potential to cause/exacerbate the following environmental impacts:

- Increased frequency, duration, and intensity of conditions conducive to air pollution formation (particularly ozone);
- Reduced precipitation, changes to precipitation and runoff patterns, reduced snowfall (precipitation occurring as rain instead of snow), earlier snowmelt, decreased snowpack, and increased agricultural demand for water;
- Increased growing season and increased growth rates of weeds, insect pests and pathogens;
- Inundation by sea level rise;
- Increased incidents and severity of wildfire events; and
- Expansion of the range and increased frequency of pest outbreaks.

5.3 REGULATORY CONTEXT

Air quality and GHG emissions are monitored and regulated through the efforts of various international, federal, State, and local government agencies. Agencies work jointly and individually to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for regulating and improving the air quality within the project area and monitoring or reducing GHG emissions are discussed below.

Federal Regulations

The most prominent federal regulation is the FCAA, which is implemented and enforced by the USEPA.

FCAA and USEPA

The FCAA requires the USEPA to set NAAQS and designate areas with air quality not meeting NAAQS as nonattainment. The USEPA is responsible for enforcement of NAAQS for atmospheric pollutants and regulates emission sources that are under the exclusive authority of the federal government including emissions of GHGs. The USEPA's air quality mandates are drawn primarily from the FCAA, which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990. The USEPA has adopted policies consistent with FCAA requirements demanding states to prepare State Implementation Plans (SIPs) that demonstrate attainment and maintenance of the NAAQS. In order to track GHG emissions, the USEPA develops official U.S. GHG inventories each year, which account for emissions and removals of GHG.

On December 7, 2009, USEPA issued findings under Section 202(a) of the CAA concluding that GHGs are pollutants that could endanger public health. Under the so-called Endangerment Finding, USEPA found that the current and projected concentrations of the six key, well-mixed GHGs – CO₂, CH₄, N₂O, PFCs, SF₆, and HFCs – in the atmosphere threaten the public health and welfare of current and future generations. These findings do not, by themselves, impose any requirements on industry or other entities.



State Regulations

California has adopted a variety of regulations aimed at reducing air pollution and GHG emissions. Only the most prominent and applicable California air quality- and GHG-related legislation is included below; however, an exhaustive list and extensive details of California air quality legislation can be found at the CARB website (<http://www.arb.ca.gov/html/lawsregs.htm>).

CCAA and CARB

The CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the CCAA. The CCAA requires that air quality plans be prepared for areas of the State that have not met the CAAQS for ozone, CO, NO_x, and SO₂. Among other requirements of the CCAA, the plans must include a wide range of implementable control measures, which often include transportation control measures and performance standards. In order to implement the transportation-related provisions of the CCAA, local air pollution control districts have been granted explicit authority to adopt and implement transportation controls. The CARB, California's air quality management agency, regulates and oversees the activities of county air pollution control districts and regional air quality management districts. The CARB regulates local air quality indirectly using State standards and vehicle emission standards, by conducting research activities, and through planning and coordinating activities. In addition, the CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the USEPA. Furthermore, the CARB is charged with developing rules and regulations to cap and reduce GHG emissions.

State Legislation Related to Air Quality

Although significant overlap exists between regulations related to air quality and GHG emissions, to the extent feasible, the following section provides the regulations related to air quality in California.

Air Quality and Land Use Handbook

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB Handbook) addresses the importance of considering health risk issues when siting sensitive land uses, including residential development, in the vicinity of intensive air pollutant emission sources including freeways or high-traffic roads, distribution centers, ports, petroleum refineries, chrome plating operations, dry cleaners, and gasoline dispensing facilities.²⁰ The CARB Handbook draws upon studies evaluating the health effects of traffic traveling on major interstate highways in metropolitan California centers within Los Angeles (I-405 and I-710), the San Francisco Bay, and San Diego areas. The recommendations identified by CARB, including siting residential uses a minimum distance of 500 feet from freeways or other high-traffic roadways, are consistent with those adopted by the State of California for location of new schools. Specifically, the CARB Handbook recommends, "Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day" (CARB 2005).

Importantly, the Introduction chapter of the CARB Handbook clarifies that the guidelines are strictly advisory, recognizing that: "[I]and use decisions are a local government responsibility. The Air Resources Board Handbook is advisory and these recommendations do not establish regulatory standards of any kind." CARB recognizes that there may be land use objectives as well

²⁰ California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.



as meteorological and other site-specific conditions that need to be considered by a governmental jurisdiction relative to the general recommended setbacks, specifically stating, “[t]hese recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues” (CARB 2005).

Assembly Bill 1807

Assembly Bill (AB) 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. CARB is responsible for the identification and control of TACs, except pesticide use, which is regulated by the California Department of Pesticide Regulation.

AB 2588

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 TACs, including DPM, and is the primary air contaminant legislation in California. Under the act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

In 2002, the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Title 17, Section 93105, of the California Code of Regulations) went into effect, which requires each air pollution control and air quality management district to implement and enforce the requirements of Section 93105 and propose their own asbestos ATCM as provided in Health and Safety Code section 39666(d).²¹

Senate Bill 656

In 2003, the Legislature passed Senate Bill (SB) 656 to reduce public exposure to PM₁₀ and PM_{2.5} above the State CAAQS. The legislation requires the CARB, in consultation with local air pollution control and air quality management districts, to adopt a list of the most readily available, feasible, and cost-effective control measures that could be implemented by air districts to reduce PM₁₀ and PM_{2.5} emissions. The CARB list is based on California rules and regulations existing as of January 1, 2004, and was adopted by CARB in November 2004. Categories addressed by SB 656 include measures for reduction of emissions associated with residential wood combustion and outdoor green waste burning, fugitive dust sources such as paved and unpaved roads and construction, combustion sources such as boilers, heaters, and charbroiling, solvents and coatings, and product manufacturing. Some of the measures include, but are not limited to, the following:

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

²¹ California Air Resources Board. 2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations. June 3, 2015. Available at: <http://www.arb.ca.gov/toxics/atcm/asb2atcm.htm>. Accessed April 2017.



- Require paving/curbing of roadway shoulder areas; and
- Require street sweeping.

Under SB 656, each air district is required to prioritize the measures identified by CARB, based on the cost effectiveness of the measures and their effect on public health, air quality, and emission reductions. Per SB 656 requirements, the PCAPCD amended their Rule 225 related to wood-burning appliances to include conditions consistent with SB 656, including such conditions as the prohibition of the installation of any new, permanently installed, indoor or outdoor, uncontrolled wood-burning appliances.

Heavy-Duty Vehicle Idling Emission Reduction Program

On October 20, 2005, CARB approved a regulatory measure to reduce emissions of toxics and criteria pollutants by limiting idling of new and in-use sleeper berth equipped diesel trucks.²² The regulation consists of new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck's main engine. For example, the regulation requires 2008 and newer model year heavy-duty diesel engines to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling, or optionally meet a stringent NO_x emission standard. The regulation also requires operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engine when idling more than five minutes at any location within California beginning in 2008. Emission producing alternative technologies such as diesel-fueled auxiliary power systems and fuel-fired heaters are also required to meet emission performance requirements that ensure emissions are not exceeding the emissions of a truck engine operating at idle.

In-Use Off-Road Diesel Vehicle Regulation

On July 26, 2007, CARB adopted a regulation to reduce DPM and NO_x emissions from in-use (existing), off-road, heavy-duty diesel vehicles in California.²³ Such vehicles are used in construction, mining, and industrial operations. The regulation is designed to reduce harmful emissions from vehicles by subjecting fleet owners to retrofit or accelerated replacement/repower requirements, imposing idling limitations on owners, operators, renters, or lessees of off-road diesel vehicles. The idling limits require operators of applicable off-road vehicles (self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on-road) to limit idling to less than five minutes. The idling requirements are specified in Title 13 of the California Code of Regulations.

State Legislation Related to GHG Emissions

Although significant overlap exists between regulations related to air quality and GHG emissions, to the extent feasible, the following section provides the regulations related to GHG emissions in California.

AB 1007

AB 1007, State Alternative Fuels Plan (Pavley, Chapter 371, Statutes of 2005), required development and adoption of a State plan to increase the use of alternative fuels. The final *State Alternative Fuels Plan* was adopted on December 5, 2007 and presented strategies and actions

²² California Air Resources Board. *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*. October 24, 2013. Available at: <http://www.arb.ca.gov/msprog/truck-idling/truck-idling.htm>. Accessed August 2019.

²³ California Air Resources Board. *In-Use Off-Road Diesel Vehicle Regulation*. December 10, 2014. Available at: <http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm>. Accessed August 2019.



California must take to increase the use of alternative, non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. Examples of such strategies include establishment of government incentive programs for alternative fuels, creation of a Low Carbon Fuel Standard to reduce the carbon intensity of transportation fuels, and the allowance of GHG emissions credits to entities using alternatively fueled vehicles. The plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality. The Plan recommended goals for alternative fuel use as well as reductions in the carbon intensities of fuels such as gasoline and diesel, and lays a foundation for building a multi-fuel transportation energy future for California by 2050. As of 2017, decreases in the carbon intensity of conventional fuels have met or exceeded the compliance targets, and the use of alternative fuels has increased by approximately 800 million gallons of gas equivalence units.²⁴

AB 1493

California AB 1493 (Stats. 2002, ch. 200) (Health & Safety Code, §42823, 43018.5), known as Pavley I, was enacted on July 22, 2002. AB 1493 requires that the CARB develop and adopt regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by the CARB to be vehicles whose primary use is noncommercial personal transportation in the state.” On June 30, 2009, the USEPA granted a waiver of CAA preemption to California for the State's GHG emission standards for motor vehicles, beginning with the 2009 model year. Pursuant to the CAA, the waiver allows for the State to have special authority to enact stricter air pollution standards for motor vehicles than the federal government's. On September 24, 2009, the CARB adopted amendments to the Pavley regulations (Pavley I) that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The second phase of the Pavley regulations (Pavley II) is expected to affect model year vehicles from 2016 through 2020. The CARB estimates that the regulation would reduce GHG emissions from the light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030.

Renewable Portfolio Standard (RPS) and SB 100

Established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2, California's RPS is one of the most ambitious renewable energy standards in the country. The RPS program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

Since the inception of the RPS program, the program has been extended and enhanced multiple times. In 2015, SB 350 extended the State's RPS program by requiring that publicly owned utilities procure 50 percent of their electricity from renewable energy sources by 2030. The requirements of SB 350 were expanded and intensified in 2018 through the adoption of SB 100, which mandated that all electricity generated within the State by publicly owned utilities be generated through carbon-free sources by 2045. In addition, SB 100 increased the previous renewable energy requirement for the year 2030 by 10 percent; thus requiring that 60 percent of electricity generated by publicly owned utilities originate from renewable sources by 2030.

²⁴ California Air Resources Board. *Low Carbon Fuel Standard Data Dashboard*. Available at: <https://www.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>. Accessed May 2019.



Executive Order S-03-05

On June 1, 2005, then-Governor Schwarzenegger signed Executive Order S-03-05, which established total GHG emission targets. Specifically, emissions are to be reduced to year 2000 levels by 2010, 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (Cal-EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary is also directed to submit biannual reports to the governor and state legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts.

To comply with the Executive Order, the Secretary of the Cal-EPA created a Climate Act Team (CAT) made up of members from various State agencies and commissions. In March 2006, CAT released their first report. In addition, the CAT has released several "white papers" addressing issues pertaining to the potential impacts of climate change on California.

AB 32

In September 2006, AB 32, the California Climate Solutions Act of 2006, was enacted (Stats. 2006, ch. 488) (Health & Saf. Code, §38500 et seq.). AB 32 delegated the authority for its implementation to the CARB and directs CARB to enforce the State-wide cap. Among other requirements, AB 32 required CARB to (1) identify the State-wide level of GHG emissions in 1990 to serve as the emissions limit to be achieved by 2020, and (2) develop and implement a Scoping Plan. Accordingly, the CARB has prepared the *Climate Change Scoping Plan* (Scoping Plan) for California, which was approved in 2008 and updated in 2014 and 2017.²⁵ The following sections present further information regarding plans and programs that have been introduced in order to meet the statutory requirements of AB 32.

California Scoping Plan

The 2008 Scoping Plan identified GHG reduction measures that would be necessary to reduce statewide emissions as required by AB 32. Many of the GHG reduction measures identified in the 2008 Scoping Plan have been adopted, such as the Low Carbon Fuel Standard, Pavley, Advanced Clean Car standards, RPS, and the State's Cap-and-Trade system.

Building upon the 2008 Scoping Plan, the 2013 and 2017 Scoping Plan Updates introduced new strategies and recommendations to continue GHG emissions reductions. The 2013 Scoping Plan Update created a framework for achievement of 2020 GHG reduction goals and identified actions that may be built upon to continue GHG reductions past 2020, as required by AB 32. Following the 2013 Scoping Plan, the 2017 Scoping Plan sets a path for the achievement of California's year 2030 GHG reduction goals.

California GHG Cap-and-Trade Program

California's GHG Cap-and-Trade Program was originally envisioned in the 2008 Scoping Plan as a key strategy to achieve GHG emissions reductions mandated by AB 32. The Cap-and-Trade Program is intended to put California on the path to meet the GHG emission reduction goal of 1990 levels by the year 2020, and ultimately achieving an 80 percent reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors has been

²⁵ California Air Resources Board. *AB 32 Scoping Plan*. Accessible at: <https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>. Accessed August 2019.



established and facilities or industries subject to the cap are be able to trade permits (allowances) to emit GHGs. The CARB designed the California Cap-and-Trade Program to be enforceable and to meet the requirements of AB 32.²⁶ The Program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions. On January 1, 2014 California linked the state's cap-and-trade plan with Quebec's, and on January 1, 2015 the program expanded to include transportation and natural gas fuel suppliers.²⁷ AB 398 was adopted by the State's legislature in July 2017, which reauthorized the Cap-and-Trade program through December 31, 2030. The reauthorization and continued operation of the Cap-and-Trade program represents a key strategy within the State's 2017 Scoping Plan Update for the achievement of California's year 2030 GHG reduction goals.

Executive Order S-01-07

On January 18, 2007, then-Governor Schwarzenegger signed Executive Order S-01-07, which mandates that a State-wide goal be established to reduce carbon intensity of California's transportation fuels by at least 10 percent by 2020. The Order also requires that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

SB 97

As amended, SB 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. The bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. As directed by SB 97, the OPR amended the CEQA Guidelines to provide guidance to public agencies regarding the analysis and mitigation of GHG emissions and the effects of GHG emissions in CEQA documents. The amendments included revisions to the *Appendix G Initial Study Checklist* that incorporated a new subdivision to address project-generated GHG emissions and contribution to climate change. The new subdivision emphasizes that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. Under the revised CEQA Appendix G checklist, an agency should consider whether a project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and whether a project conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing emission of GHGs.

Further guidance based on SB 97 suggests that the lead agency make a good-faith effort, based on available information, to describe, calculate, or estimate the amount of GHG emissions resulting from a project. When assessing the significance of impacts from GHG emissions on the environment, lead agencies should consider the extent to which the project may increase or reduce GHG, as compared to the existing environmental setting, whether the project emissions exceed a threshold of significance determined applicable to the project, and/or the extent to which the project complies with adopted regulations or requirements to implement a state wide, regional, or local plan for the reduction or mitigation of GHG emissions. Feasible mitigation under SB 97 includes on-site and off-site measures, such as GHG emission-reducing design features and GHG sequestration.

²⁶ California Air Resources Board. *Overview of ARB Emissions Trading Program*. Available at: https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed August 2019.

²⁷ California Air Resources Board. *Overview of ARB Emissions Trading Program*. Available at: https://www.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf. Accessed August 2019.



SB 375

In September 2008, SB 375, known as the Sustainable Communities and Climate Protection Act of 2008, was enacted, which is intended to build on AB 32 by attempting to control GHG emissions by curbing sprawl. SB 375 enhances CARB's ability to reach goals set by AB 32 by directing CARB to develop regional GHG emission reduction targets to be achieved by the State's 18 metropolitan planning organizations (MPOs), including the Sacramento Area Council of Governments (SACOG). Under SB 375, MPOs must align regional transportation, housing, and land-use plans and prepare a "Sustainable Communities Strategy" (SCS) to reduce the amount of vehicle miles traveled in their respective regions and demonstrate the region's ability to attain its greenhouse gas reduction targets. SB 375 provides incentives for creating walkable and sustainable communities and revitalizing existing communities, and allows home builders to get relief from certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Furthermore, SB 375 encourages the development of alternative transportation options, which will reduce traffic congestion.

Executive Order S-13-08

Then-Governor Arnold Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea level rise, and directs state agencies to take specified actions to assess and plan for such impacts, including requesting the National Academy of Sciences to prepare a Sea Level Rise Assessment Report, directing the Business, Transportation, and Housing Agency to assess the vulnerability of the State's transportation systems to sea level rise, and requiring the Office of Planning and Research and the Natural Resources Agency to provide land use planning guidance related to sea level rise and other climate change impacts.

The order also required State agencies to develop adaptation strategies to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. The adaption strategies report summarizes key climate change impacts to the State for the following areas: public health; ocean and coastal resources; water supply and flood protection; agriculture; forestry; biodiversity and habitat; and transportation and energy infrastructure. The report recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

AB 197 and SB 32

On September 8, 2016, AB 197 and SB 32 were enacted with the goal of providing further control over GHG emissions in the State. SB 32 built on previous GHG reduction goals by requiring that the CARB ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by the year 2030. Additionally, SB 32 emphasized the critical role that reducing GHG emissions would play in protecting disadvantaged communities and the public health from adverse impacts of climate change. Enactment of SB 32 was predicated on the enactment of AB 197, which seeks to make the achievement of SB 32's mandated GHG emission reductions more transparent to the public and responsive to the Legislature. Transparency to the public is achieved by AB 197 through the publication of an online inventory of GHG and TAC emissions from facilities required to report such emissions pursuant to Section 38530 of California's Health and Safety Code. AB 197 further established a six-member Joint Legislative Committee on Climate Change Policies, which is intended to provide oversight and accountability of the CARB, while also adding two new legislatively-appointed, non-voting members to the CARB. Additionally, AB 197 directs the CARB to consider the "social costs" of emission reduction rules and regulations, with particular focus on how such measures may impact disadvantaged communities.



Executive Order B-55-18

On September 10, 2018, then-Governor Brown established a statewide goal of carbon neutrality as soon as possible, and no later than 2045. Following achievement of carbon neutrality, net negative emissions should be pursued as the new emissions goal. The executive order directed the CARB to work with relevant state agencies to develop frameworks for implementation and tracking of the new goal, and further directed the CARB to support the carbon neutrality goal through future updates to the State Scoping Plan. The implementation of carbon sequestration targets and projects for natural and working lands is identified as a necessary measure to achieve carbon neutrality and net negative emissions.

California Building Standards Code

California's building codes (California Code of Regulations [CCR], Title 24) are published on a triennial basis, and contain standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The California Building Standards Code (CBSC) is responsible for the administration and implementation of each code cycle, which includes the proposal, review, and adoption process. Supplements and errata are issued throughout the cycle to make necessary mid-term corrections. The 2019 code has been prepared and will become effective January 1, 2020. The California building code standards apply State-wide; however, a local jurisdiction may amend a building code standard if the jurisdiction makes a finding that the amendment is reasonably necessary due to local climatic, geological, or topographical conditions.

California Green Building Standards Code

The 2019 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the CBSC, which will become effective with the rest of the CBSC on January 1, 2020. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California.

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

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC (CCR Title 24, Parts 6 and 11) expands upon energy efficiency measures from the 2016 Building Energy Efficiency Standards resulting in a seven percent reduction in energy consumption from the 2016 standards for residential structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance attics and walls.

One of the improvements included within the 2019 Building Energy Efficiency Standards will be the requirement that certain residential developments, including some single-family and low-rise residential developments, include on-site solar energy systems capable of producing 100 percent



of the electricity demanded by the residences. Certain residential developments, including developments that are subject to substantial shading, rendering the use of on-site solar photovoltaic systems infeasible, are exempted from the foregoing requirement; however, such developments would continue to be subject to all other applicable portions of the 2019 Building Energy Efficiency Standards.

Local

The most prominent local regulations related to air quality and GHG emissions are established by the PCAPCD and the Placer County General Plan.

Placer County Air Pollution Control District

The PCAPCD regulates many sources of pollutants in the ambient air as well as GHG emissions, and is responsible for implementing certain programs and regulations for controlling air pollutant and GHG emissions to improve air quality in order to attain federal and State AAQs and reduce GHG emissions in compliance with state goals.

Air Quality Attainment Plan

As a part of the SVAB federal ozone nonattainment area, the PCAPCD works with the other local air districts within the Sacramento area to develop a regional air quality management plan under the FCAA requirement. The regional air quality management plan is called the SIP which describes and demonstrates how Placer County, as well as the Sacramento nonattainment area, would attain the required federal ozone standard by the proposed attainment deadline. In accordance with the requirements of the FCAA, the PCAPCD, along with the other air districts in the region, prepared the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (Ozone Attainment Plan), adopted by the PCAPCD on February 19, 2009. The CARB determined that the Ozone Attainment Plan met federal Clean Air Act requirements and approved the Plan on March 26, 2009 as a revision to the SIP. Revisions to the Placer County portion of the SIP or Ozone Attainment Plan were made and adopted on August 11, 2011. In addition, an update to the plan, *2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (2013 Ozone Attainment Plan), has been prepared and was adopted on September 26, 2013, and approved by CARB as a revision to the SIP on November 21, 2013. The 2013 Ozone Attainment Plan was approved by the USEPA on January 9, 2015.

The 2013 Ozone Attainment Plan demonstrates how existing and new control strategies would provide the necessary future emission reductions to meet the FCAA requirements, including the NAAQS. It should be noted that in addition to strengthening the 8-hour ozone NAAQS, the USEPA also strengthened the secondary 8-hour ozone NAAQS, making the secondary standard identical to the primary standard. The SVAB remains classified as a severe nonattainment area for ozone with an attainment deadline of 2027. On October 26, 2015, the USEPA released a final implementation rule for the revised NAAQS for ozone to address the requirements for reasonable further progress, modeling and attainment demonstrations, and reasonably available control measures (RACM) and reasonably available control technology (RACT). On April 30, 2018, the USEPA published designations for areas in attainment/unclassifiable for the 2015 ozone standards. The USEPA identified the portions of Placer County within the SVAB as nonattainment for the 2015 ozone standards.²⁸ Due to the designation of the SVAB as nonattainment for the

²⁸ U.S. Environmental Protection Agency. *Nonattainment and Unclassifiable Area Designations for the 2015 Ozone Standards*. April 30, 2018.



2015 standards, the PCAPCD will work with other regional air districts to prepare a new ozone SIP for the revised 2015 standards.

PCAPCD Rules and Regulations

All projects under the jurisdiction of the PCAPCD are required to comply with all applicable PCAPCD rules and regulations. In addition, PCAPCD permit requirements apply to many commercial activities (e.g., print shops, drycleaners, gasoline stations), and other miscellaneous activities (e.g., demolition of buildings containing asbestos). The proposed project is required to comply with all applicable PCAPCD rules and regulations, which shall be noted on County-approved construction plans. The PCAPCD regulations and rules include, but are not limited to, the following:

Regulation 2 – Prohibitions

Regulation 2 is comprised of prohibitory rules that are written to achieve emission reductions from specific source categories. The rules are applicable to existing sources as well as new sources. Examples of prohibitory rules include Rule 202 related to visible emissions, Rule 217 related to asphalt paving materials, Rule 218 related to architectural coatings, Rule 228 related to fugitive dust, Rule 205 related to nuisance, and Rule 225 related to wood-burning appliances.

Rule 228 sets forth requirements necessary to comply with the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations (Title 17, Section 93105, of the California Code of Regulations), as discussed above.

Regulation 5 – Permits

Regulation 5 is intended to provide an orderly procedure for the review of new sources, and modification and operation of existing sources, of air pollution through the issuance of permits. Regulation 5 primarily deals with permitting major emission sources and includes, but is not limited to, rules such as General Permit Requirements (Rule 501), New Source Review (Rule 502), Emission Statement (Rule 503), Emission Reduction Credits (Rule 504), and Toxics New Source Review (Rule 513).

Placer County General Plan

The following goals and policies related to air quality are from the Placer County General Plan:

Air Quality – General

- Goal 6.F To protect and improve air quality in Placer County.
- Policy 6.F.2 The County shall develop mitigation measures to minimize stationary source and area source emissions.
- Policy 6.F.3 The County shall support the Placer County Air Pollution Control District (PCAPCD) in its 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 new development.
- Policy 6.F.4 The County shall solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality.



- 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 (TCM) 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 the PCAPCD's 1991 Air Quality Attainment Plan (or updated edition).
- Policy 6.F.11 The County shall apply the buffer standards described in Part I of this Policy Document and meteorological analyses to provide separation between possible emission/nuisance sources (such as industrial and commercial uses) and residential uses.

Air Quality – Transportation/Circulation

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.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.

Transportation – Non-Motorized Transportation

- Goal 3.D To provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation.
- Policy 3.D.5 The County shall continue to require developers to finance and install pedestrian walkways, equestrian trails, and multi-purpose paths in new development, as appropriate.
- Policy 3.D.7 The County shall, where appropriate, require new development to provide sheltered public transit stops, with turnouts.
- Policy 3.D.9 Consider Complete Streets infrastructure and design features in street design and construction to create safe and inviting environments for all users consistent with the land uses to be served.

Dry Creek-West Placer Community Plan

The following goals and policies related to air quality are from the DCWPCP:

Land Use Plan Element

- Policy 28 Continue to monitor and control existing land uses that could deteriorate air and water quality.
- Policy 29 Review Proposed Developments for their potential adverse effect on air and water quality.
- Policy 30 Encourage application of measures to mitigate erosion and water pollution from earth disturbing activities such as grading and road construction.

Environmental Resources Management Element

- Goal 8 Recognize that clean air and water are essential resources for maintaining a high quality of living, and ensure that these resources are maintained at acceptable levels.



Policy 11	Recognize clean air as a resource to be protected and improved through project mitigation.
Policy 22	Continue to monitor and control land uses which threaten to deteriorate air and water quality.

5.4 IMPACTS AND MITIGATION MEASURES

The standards of significance and methodology used to analyze and determine the proposed project's potential project-specific impacts related to air quality and GHG emissions are described below. In addition, a discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Based on the recommendations of PCAPCD and in coordination with the County, consistent with Appendix G of the CEQA Guidelines, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. For the purposes of this EIR, an impact is considered significant if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations (including localized CO concentrations and TAC emissions);
- Result in other emissions (such as those leading to odors) affecting a substantial number of people;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Criteria Pollutant Emissions and TAC Emissions

In order to evaluate criteria air pollutant emissions from development projects, the PCAPCD has established significance thresholds for emissions of ROG, NO_x, and PM₁₀. The significance thresholds, expressed in pounds per day (lbs/day), serve as air quality standards in the evaluation of air quality impacts associated with proposed development projects. Thus, if the proposed project's emissions exceed the PCAPCD thresholds, the project could have a significant effect on regional air quality and attainment of federal and State AAQS. The PCAPCD's recommended thresholds of significance are listed in Table 5-6. Therefore, if the proposed project's emissions exceed the pollutant thresholds presented in Table 5-6, the project could have a significant effect on air quality, the attainment of federal and State AAQS, and could conflict with or obstruct implementation of the applicable air quality plan.



Table 5-6 PCAPCD Thresholds of Significance		
Pollutant	Construction Threshold (lbs/day)	Operational/Cumulative Threshold (lbs/day)
ROG	82	55
NO _x	82	55
PM ₁₀	82	82
Source: Placer County Air Pollution Control District. Placer County Air Pollution Control District Policy. Review of Land Use Projects Under CEQA. October 13, 2016.		

Additionally, the PCAPCD has developed screening criteria for determining whether a project would cause substantial localized CO emissions at a given intersection. If the project would result in CO emissions from vehicle operations in excess of 550 lbs/day and either of the following conditions are met, the project could potentially result in substantial concentrations of localized CO and further analysis would be required:

- Degrade the peak hour level of service (LOS) on one or more streets or at one or more intersections (both signalized and non-signalized) in the project vicinity from an acceptable LOS (i.e., LOS A, B, C, or D) to an unacceptable LOS (i.e., LOS E or F); or
- Substantially worsen (i.e., increase delay by 10 seconds or more when project-generated traffic is included) an already existing unacceptable peak hour LOS on one or more streets or at one or more intersections in the project vicinity.²⁹

For TAC emissions, if a project would introduce a new source of TAC or a new sensitive receptor near an existing source of TAC that would not meet the CARB’s minimum recommended setback, a detailed health risk assessment may be required. The PCAPCD considers an increase in cancer risk levels of more than 10 in one million persons or a non-cancer hazard index greater than 1.0 to be a significant impact related to TACs. The foregoing cancer risk level and non-cancer hazard index are typically applied to individual stationary sources of TACs; however, the PCAPCD does note that the cancer risk and hazard index thresholds may also be applied to activities that are non-stationary, such as diesel delivery trucks and off-road construction equipment.

GHG Emissions and Other Cumulative Emissions

Nearly all development projects in the region have the potential to generate air pollutants that may increase global climate change. On October 13, 2016, the PCAPCD adopted GHG emissions thresholds. The thresholds were designed to analyze a project’s compliance with applicable state laws including AB 32 and SB 32.³⁰ While designed to assess a project’s compliance with state laws, as discussed in the PCAPCD’s Justification Report for the thresholds, the District relied on a review of historical CEQA projects within the County during the 13-year period from 2003-2015. The District modeled emissions from 688 total projects in the year 2020, and used the modeled emissions to determine a reasonable level to establish emissions thresholds. In addition to modeling past projects within Placer County, the PCAPCD modeled a range of potential future residential and commercial projects to provide additional County-specific evidence in developing the District’s thresholds.³¹

²⁹ Placer County Air Pollution Control District. *CEQA Air Quality Handbook* [pg. 38]. November 21, 2017.

³⁰ Placer County Air Pollution Control District. *California Environmental Quality Act Thresholds of Significance: Justification Report*. October 2016.

³¹ Placer County Air Pollution Control District. *California Environmental Quality Act Thresholds of Significance: Justification Report*. October 2016.



The GHG thresholds include a bright-line threshold for the construction and operational phases of land use projects and stationary source projects, a screening level threshold for the operational phase of land use projects, and efficiency thresholds for the operational phase of land use projects that result in GHG emissions that fall between the bright-line threshold and the screening level threshold. The bright-line threshold of 10,000 MTCO₂e/yr represents the level at which a project's GHG emissions would be substantially large enough to contribute to cumulative impacts and mitigation to lessen the emissions would be mandatory. The PCAPCD further recommends use of the 10,000 MTCO₂e/yr for analysis of construction-related GHG emissions for land use projects. Any project with GHG emissions below the screening level threshold of 1,100 MTCO₂e/yr is judged by the PCAPCD as having a less-than-significant impact related to GHG emissions, and would not conflict with any State or regional GHG emissions reduction goals. Projects that would result in GHG emissions above the 1,100 MTCO₂e/yr screening level threshold, but below the bright-line threshold of 10,000 MTCO₂e/yr, must result in GHG emissions below the efficiency thresholds in order to be considered to result in a less-than-significant impact related to GHG emissions and not conflict with any State or regional GHG emission reduction goals. The GHG efficiency thresholds, which are in units of MTCO₂e/yr per capita or per square-foot, are presented in Table 5-7.

Table 5-7			
PCAPCD Operational GHG Efficiency Thresholds of Significance			
Residential (MTCO₂e/capita)		Non-Residential (MTCO₂e/1,000 sf)	
Urban	Rural	Urban	Rural
4.5	5.5	26.5	27.3
<i>Source: Placer County Air Pollution Control District. Placer County Air Pollution Control District Policy. Review of Land Use Projects Under CEQA. October 13, 2016.</i>			

In accordance with CARB and PCAPCD recommendations, the County, as lead agency, uses the currently adopted PCAPCD GHG thresholds of significance as presented above. Therefore, if the proposed project results in construction GHG emissions in excess of 10,000 MTCO₂e/yr, and/or operational GHG emissions in excess of 1,100 MTCO₂e/yr and are unable to show that emissions would achieve the efficiency thresholds presented in Table 5-7, the project would be considered to result in a cumulatively considerable contribution to global climate change.

With regard to other cumulative emissions, such as the cumulative emissions of criteria air pollutants, the PCAPCD directs lead agencies to use the region's existing attainment plans as a basis for analysis of cumulative emissions. If a project would interfere with an adopted attainment plan, the project would inhibit the future attainment of AAQS, and thus result in a significant incremental contribution to cumulative emissions. As discussed throughout this Chapter, the PCAPCD's recommended thresholds of significance for ozone precursors and PM₁₀ are based on attainment plans for the region. Thus, the PCAPCD concluded that if a project's ozone precursor and PM₁₀ emissions would be less than PCAPCD project-level thresholds, the project would not be expected to conflict with any relevant attainment plans, and would not result in a cumulatively considerable contribution to a significant cumulative impact. As a result, the operational phase cumulative-level emissions thresholds established by PCAPCD are identical to the project-level operational emissions thresholds; the operational/cumulative thresholds are presented in Table 5-6.



Method of Analysis

The analysis protocol and guidance provided by the PCAPCD's *CEQA Air Quality Handbook*, including screening criteria and pollutant thresholds of significance, was used to analyze the proposed project's air quality impacts. It should be noted that in addition to the 119 single-family residential units included in the proposed project, the Project Description chapter of this EIR recognizes the potential for up to 12 additional on-site residential units (Accessory Dwelling Units) to be included in the project in order to meet the County's affordable housing requirements. However, the total number of residential lots would remain unchanged, as would the overall disturbance area associated with the project. Potential emissions from the 12 on-site Accessory Dwelling Units (ADUs) are analyzed as applicable in this chapter.

Construction Emissions

The proposed project's short-term construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software, which is a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions from land use projects. The model applies inherent default values for various land uses, including trip generation rates based on the ITE Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data was available, such data was input into the model. For instance, the proposed project is anticipated to be developed over approximately three years, beginning in the year 2021. Additionally, a total of approximately 27 acres would be disturbed during on-site development activities.

In addition to the modeling discussed above for proposed construction activity on the project site, proposed off-site construction activity related to widening of Brady Lane and Vineyard Road, as well as the proposed sewer line improvements, was also modeled. For proposed linear projects, such as roadway widening and utility line improvements, the Roadway Construction Emissions Model (RoadMod), prepared by the Sacramento Metropolitan Air Quality Management District (SMAQMD),³² is the recommended model.³³ Off-site sewer improvements were assumed to occur over an approximate 0.145-acre area, which would be spread across a 0.40-mile length of Vineyard Road. Widening of Brady Lane and Vineyard Road would occur over a total of 0.711 acres along 0.31 miles of roadway. Off-site improvements were assumed to include the use of air compressors, concrete saws, generator sets, signal boards, tractors/loaders/backhoes, trenchers, and paving equipment, among other pieces of machinery. To provide a conservative analysis, off-site and on-site construction activity was assumed to occur simultaneously.

Construction of the 12 ADUs would occur within the 27-acre disturbance area assumed for the project. Site grading is typically the most emissions-intensive phase of project construction. Because the 12 ADUs would be constructed within the 119 single-family lots, the construction of the ADUs would not require any additional grading activity beyond what was assumed for implementation of the 119 single-family units. Construction of the ADUs is anticipated to rely on the equipment and construction workers already on-site for development of the 119 single-family residences. Use of equipment and construction workers already on-site would avoid the need for additional equipment or workers to operate on-site, which would reduce the potential for development of the ADUs to result in construction emissions beyond what has been anticipated for construction of the 119 single-family units. Furthermore, the ADUs are anticipated to have a

³² Sacramento Metropolitan Air Quality Management District. *Roadway Construction Emissions Model*. May 2016.

³³ Placer County Air Pollution Control District. *Recommended CEQA Modeling Analysis Tools*. Available at: <https://www.placerair.org/1808/Recommended-CEQA-Modeling-Analysis-Tools>. Accessed June 2019.



smaller household size relative to the standard market-rate single-family units and the 119 single-family residences included in the project. The smaller relative size of the units would limit the amount of material and construction time needed for each ADU, thus further limiting emissions from the construction of the ADUs. Considering that construction of the ADUs would occur within the proposed 119 single-family residential lots, would rely on equipment and construction workers that would already be on-site, and would involve construction of smaller sized units than standard market-rate single-family units, construction of up to 12 ADUs is not anticipated to result in a substantial amount of pollutants and was not modeled separately.

The results of construction emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. All CalEEMod and RoadMod modeling results are included in Appendix C to this EIR.

Operational Emissions

The proposed project's operational emissions were estimated using CalEEMod. Based on project-specific construction information provided by the project applicant, the proposed project is anticipated to be fully operational by 2024. The modeling performed for the proposed project included compliance with PCAPCD rules and regulations (i.e., low-VOC [volatile organic compounds] paints and low-VOC cleaning supplies), as well as with the 2019 California Building Energy Efficiency Standards Code, which is part of the CBSC. The proposed project's compliance with such would be verified as part of the County's building approval review process. KD Anderson & Associates, Inc. provided project-specific trip generation rates and vehicle miles travelled (VMT) data, which were applied to the project modeling.³⁴ In compliance with the 2019 CBSC, the modeling for project operations included the assumption that 100 percent of the electricity required for project operations would be provided by on-site renewable energy systems.

Operational emissions of 12 ADUs was modeled separately using similar assumptions related to the first operational year and compliance with the 2019 CBSC as discussed above. Vehicle trip rates for the 12 ADUs was based off of a technical memorandum prepared by KD Anderson & Associates for the 12 ADUs.³⁵

The results of operational emissions estimations were compared to the standards of significance discussed above in order to determine the associated level of impact. All CalEEMod modeling results are included in Appendix C to this EIR.

Project-Specific Impacts and Mitigation Measures

The following discussion of impacts is based on implementation of the proposed project in comparison with the standards of significance identified above. It should be noted that GHG emissions are inherently cumulative; thus, the discussion of associated impacts is included under the Cumulative Impacts and Mitigation Measures section below.

³⁴ KD Anderson & Associates. *Traffic Impact Analysis for Brady Vineyard Subdivision*. August 5, 2019.

³⁵ KD Anderson & Associates. *Technical Memorandum: Traffic Impact Analysis for Brady Vineyards Subdivision: ASSessment of 12 Ancillary Units*. August 21, 2019.



5-1 Conflict with or obstruct implementation of the applicable air quality plan during project construction. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

During construction of the project, various types of equipment and vehicles would temporarily operate on the project site and in off-site improvement areas. Construction-related emissions would be generated from construction equipment, vegetation clearing and earth movement activities, construction workers' commute, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel- and gasoline-powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM emissions. As construction of the proposed project would generate emissions of criteria air pollutants, including ROG, NO_x, and PM₁₀, intermittently within the site and in the vicinity of the site, until all construction has been completed, construction is a potential concern, as the proposed project is located in a nonattainment area for ozone and PM.

The construction modeling assumptions are described in the Method of Analysis section above. As discussed in the Method of Analysis section, the modeling assumed that both on-site and off-site construction would occur simultaneously during implementation of the proposed project. However, for informational purposes, the anticipated emissions that would result from off-site construction activity and on-site construction activity are presented separately in Table 5-8 and Table 5-9, respectively, while the combined emissions of off-site and on-site emissions are presented in Table 5-10.

Table 5-8			
Maximum Unmitigated Off-Site Construction Emissions (lbs/day)			
	ROG	NO_x	PM₁₀
Off-site Roadway Construction	5.67	62.75	6.1
Off-site Pipeline Construction	2.39	15.46	1.24
<i>Subtotal</i>	<i>8.06</i>	<i>78.21</i>	<i>7.34</i>
PCAPCD Significance Threshold	82.0	82.0	82.0
Exceeds Threshold?	NO	NO	NO
<i>Source: Roadmod 2019 (see Appendix C).</i>			

Table 5-9			
Maximum Unmitigated On-Site Construction Emissions (lbs/day)			
	ROG	NO_x	PM₁₀
On-Site Construction	8.44	46.44	20.26
PCAPCD Significance Threshold	82.0	82.0	82.0
Exceeds Threshold?	NO	NO	NO
<i>Source: CalEEMod, June 2019 (see Appendix C).</i>			



Table 5-10			
Total Maximum Unmitigated Project Construction Emissions (lbs/day)			
	ROG	NO_x	PM₁₀
Off-site Roadway Construction	5.67	62.75	6.1
Off-site Pipeline Construction	2.39	15.46	1.24
On-Site Construction	8.44	46.44	20.26
<i>Total Emissions</i>	16.50	124.66	27.60
PCAPCD Significance Threshold	82.0	82.0	82.0
Exceeds Threshold?	NO	YES	NO
<i>Source: CalEEMod, June 2019; Roadmod (see Appendix C).</i>			

As shown in Table 5-8 and Table 5-9, when considered separately, on- and off-site construction activities would result in emissions of ROG, NO_x, or PM₁₀ below the applicable PCAPCD thresholds of significance. Accordingly, should implementation of the off-site construction activity associated with both the roadway widening and pipeline utility work occur before or after implementation of on-site construction (i.e., the timing of off-site construction does not coincide with any on-site construction activity), construction activity associated with the proposed project would result in emissions of ROG, NO_x, and PM₁₀ below the PCAPCD's thresholds. However, should implementation of the proposed project include simultaneous on- and off-site construction activity, as shown in Table 5-10, the combined emissions would exceed the PCAPCD's applicable thresholds of significance for NO_x. Although emissions of ROG and PM₁₀ from on- and off-site construction would remain below the applicable PCAPCD thresholds of significance for each pollutant, because NO_x emissions would exceed the PCAPCD's applicable threshold, the simultaneous implementation of on- and off-site construction would contribute substantially to the region's nonattainment status for ozone.

It should be noted that construction activity related to implementation of the proposed project would be subject to PCAPCD Rule 228. Rule 228 requires projects involving earth-disturbing activities to implement various dust control measures, such as minimizing track-out on to paved public roadways, limiting vehicle travel on unpaved surfaces to 15 miles per hour, and stabilization of storage piles and disturbed areas. Furthermore, standard Placer County conditions of approval for proposed projects within the County include various requirements that would result in additional reductions of emissions related to implementation of the proposed project from what has been estimated and presented above within Table 5-8 through Table 5-10. The County's standard conditions of approval are listed below:

- The applicant shall submit a Dust Control Plan to the Placer County Air Pollution Control District (APCD) 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 a fill-in form:
<http://www.placerair.org/dustcontrolrequirements/dustcontrolform>.
- With submittal of the Dust Control Plan, the contractor shall submit to the APCD a comprehensive equipment inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used in aggregate of 40 or more hours. If any new equipment is added after submission



of the inventory, the contractor shall notify the APCD prior to the new equipment being utilized. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the APCD 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 to the APCD for approval demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet-average of 20 percent NO_x reduction and 45 percent particulate reduction comparing with the statewide fleet averages. 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).

Moreover, the County’s standard conditions of approval require Grading Plans for the proposed project to include the following notes:

- Prior to construction activity, a Dust Control Plan or Asbestos Dust Mitigation Plan shall be submitted to the Placer County Air Pollution Control District (APCD) 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>.
- Construction equipment exhaust emissions shall not exceed the APCD Rule 202 Visible Emissions limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified by the APCD to cease operations, and the equipment must be repaired within 72 hours.
- Dry mechanical sweeping is prohibited. Watering of a construction site shall be carried out to mitigate visible emissions. (Based on APCD Rule 228 / Section 301).
- The contractor shall not discharge into the atmosphere volatile organic compounds 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 Cutback and Emulsified Asphalt Paving Materials.
- 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.
- During construction, open burning of removed vegetation is only allowed under APCD Rule 304 Land Development Smoke Management. A Placer County Air Pollution Control District permit could be issued for land development burning, if the vegetation removed is for residential development purposes from the property of a single or two family dwelling or when the applicant has provided a demonstration as per Section 400 of the Rule that there is no practical alternative to burning and that the Air Pollution Control Officer (APCO) has determined that



the demonstration has been made. The APCO may weigh the relative impacts of burning on air quality in requiring a more persuasive demonstration for more densely populated regions for a large proposed burn versus a smaller one. In some cases, all of the removed vegetative material shall be either chipped on site or taken to an appropriate recycling site, or if a site is not available, a licensed disposal site. (Based on APCD Rule 304)

- The contractor shall minimize idling time to a maximum of five minutes for all diesel-powered equipment. (Placer County Code Chapter 10, Article 10.14).
- Idling of construction-related equipment and construction-related vehicles shall be minimized within 1,000 feet of any sensitive receptor (i.e., house, hospital, or school).
- The contractor shall suspend all grading operations when fugitive dust exceeds the APCD 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 APCD Rule 228 limitations. (Based on APCD Rule 228 / section 302 & 401.4)
- The prime contractor shall be responsible for keeping adjacent public thoroughfares clean by keeping dust, silt, mud, dirt and debris from being released or tracked offsite. Wet broom or other methods can be deployed as control and as approved by the individual jurisdiction. (Based on APCD Rule 228 / section 401.5)
- During construction activity, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust or visible emissions from crossing the project boundary line. (Based on APCD Rule 228 / section 401.2)
- 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 the individual jurisdiction) to minimize wind-driven dust.
- The contractor shall apply water or use methods 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. (Based on APCD Rule 228 / section 304)
- The contractor shall suspend all grading operations when wind speeds (including instantaneous gusts) are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures. (Based on APCD Rule 228 / section 401.6)
- In order to minimize wind driven dust during construction, the prime contractor shall apply methods such as surface stabilization, establishment of a vegetative cover, paving (or use of another method to control dust as approved by Placer County). (Based on APCD Rule 228 / section 402)
- 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 an APCD permit. Developers/contractors should contact the APCD prior to construction and obtain any necessary permits prior to the issuance of a Building Permit. (APCD Rule 501)

Conclusion

Although emissions from construction-related activities would be reduced through implementation of the foregoing County requirements, the combined emissions resulting



from on- and off-site construction activity are still anticipated to exceed the PCAPCD's applicable threshold of significance for NO_x. Thus, implementation of the proposed project could conflict with or obstruct implementation of the applicable air quality plan related to the region's nonattainment status for ozone, resulting in a **significant** impact.

Mitigation Measure(s)

Implementation of Mitigation Measure 5-1(a) would result in emissions as shown in Table 5-11 below.

Table 5-11			
Maximum Project Construction-Related Emissions with Implementation of Mitigation Measure 5-1(a) (lbs/day)			
	ROG	NO_x	PM₁₀
Off-site Roadway Construction	5.67	50.28	4.92
Off-site Pipeline Construction	2.39	12.51	0.85
On-Site Construction	8.44	37.16	19.33
<i>Total Emissions</i>	16.5	99.95	25.10
PCAPCD Significance Threshold	82.0	82.0	82.0
Exceeds Threshold?	NO	YES	NO
<i>Source: CalEEMod, June 2019; Roadmod (see Appendix C).</i>			

As shown in Table 5-11, despite implementation of Mitigation Measure 5-1(a), project construction emissions would still be anticipated to exceed the PCACPD's applicable thresholds. Implementation of Mitigation Measure 5-1(a) in combination with option 1 of Mitigation Measure 5-1(b) would result in emissions as shown in Table 5-12, while implementation of Mitigation Measure 5-1(a) in combination with option 2 of Mitigation Measure 5-1(b) would result in emissions as shown in Table 5-13.

Table 5-12			
Maximum Project Construction-Related Emissions with Implementation of Mitigation Measure 5-1(a) and Option 1 (lbs/day)			
	ROG	NO_x	PM₁₀
Off-site Roadway Construction	2.95	6.45	3.79
Off-site Pipeline Construction	1.31	3.35	0.51
On-Site Construction	8.44	37.16	19.33
<i>Total Emissions</i>	12.7	46.96	23.63
PCAPCD Significance Threshold	82.0	82.0	82.0
Exceeds Threshold?	NO	NO	NO
<i>Source: CalEEMod, June 2019; Roadmod (see Appendix C).</i>			



Table 5-13			
Maximum Project Construction-Related Emissions with Implementation of Mitigation Measure 5-1(a) and Option 2 (lbs/day)			
	ROG	NO_x	PM₁₀
Off-site Roadway Construction	5.67	50.28	4.92
Off-site Pipeline Construction	2.39	12.51	0.85
On-Site Construction	6.68	3.89	18.28
<i>Total Emissions</i>	<i>14.74</i>	<i>66.68</i>	<i>24.05</i>
PCAPCD Significance Threshold	82.0	82.0	82.0
Exceeds Threshold?	NO	NO	NO
<i>Source: CalEEMod, June 2019; Roadmod (see Appendix C).</i>			

As shown in Table 5-12 and Table 5-13, implementation of Mitigation Measure 5-1(a) and either of the options set forth within Mitigation Measure 5-1(b) would result in construction-related emissions below the applicable PCAPCD thresholds of significance. Therefore, implementation of the following mitigation measures would reduce the above impact to a less-than-significant level.

5-1(a) *Prior to approval of any Improvement Plans, the project applicant shall submit to the Placer County Air Pollution Control District (PCAPCD) a comprehensive equipment inventory (e.g., make, model, year, emission rating) of all off-road diesel-powered equipment over 50 horsepower (including owned, leased, and subcontractor equipment). With submittal of the equipment inventory, the contractor shall provide a written calculation to the PCAPCD for approval demonstrating that the heavy-duty off-road vehicles over 50 horsepower to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet-average of 20 percent of NO_x and 45 percent of DPM reduction as compared to California Air Resources Board (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 any new equipment is added after submission of the inventory, the contractor shall contact the PCAPCD prior to the new equipment being utilized. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the PCAPCD with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman. In addition, all off-road equipment working at the construction site must be maintained in proper working condition according to manufacturer’s specifications.*

Portable equipment over 50 horsepower must have either a valid District Permit to Operate (PTO) or a valid statewide Portable Equipment Registration Program (PERP) placard and sticker issued by CARB.

Idling shall be limited to five minutes or less for all on-road related and/or delivery trucks in accordance with CARB’s On-Road Heavy-Duty Diesel



Vehicles (In-Use) Regulation. Clear Signage regarding idling restrictions should be placed at the entrances to the construction site.

5-1(b)

The project applicant must comply with one of the following options:

- 1. If any portion of on-site and off-site construction is to occur simultaneously, prior to approval of any Improvement Plans, the project applicant shall show on the Improvement Plan via notation that the contractor shall ensure that all off-road diesel-powered equipment over 25 horsepower to be used in off-site construction activity related to the Vineyard Road and Brady Lane road widening and sewer pipeline improvements (including owned, leased, and subcontractor equipment) shall meet California Air Resources Board (CARB) Tier 4 emissions standards or cleaner. The plans shall be submitted for review and approval to the Placer County Community Development Resource Agency.*
- 2. If any portion of on-site and off-site construction is to occur simultaneously, prior to approval of any Improvement Plans, the project applicant shall show on the Improvement Plans via notation that the contractor shall ensure that all off-road diesel-powered equipment over 25 horsepower to be used in on-site construction activity (including owned, leased, and subcontractor equipment) shall meet California Air Resources Board (CARB) Tier 4 emissions standards or cleaner. The plans shall be submitted for review and approval to the Placer County Community Development Resource Agency.*

5-2 Conflict with or obstruct implementation of the applicable air quality plan during project operation. Based on the analysis below and with implementation of mitigation, the impact is *less than significant*.

As discussed above, due to the nonattainment designations of the area, the PCAPCD has developed plans to attain the State and federal standards for ozone and particulate matter. The currently applicable air quality plan is the 2013 Ozone Attainment Plan. Adopted PCAPCD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with the applicable air quality plan. Thus, if a project's operational emissions exceed the PCAPCD's mass emission thresholds, a project would be considered to conflict with or obstruct implementation of the PCAPCD's air quality planning efforts.

Emissions of ROG, NO_x, and PM₁₀ would be generated during operations of the proposed project from both mobile and stationary sources. Emissions related to operation of the proposed project would include sources such as architectural coatings, landscape maintenance equipment exhaust, the emergency generator associated with the proposed sewer lift station, and consumer products (e.g., deodorants, detergents, hair spray, cleaning products, spray paint, insecticides, floor finishes, polishes, etc.). However, the most significant source of emissions related to the proposed project would be from mobile



sources. As discussed in the Method of Analysis section above, to capture the potential emissions related to mobile sources from the proposed project, KD Anderson & Associates, Inc. prepared project-specific trip generation rates and VMT estimates.

The maximum unmitigated operational emissions for the proposed project are presented in Table 5-14 below.

Table 5-14			
Maximum Unmitigated Project Operational Emissions (lbs/day)			
	ROG	NO_x	PM₁₀
Project Emissions	189.58	14.24	36.86
PCAPCD Significance Threshold	55	55	82
Exceeds Threshold?	YES	NO	NO
<i>Source: CalEEMod, May and June 2019 (see Appendix C).</i>			

As shown in Table 5-14, the emissions resulting from operation of the proposed project would be below the PCAPCD's thresholds for NO_x and PM₁₀, but would exceed the PCAPCD's threshold for ROG. It should be noted that the operational emissions modeling for the proposed project assumed that the design of all proposed residences would include fireplaces, which could include woodfired or natural gas fireplaces. The operation of wood or natural gas fired fireplaces is the primary source of ROG emissions related to project operations, with approximately 99 percent of the estimated ROG emissions included in Table 5-14 originating from hearths assumed to be included in the project.

The emissions presented in Table 5-14 include emissions from the 119 proposed single-family units, but do not include emissions from up to 12 ADUs that could be built within the site. Table 5-15 presents combined emissions of both the 119 proposed single-family units, and up to 12 ADUs.

Table 5-15			
Maximum Unmitigated Project Operational Emissions Including ADUs (lbs/day)			
	ROG	NO_x	PM₁₀
Project Emissions (119 SF units)	189.58	14.24	36.86
ADU Emissions (12 units)	18.85	1.27	3.73
<i>Total Emissions</i>	<i>208.43</i>	<i>15.51</i>	<i>40.59</i>
PCAPCD Significance Threshold	55	55	82
Exceeds Threshold?	YES	NO	NO
<i>Source: CalEEMod, May, June, and August 2019 (see Appendix C).</i>			

As shown in Table 5-15, with consideration of operational emissions from the 12 ADUs, project emissions would remain below the PCAPCD's emissions thresholds for NO_x and PM₁₀. However, operational emissions would continue to exceed the PCAPC's emissions threshold for ROG.

Based on the emissions presented in Table 5-14 and Table 5-15, operation of the proposed project, with or without inclusion of the 12 ADUs, could create a conflict with or obstruction of implementation of the applicable air quality plan due to ROG emissions, and a **significant** impact could result.



Mitigation Measure(s)

Implementation of the following mitigation measure, which prohibits the use of wood burning fireplaces within the project site, would reduce ROG emissions from an unmitigated maximum of 208.43 lbs/day to a maximum of 8.17 lbs/day, as shown in Table 5-16. As shown in Table 5-16, implementation of Mitigation Measure 5-2 would also reduce NO_x and PM₁₀. Maximum mitigated emissions of 8.17 lbs/day would be below the PCAPCD's threshold of significance. Thus, implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

	ROG	NO_x	PM₁₀
Project Emissions (119 SF units)	7.67	12.18	5.48
ADU Emissions (12 units)	0.50	1.08	0.56
<i>Total Emissions</i>	<i>8.17</i>	<i>13.26</i>	<i>6.04</i>
PCAPCD Significance Threshold	55	55	82
Exceeds Threshold?	NO	NO	NO
<i>Source: CalEEMod, May, June, and August 2019 (see Appendix C).</i>			

5-2 *Wood-burning fireplaces, woodstoves, or similar wood-burning devices shall be prohibited throughout the proposed project plan area. Homes may be fitted with the applicable regulation-compliant natural gas burning appliances if desired. The prohibition shall be included on any project plans submitted prior to issuance of building permits, subject to review and approval by the Placer County Community Development Resource Agency.*

5-3 Expose sensitive receptors to substantial pollutant concentrations. Based on the analysis below, the impact is *less than significant*.

The major pollutants of concern are localized CO emissions and TAC emissions, which are addressed below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Implementation of the proposed project would increase traffic volumes on streets near the project site; therefore, the project would be expected to increase local CO concentrations. Concentrations of CO approaching the AAQS are only expected where background levels are high, and traffic volumes and congestion levels are high. The statewide CO Protocol document identifies signalized intersections operating at LOS E or F, or projects that would result in the worsening of signalized intersections to LOS E or F, as having the potential to result in localized CO concentrations in excess of AAQS, as a result of large numbers of cars idling at stop lights.³⁶ In accordance with the statewide CO Protocol, the PCAPCD has established screening methodology for localized CO emissions, which are intended to provide a conservative indication of whether project-generated vehicle trips would result in the generation of localized CO emissions that would

³⁶ University of California, Davis. *Transportation Project-Level Carbon Monoxide Protocol*. December 1997.



contribute to an exceedance of AAQS and potentially expose sensitive receptors to substantial CO concentrations. Per the PCAPCD's screening methodology, if the project would result in vehicle operations producing more than 550 lbs/day of CO emissions and if either of the following scenarios are true, the project could result in localized CO emissions that would violate CO standards:

- Degrade the peak hour LOS on one or more streets or at one or more intersections (both signalized and non-signalized) in the project vicinity from an acceptable LOS (i.e., LOS A, B, C, or D) to an unacceptable LOS (i.e., LOS E or F); or
- Substantially worsen an already existing unacceptable peak hour LOS on one or more streets or at one or more intersections in the project vicinity. "Substantially worsen" includes an increase in delay at an intersection by 10 seconds or more when project-generated traffic is included.³⁷

According to the Air Quality analysis performed for the proposed project, operation of the project would result in maximum mobile source CO emissions of 26.97 lbs/day without ADUs, and 29.63 lbs/day with up to 12 ADUs (see Appendix C). Consequently, CO emissions related to operation of the proposed project would be far below the 550 lbs/day screening threshold used by PCAPCD. Therefore, according to the PCAPCD's screening methodology for localized CO emissions, the proposed project would not be expected to generate localized CO emissions that would contribute to an exceedance of AAQS, and the proposed project would not expose sensitive receptors to substantial concentrations of localized CO.

TAC Emissions

As stated above, if a project would introduce a new source of TACs, a detailed health risk assessment may be required. The PCAPCD considers an increase in cancer risk levels of more than 10 in one million persons or a non-cancer hazard index greater than 1.0 to be a significant impact related to TACs.

The existing residential development opposite the project site across Brady Lane, as well as the rural residential developments to the south and northwest, would all be considered sensitive receptors. The closest sensitive receptor to the project site would be the existing residence located within the carve out parcel in the southwestern portion of the project site. Thus, activities related to the construction and operation of the proposed project are analyzed to determine whether the proposed project would expose nearby sensitive receptors to TAC emissions.

The CARB has identified DPM from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks from TACs are a function of both the concentration of emissions and the duration of exposure. Health-related risks associated with DPM in particular are primarily associated with long-term exposure and associated risk of contracting cancer.

Construction-related activities have the potential to generate concentrations of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions.

³⁷ Placer County Air Pollution Control District. *CEQA Air Quality Handbook* [pg. 37]. November 21, 2017.



However, construction would be temporary and would occur over a relatively short duration in comparison to the operational lifetime of the proposed project. While methodologies for conducting health risk assessments are associated with long-term exposure periods (e.g., over a 30-year period or longer), construction activities associated with the proposed project were estimated to occur over an approximately three-year period, which would include all off-site work as well. Only portions of the site or off-site improvement areas would be disturbed at a time throughout the construction period, with operation of construction equipment occurring intermittently throughout the course of a day rather than continuously at any one location on the project site or within the off-site improvement areas. In addition, all construction equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation includes emissions reducing requirements such as limitations on vehicle idling, disclosure, reporting, and labeling requirements for existing vehicles, as well as standards relating to fleet average emissions and the use of Best Available Control Technologies. As discussed above, through standard conditions of approval, Placer County requires off-road equipment used within the County to achieve lower than state-average emissions of NO_x and PM. Thus, on-site emissions of PM would be reduced, which would result in a proportional reduction in DPM emissions and exposure of nearby residences to DPM. Project construction would also be required to comply with all applicable PCAPCD rules and regulations, including Rule 501 related to General Permit Requirements. Considering the intermittent nature of construction equipment operating within an influential distance to the nearest sensitive receptors, the duration of construction activities in comparison to the operational lifetime of the project, the typical long-term exposure periods associated with conducting health risk assessments, and compliance with regulations, the likelihood that any one nearby sensitive receptor would be exposed to high concentrations of DPM for any extended period of time would be low.

As discussed above, and with implementation of Mitigation Measure 5-1(a) and 5-1(b), the proposed project's construction-related emissions would be below the applicable mass emissions thresholds of significance for PM₁₀, which includes DPM and fugitive dust related to construction. The PCAPCD's Handbook advises that if construction-related emissions have been quantified and are below the thresholds of significance, the project would result in a less-than-significant impact.³⁸ Considering that PM₁₀ emissions, which include emissions of DPM, would be below the PCAPCD's thresholds of significance, construction of the proposed project would not be expected to generate substantial DPM emissions such that an increase in cancer risk levels of more than 10 in one million persons or a non-cancer hazard index greater than 1.0 would occur. Therefore, the proposed project would not expose sensitive receptors to substantial concentrations of DPM during construction.

Operational-related emissions of TACs are typically associated with stationary diesel engines or land uses that involve heavy truck traffic or idling. Although the residences included in the proposed project would not involve long-term or frequent operations of any stationary diesel engines, the proposed sewer lift station would include installation of an emergency generator. Operations of the emergency generator would be strictly limited by PCAPCD permit conditions, and would be limited to infrequent maintenance and reliability testing, as well as operations in emergency conditions. Considering the intermittent nature of operation of the generator for testing and emergency purposes, and the highly

³⁸ Placer County Air Pollution Control District. *CEQA Air Quality Handbook* [pg. 31 to 32]. November 21, 2017.



dispersive nature of DPM, the proposed generator would not be anticipated to result in the exposure of sensitive receptors to substantial concentrations of DPM.

The CARB's Handbook includes facilities (distribution centers) associated with 100 or more heavy-duty diesel trucks per day as a source of substantial DPM emissions. The project is not a distribution center, and is not located near any existing distribution centers. Residential developments do not involve frequent heavy-duty diesel truck trips. Some future residents may own diesel-fueled vehicles; however, emissions from passenger vehicles are typically less intense than from heavy-duty trucks, and the likelihood that the equivalent of 100 heavy-duty diesel trucks per day would occur from diesel-fueled passenger vehicles to and from the site is very low. Accordingly, the proposed project would not involve diesel trucks at the site in excess of 100 per day and would not be expected to expose any existing sensitive receptors to substantial DPM emissions associated with truck trips. Therefore, operation of the proposed project would not result in an increase in cancer risk levels of more than 10 in one million persons or a non-cancer hazard index greater than 1.0, and existing nearby sensitive receptors would not be exposed to substantial pollutant concentrations.

Naturally Occurring Asbestos

According to the *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*, prepared by the Department of Conservation, the project site is located within an area categorized as least likely to contain NOA, because faults and serpentinite outcroppings are not known to be in the project area.³⁹ Consequently, NOA is not anticipated to be present on the project site.

Criteria Pollutants

As noted in Table 5-1, exposure to criteria air pollutants can result in adverse health effects. The AAQS presented in Table 5-2 are health-based standards designed to ensure safe levels of criteria pollutants that avoid specific adverse health effects. Because the SVAB is designated as nonattainment for State and federal eight-hour ozone and State PM₁₀ standards, the PCAPCD, along with other air districts in the SVAB region, has adopted federal and state attainment plans to demonstrate progress towards attainment of the AAQS. Full implementation of the attainment plans would ensure that the AAQS are attained and sensitive receptors within the SVAB are not exposed to excess concentrations of criteria pollutants. The PCAPCD's thresholds of significance were established with consideration given to the health-based air quality standards established by the AAQS, and are designed to aid the district in implementing the applicable attainment plans to achieve attainment of the AAQS.⁴⁰ Thus, if a project's criteria pollutant emissions exceed the PCAPCD's mass emission thresholds of significance, a project would be considered to conflict with or obstruct implementation of the PCAPCD's air quality planning efforts, thereby delaying attainment of the AAQS. Because the AAQSs are representative of safe levels that avoid specific adverse health effects, a project's hinderance of attainment of the AAQS could be considered to contribute towards regional health effects associated with the existing nonattainment status of ozone and PM₁₀ standards.

³⁹ Department of Conservation, California Geological Survey. *Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California*. Published 2006.

⁴⁰ Placer County Air Pollution Control District. *CEQA Air Quality Handbook* [pg. 20]. November 21, 2017.



However, as discussed in Impact 5-1 and 5-2, and following implementation of Mitigation Measures 5-1(a) and 5-1(b), the proposed project would not result in exceedance of the PCAPCD's thresholds of significance. Consequently, implementation of the proposed project would not conflict with the PCAPCD's adopted attainment plans nor would the proposed project inhibit attainment of regional AAQS. Therefore, implementation of the proposed project would not contribute towards regional health effects associated with the existing nonattainment status of ozone and PM₁₀ standards.

Conclusion

Based on the above analysis, the proposed residential land uses would not be anticipated to result in the production of substantial concentrations of TACs, including DPM, localized CO, or criteria pollutants. In addition, the likelihood of NOA being present on the project site is low. Therefore, the proposed project would not result in the exposure of sensitive receptors to substantial pollutant concentrations, and a **less-than-significant** impact would result.

Mitigation Measure(s)

None required.

5-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Based on the analysis below, the impact is *less than significant*.

Emissions of pollutants have the potential to adversely affect sensitive receptors within the project area. Pollutants of principal concern include emissions leading to odors, visible emission (including dust), or emissions considered to constitute air pollutants. Air pollutants have been discussed in Impacts 5-1 through 5-3 above. Therefore, the following discussion focuses on emissions of odors and visible emissions.

Odors

Odors are generally regarded as an annoyance rather than a health hazard. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative methodologies to determine the presence of a significant odor impact do not exist. Certain land uses such as wastewater treatment and conveyance facilities, landfills, confined animal facilities, composting operations, food manufacturing plants, refineries, and chemical plants have the potential to generate considerable odors. The proposed project would include the construction and operation of a sewer lift station, which would be located on the southern boundary of the project site, to the west of the proposed emergency vehicle access on Vineyard Road. The proposed sewer lift station would have the potential to result in odors within the project area. As discussed in the Existing Environmental Setting section, this analysis is appropriately limited to the potential effects that the proposed project, specifically the sewer lift station, may have on the surrounding environment, and not future on-site residents, per CBIA case law. The nearest off-site residences to the proposed lift station would be the existing residences located south of Vineyard Road, the closest of which is approximately 150 feet away from the lift station (note: the existing residence within the NAPOTS portion of the project site is approximately 480 feet away from the proposed sewer lift station).



Placer County maintains a Pump Station Design Manual, which provides design and engineering criteria that must be met for approval of proposed sewer lift stations.⁴¹ The County, through the Design Manual, reserves the right to require that odor control facilities be included in sewer lift station design. In order to determine whether a proposed sewer lift station would require the inclusion of odor control facilities, County staff reviews project Improvement Plans for several factors. In particular, the potential for sewer lift stations to result in odors is largely dependent upon the size of the area serviced by the proposed lift station and if the lift station receives sewerage flows from other lift stations. Sewer lift stations that service large sewer shed areas or receive flows from other lift stations can have a heightened potential for creating odors, because sewage collected over large areas or transported over large distances is exposed to anaerobic conditions where odors can be generated. In addition to the consideration of the potential for a proposed lift station to result in the generation of odors, County staff considers the distance between the proposed lift station and the nearest receptors, as well as the site conditions surrounding the lift station.

In the case of the proposed lift station, the sewer shed serviced by the station would be limited to that of the project site and approximately 200 additional (future) units within the northeast area of the DCWPCP. Therefore, the proposed lift station would not service a large sewer shed area and sewage directed to the proposed lift station would not be conducive to anaerobic conditions over large distances. Furthermore, the proposed lift station would not receive flows from other upstream lift stations, and, thus, the proposed lift station would not handle sewage from off-site areas that had been transported over long distances. Due to the small sewer shed area and lack of connections to other upstream sewer lift stations, operations of the on-site sewer lift station are not anticipated to result in substantial odors. Moreover, the nearest off-site receptor to the proposed sewer lift station would be approximately 150 feet away from the lift station, which would provide ample distance for the minimal odors to dissipate. For the purposes of avoiding impacts related to operations of sewer lift stations, the County considers a setback distance of 50 feet or more to be sufficient to avoid impacts. The nearest off-site receptors would be well outside of the 50-foot setback.

Considering the above, odor control facilities are not anticipated to be required, as minimal odors would result from operation of the lift station and all off-site receptors would be sufficiently separated from the proposed lift station. Consequently, operation of the proposed lift station would not result in the exposure of sensitive receptors to substantial odors.

Although not within the purview of CEQA, during review of Improvement Plans, County staff would review the sewer lift station design to determine the potential for the station to expose future on-site project receptors to odors. The nearest proposed receptor would be future residents at Lot 119, which is directly east of the sewer lift station. An Emergency Vehicle Access, sidewalk, and landscaping would separate Lot 119 and the proposed lift station. As such, sufficient area would be available to achieve up to 50 feet of separation between the proposed lift station and the proposed residence at Lot 119.

Nevertheless, the County maintains the discretion to require the inclusion of odor control facilities, such as air filters/scrubbers, in the design of the sewer lift station. The final

⁴¹ Placer County Environmental Engineering. *Pump Station Design Manual*. June 30, 2016.



determination with regard to the inclusion of odor control facilities would occur prior to approval of Improvement Plans for the project. Because odor control facilities would be considered primarily for the benefit of future on-site receptors, any potential need for inclusion of odor control facilities would not be within the purview of CEQA and would not be considered mitigation for the purpose of avoiding a significant environmental impact.

Apart from the proposed sewer lift station, operations of the proposed project would involve activities typical to residential developments, and, consequently, would not be anticipated to result in the creation of substantial odors.

Diesel fumes from construction equipment are often found to be objectionable; however, construction is temporary and operation of equipment is regulated by federal, State, and local standards, including PCAPCD rules and regulations. Buildout of the proposed project would involve construction activity in different areas of the site and within off-site improvement areas throughout the construction period. Therefore, construction equipment would operate at varying distances from existing sensitive receptors, and potential odors from such equipment would not expose any single receptor to odors for a substantial period of time. Furthermore, construction activity would be restricted to certain hours of the day per the Placer County Code, Section 9.36.030(A)(7), which would limit the times of day during which construction related odors would potentially be emitted. Development of the proposed project would be required to comply with all applicable PCAPCD rules and regulations, which would help to control construction-related odorous emissions. Due to the temporary duration of construction and the regulated nature of construction equipment, project-related construction activity would not be anticipated to result in the creation of substantial odors.

Considering the above, construction equipment and the proposed sewer lift station would be unlikely to result in the creation of substantial odors. Consequently, implementation of the proposed project would not be anticipated to result in a significant impact related to the emission of compounds, such as those leading to odors.

Visible Emissions

As defined in PCAPCD Rule 202, visible emissions may be smoke, dust, or any other substance that obscures an observer's view based on standardized scales of opacity. Visible emissions may result from the use of internal combustion engines, such as smoke from diesel fueled equipment, the burning of vegetation, or the upset and release of soil as dust.

PCAPCD Rule 202 specifically prohibits any person from discharging visible emissions of any air contaminant for a period or periods aggregating to more than three minutes in any one-hour time. Operation of the proposed residential land uses would not be anticipated to result in any visible emissions that would have the potential of violating Rule 202. Construction equipment on-site would be required to meet the visible emissions standards of Rule 202, and, considering the regulated nature of construction equipment, as well as the temporary use of such equipment on-site, would not be anticipated to result in substantial visible emissions. Should vegetation cleared from the site be burned, burning activity would be subject to the requirements of PCAPCD Rule 304. Rule 304 includes standards and administrative requirements to ensure that vegetation burning does not result in smoke-related impacts during land development.



Considering the above, implementation of the proposed project would not be anticipated to result in substantial visible emissions during project construction or operations.

Conclusion

In addition to the regulations and modeling results discussed above, PCAPCD Rule 205, Nuisance, addresses the exposure of “nuisance or annoyance” air contaminant discharges, which would include odors and visible emissions, and provides enforcement of nuisance control. Rule 205 is complaint-based, where if public complaints are sufficient to cause the emission source to be considered a public nuisance, then the PCAPCD is required to investigate the identified source, as well as determine and ensure a solution for the source of the complaint, which could include operational modifications to correct the nuisance condition. Thus, although not anticipated, if air pollutant complaints are made during project construction or operations, the PCAPCD would be required (per PCAPCD Rule 205) to ensure that such complaints are addressed and mitigated, as necessary.

For the aforementioned reasons, project construction and operations would not result in substantial emissions of visible pollutants, and project operations would not result in other emissions (such as those leading to odors). Accordingly, implementation of the proposed project would not result in operational emissions leading to odors, which could adversely affect a substantial number of people, and a **less-than-significant** impact would occur.

Mitigation Measure(s)

None required.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, compound, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

A project’s emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development projects. The geographic context for the cumulative air quality analysis includes Placer County and surrounding areas within the portion of the SVAB that is designated nonattainment for ozone and PM₁₀.

As mentioned above, global climate change is, by nature, a cumulative impact. Emissions of GHG contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change (e.g., sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts). A single project could not generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from a project in combination with other past, present, and future projects could contribute substantially to the world-wide phenomenon of global climate change and the associated environmental impacts. Although the geographical context for global climate change is the Earth, for analysis purposes under CEQA, and due to the regulatory context pertaining to GHG emissions and global climate



change applicable to the proposed project, the geographical context for global climate change in this EIR is limited to the State of California.

5-5 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). Based on the analysis below and with implementation of mitigation, the project’s incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.

The proposed project is within a nonattainment area for ozone and PM₁₀. By nature, air pollution is largely a cumulative impact. The population growth and vehicle usage within the nonattainment area from the proposed project, in combination with other past, present, and reasonably foreseeable projects within Placer County and surrounding areas, contributes to the region’s adverse air quality impacts on a cumulative basis, and could either delay attainment of AAQS or require the adoption of additional controls on existing and future air pollution sources to offset emission increases. Thus, the project’s emissions of criteria air pollutants would contribute to cumulative regional air quality effects.

As noted in the Standards of Significance section above, the PCAPCD directs lead agencies to use the region’s existing attainment plans as a basis for analysis of cumulative emissions. A project’s interference with such plans may be determined through the use of the PCAPCD’s recommended thresholds of significance for ozone precursors and PM₁₀. The PCAPCD’s recommended cumulative thresholds are identical to the operational thresholds, both of which are presented in Table 5-6.

Accordingly, if the proposed project would result in an increase of ROG, NO_x or PM₁₀ in excess of PCAPCD’s operational phase cumulative-level emissions threshold, which are identical to PCAPCD’s project-level operational emissions thresholds, the project could potentially result in a significant incremental contribution towards cumulative air quality impacts. The proposed project’s unmitigated cumulative contribution to regional emissions is presented in Table 5-17.

Table 5-17			
Maximum Unmitigated Project Contribution of Operational Emissions to Cumulative Conditions (lbs/day)			
	ROG	NO_x	PM₁₀
Project Emissions	189.58	14.24	36.86
PCAPCD Significance Threshold	55	55	82
Exceeds Threshold?	YES	NO	NO
<i>Source: CalEEMod, May and June 2019 (see Appendix C).</i>			

As shown in Table 5-17, the proposed project’s unmitigated operational emissions of NO_x and PM₁₀ would be below the PCAPCD’s applicable thresholds of significance. However, the unmitigated emissions of ROG would exceed the PCACPD’s cumulative thresholds.



The emissions presented in Table 5-17 represent emissions from the 119 proposed single-family units, but do not include emissions from the ADUs that could be built within the site. Table 5-18 presents combined emissions of both the 119 proposed single-family units, and up to 12 ADUs.

Table 5-18			
Maximum Unmitigated Project Contribution of Operational Emissions to Cumulative Conditions Including ADUs (lbs/day)			
	ROG	NO_x	PM₁₀
Project Emissions (119 SF units)	189.58	14.24	36.86
ADU Emissions (12 units)	18.85	1.27	3.73
<i>Total Emissions</i>	<i>208.43</i>	<i>15.51</i>	<i>40.59</i>
PCAPCD Significance Threshold	55	55	82
Exceeds Threshold?	YES	NO	NO
<i>Source: CalEEMod, May, June, and August 2019 (see Appendix C).</i>			

As shown in Table 5-18, with consideration of operational emissions from the 12 ADUs, project emissions would remain below the PCAPCD’s emissions thresholds for NO_x and PM₁₀. However, operational emissions would continue to exceed the PCAPCD’s emissions thresholds for ROG.

Therefore, implementation of the proposed project, with or without the 12 ADUs, could result in a significant incremental contribution to a cumulative violation of any air quality standards, contribute substantially to an existing or projected air quality violation, or conflict with and/or obstruct implementation of the PCAPCD’s air quality planning efforts. As such, the proposed project’s incremental contribution to regional air quality impacts would be ***cumulatively considerable***.

Mitigation Measure(s)

Restriction of the installation of woodburning fireplaces would result in the reduction of ROG emissions from an unmitigated maximum of 208.43 lbs/day to a maximum of 8.17 lbs/day, as shown in Table 5-16. Maximum mitigated emissions of 8.17 lbs/day would be below the PCAPCD’s thresholds of significance. Thus, implementation of the following mitigation measure would reduce the above impact to a *less than cumulatively considerable* level.

5-5 *Implement Mitigation Measure 5-2.*

5-6 Generation of GHG emissions that may have a significant impact on the environment or conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Based on the analysis below, the project’s incremental contribution to this significant cumulative impact is *less than cumulatively considerable*.

Buildout of the proposed project would contribute to increases of GHG emissions that are associated with global climate change during construction and operation. As discussed in



the Method of Analysis section, the modeling assumed that both on- and off-site construction would occur during implementation of the proposed project.

Construction GHG Emissions

The estimated unmitigated maximum construction-related emissions from the proposed project are presented in Table 5-19. As shown in the table, the short-term emissions related to on-site construction would be below the applicable threshold of significance.

Table 5-19		
Unmitigated On-site Construction GHG Emissions		
Year	GHG Emissions (MTCO ₂ e/yr)	Threshold of Significance (MTCO ₂ e/yr)
2021	376.52	10,000
2022	424.85	10,000
2023	116.47	10,000
<i>Source: CalEEMod, June 2019 (see Appendix C).</i>		

As shown in the table above, the maximum annual emissions related to construction of the proposed project are anticipated to occur in 2022. However, even in 2022, the construction-related GHG emissions would be well below the PCAPCD’s bright-line threshold of 10,000 MTCO₂e/yr. Furthermore, off-site construction work related to water line improvements were estimated by RoadMod to involve the emission of an additional 613.86 MTCO₂e. If such emissions were to occur within 2022, the maximum annual GHG emissions from construction of the project would equal 1,038.71 MTCO₂e. Considering the off-site construction emissions, as well as on-site construction-related emissions, the proposed project would result in GHG emissions below the PCAPCD’s bright-line threshold of 10,000 MTCO₂e/yr.

Long-Term Operational GHG Emissions

The modeling assumptions for the GHG emissions related to operations of the proposed project are discussed in the Method of Analysis section above. The estimated unmitigated operational GHG emissions at full buildout (2024) are presented in Table 5-20. It should be noted that the emissions presented in Table 5-20 do not include consideration of Mitigation Measure 5-2.

Table 5-20	
Unmitigated Project Operational GHG Emissions (MTCO₂e/yr)	
Emission Source	GHG Emissions
Area	181.67
Energy	165.03
Mobile	1,069.18
Stationary	0.23
Solid Waste	66.44
Water	17.21
TOTAL ANNUAL GHG EMISSIONS	1,499.76
PCAPCD Screening Level Threshold	1,100
Note: Rounding may result in small differences in summation.	
<i>Source: CalEEMod, June 2019 (see Appendix C).</i>	



As shown in the table, the proposed project would result in operational GHG emissions in excess of the 1,100 MTCO₂e/yr operational threshold of significance. Accordingly, the project must be further evaluated in comparison with the efficiency thresholds presented in Table 5-7. The efficiency thresholds rely on per capita MTCO₂e/yr emissions to determine significance for residential projects in rural or urban settings. In general, urban projects are considered to involve shorter vehicle trips, which would inherently reduce GHG emissions from mobile sources, while rural projects are considered to involve relatively longer vehicle trips and proportionally higher GHG emissions from mobile sources. In recognition of the inherent inequality between mobile source GHG emissions from rural and urban projects, PCAPCD established higher efficiency thresholds for rural projects as compared to urban projects (see Table 5-7 above). The PCAPCD directs lead agencies to determine whether a project is considered rural or urban. The proposed project is located within a generally rural portion of the DCWPCP region, but is adjacent to more urbanized uses within the City of Roseville. Although the project site is currently within a rural portion of the DCWPCP, because urban development within the City of Roseville exists to the east of the site, the PCAPCD's urban efficiency threshold is used for further analysis of project-related operational emissions. It should be noted that the urban efficiency metric is more stringent, and, thus, use of the urban efficiency metric presents a conservative analysis. The proposed project's estimated per capita emissions are presented below in Table 5-21 and compared with the applicable PCAPCD efficiency threshold.

Table 5-21	
Unmitigated Project Operational GHG Emissions Per Capita	
Project Emissions (MTCO₂e/yr/capita)	PCAPCD Efficiency Threshold for Urban Residential Projects (MTCO₂e/yr/capita)
4.08	4.5
Notes: As discussed in Chapter 11 of this EIR, the estimated population for the project at buildout is anticipated to be 367 residents based on a 3.08 persons per household rate for the DCWPCP area. Thus, the emissions efficiency rate for the project would be 4.08 (1,499.76 MTCO ₂ e/yr / 367 residents = 4.08 MTCO ₂ e/yr/capita).	

As shown in the table, the proposed project would result in operational GHG emissions of 4.08 MTCO₂e/yr/capita, which would be below the applicable PCAPCD efficiency threshold.

It should be noted that implementation of Mitigation Measure 5-2 would reduce emissions from the levels shown in Table 5-20. As shown in Table 5-22, Mitigation Measure 5-2 would reduce emissions from area sources, resulting in overall emissions decreasing from an unmitigated level of 1,499.76 MTCO₂e/yr to a mitigated level of 1,404.43 MTCO₂e/yr. A mitigated emissions level of 1,404.43 MTCO₂e/yr would result in a mitigated emissions efficiency metric of 3.83 MTCO₂e/yr/capita. As demonstrated in Table 5-21, project emissions would be below the PCAPCD's efficiency threshold even without consideration of Mitigation Measure 5-2.

Furthermore, operation of up to 12 ADUs would result in additional GHG emissions not presented in the preceding tables. Both mitigated and unmitigated operational emissions of the proposed ADUs is presented in Table 5-23 below.



Table 5-22
Mitigated Project Operational GHG Emissions (MTCO₂e/yr)

Emission Source	GHG Emissions
Area	86.34
Energy	165.03
Mobile	1,069.18
Stationary	0.23
Solid Waste	66.44
Water	17.21
TOTAL ANNUAL GHG EMISSIONS	1,404.43
PCAPCD Screening Level Threshold	1,100

Note: Rounding may result in small differences in summation.

Source: CalEEMod, June 2019 (see Appendix C).

Table 5-23
ADU Operational GHG Emissions (MTCO₂e/yr)

Emission Source	Unmitigated GHG Emissions	Mitigated GHG Emissions
Area	18.32	8.71
Energy	13.87	7.79
Mobile	107.19	107.19
Solid Waste	2.78	2.78
Water	1.74	1.74
TOTAL ANNUAL GHG EMISSIONS	143.89	128.20
PCAPCD Screening Level Threshold	1,100	1,100

Notes:

- Rounding may result in small differences in summation.
- It should be noted that emissions related to the proposed emergency generator are presented in Table 5-22 above. The potential inclusion of up to 12 ADUs would not alter such emissions.

Source: CalEEMod, August 2019 (see Appendix C).

Although operational emissions of up to 12 ADUs would be below the PCAPCD's screening level thresholds when considered independently, the ADUs would be additive to the 119 single-family residential units included in the proposed project. Thus, emissions from operation of the ADUs must be considered additively to the operational emissions from the 119 single-family units included in the proposed project. When considered together, operation of the 119 single-family units and the 12 ADUs would result in mitigated emissions of 1,532.63 MTCO₂e/yr (1,404.43 MTCO₂e/yr + 128.20 MTCO₂e/yr = 1,532.63 MTCO₂e/yr). Because the ADUs are anticipated to be smaller than the proposed 119 single-family units, a lower person per household rate of 1.91 persons per household is applied to the ADUs. Thus, development of 12 ADUs would likely result in approximately 23 additional residents within the project site. The total population of the project site with 12 ADUs would be 390 residents and the efficiency metric would be 3.93 MTCO₂e/yr/capita (1,532.63 MTCO₂e/yr / 390 residents = 3.93 MTCO₂e/yr/capita). An efficiency metric of 3.93 MTCO₂e/yr/capita would be below the PCAPCD's efficiency threshold of 4.5 for urban residential developments. It should be noted that although the ADUs are anticipated to only result in 23 additional residents, based on the land uses



applied in CalEEMod, the default assumptions for CalEEMod anticipated that the 12 ADUs would generate 34 additional residents. Given the nature of the ADUs, 23 additional residents is considered a more accurate estimate. For the purposes of emissions estimation, the default estimate in CalEEMod of 34 additional residents is considered conservative and would result in a higher estimate of emissions as compared to 23 residents used elsewhere in this EIR. Notwithstanding the CalEEMod default estimates, when calculating PCACPD's efficiency metric, Raney used the ADU population of 23 because the inclusion of fewer residents in the efficiency calculation ensures a conservative approach to analysis (i.e., division of the numerator [emissions] by a smaller denominator [population] results in a greater per capita emissions estimate). Consequently, the analysis presented herein represents a worst-case approach, where the emissions estimates for the ADUs have been maximized, but a lower resident count has been used to assess the efficiency of the project.

Conclusion

Therefore, the proposed project would not be considered to generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Consequently, the project would not result in a cumulatively considerable incremental contribution to impacts related to GHG emissions or climate change and the project's impact would be ***less than cumulatively considerable***.

Mitigation Measure(s)

None required.

