

3.3 AIR QUALITY

This section includes a discussion of the existing air quality conditions, and relevant environmental and regulatory settings pertaining to air quality within Tuolumne County. In addition, this section analyzes the effects of projected development under the General Plan Update on air quality emissions and the associated impacts. It discusses both temporary air quality impacts relating to construction activity and long-term air quality impacts associated with projected development under the General Plan Update. Comments were received on the Draft EIR regarding the assessment of environmental impacts and the effects of agritourism on air quality. The effects of additional vehicle trips, including those associated with agritourism, are evaluated in Impact 3.3-4.

3.3.1 Environmental Setting

LOCAL CLIMATE AND AIR QUALITY

Tuolumne County is located within the Mountain Counties Air Basin (MCAB), along with Amador, Calaveras, El Dorado (western), Mariposa, Nevada, Placer (central), Sierra, and Plumas counties. The general climate of the MCAB varies considerably with elevation and proximity to mountain peaks. The terrain features of the MCAB make it possible for various climates to exist within the general area. The pattern of mountains and hills is primarily responsible for the wide variations of rainfall, temperatures, and localized winds that occur throughout the region. Temperature variations have an important influence on MCAB wind flow, dispersion along mountain ridges, vertical mixing, and photochemistry. The Sierra Nevada receives large amounts of precipitation from storms moving over the continent from the Pacific Ocean. Precipitation in the MCAB is highly variable, depending on elevation and location. Areas in the eastern portion of the MCAB have relatively high elevations and receive the most precipitation. Precipitation levels decline toward the western areas of the MCAB. Climates vary from alpine in the high elevations of the eastern areas to more arid at the western edge of the MCAB.

POLLUTANTS

Primary criteria pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory) into the atmosphere. Primary criteria pollutants include carbon monoxide (CO), reactive organic gases (ROG), oxides of nitrogen (NO_x), respirable and fine particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂), and lead. Secondary criteria pollutants are created by atmospheric chemical and photochemical reactions; ROG together with NO_x form the building blocks for the creation of photochemical (secondary) pollutants. Secondary criteria pollutants include oxidants, ozone, and sulfate and nitrate particulates (smog). The characteristics, sources, and effects of the criteria air pollutants of most concern are described below.

Carbon Monoxide

CO is a local pollutant that is found in high concentrations only near the source. The major source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually found only near areas of high traffic volumes. CO's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Ozone

Ozone is produced by a photochemical reaction (triggered by sunlight) between NO_x and ROG. NO_x is formed during the combustion of fuels, while ROG is formed during combustion and evaporation of fossil fuels and organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health

effects on humans, including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Nitrogen Dioxide

NO₂ is a byproduct of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of NO_x produced by combustion is NO, but NO reacts rapidly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ is an acute irritant. A relationship between NO₂ and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 part per million may occur. NO₂ absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM₁₀ and acid rain.

Respirable and Fine Particulate Matter

PM₁₀ is respirable particulate matter (PM) measuring no more than 10 microns in diameter, while PM_{2.5} is fine PM measuring no more than 2.5 microns in diameter. PM₁₀ and PM_{2.5} are mostly dust particles, nitrates, and sulfates. Both PM₁₀ and PM_{2.5} are byproducts of fuel combustion and wind erosion of soil and unpaved roads and are directly emitted into the atmosphere through these processes. They are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with respirable particulates (those between 2.5 and 10 microns in diameter) and fine particulates (PM_{2.5}) can be very different. Respirable particulates generally come from windblown dust and dust kicked up from mobile sources. Fine particulates are generally associated with combustion processes and are formed in the atmosphere as a secondary pollutant through chemical reactions. PM_{2.5} is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the PM₁₀ and PM_{2.5} that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Sulfur Dioxide

SO₂ is a colorless, pungent, irritating gas formed primarily by the combustion of sulfur-containing fossil fuels. In humid atmospheres, SO₂ can form sulfur trioxide and sulfuric acid mist, with some of the latter eventually reacting to produce sulfate particulates. This contaminant is the natural combustion product of sulfur or sulfur-containing fuels. Fuel combustion is the major source, while chemical plants, sulfur recovery plants, and metal processing are minor contributors. At sufficiently high concentrations, SO₂ irritates the upper respiratory tract. At lower concentrations, when in conjunction with particulates, SO₂ appears able to do still greater harm by injuring lung tissues. Sulfur oxides, in combination with moisture and oxygen, can yellow the leaves of plants, dissolve marble, and eat away iron and steel. Sulfur oxides can also react to form sulfates, which reduce visibility.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been fuels in on-road motor vehicles (such as cars and trucks) and industrial sources. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions to the air today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. Lead is persistent in the environment and accumulates in soils and sediments through deposition from air sources, direct discharge of waste streams to water bodies, mining, and erosion.

CURRENT AMBIENT AIR QUALITY

The local Air Pollution Control Districts (APCDs) and Air Quality Management Districts (AQMDs) are required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in “attainment” or “nonattainment.” The MCAB violates the state ozone standard due to transport (i.e., air migration across air district lines) from the Sacramento Valley, the San Joaquin Valley, and the San Francisco Bay Area. The region is in attainment for the federal 1-hour standard, except for the western portions of El Dorado and Placer counties, which are part of the Sacramento federal nonattainment area. Because the California Air Resources Board (CARB) has determined that the region’s ozone violations are the result of transport of emissions into the MCAB (CAPCOA 2015), requirements in the California Clean Air Act (CCAA) that would affect the air quality planning process of the local air districts have not been triggered. Instead, the region will benefit principally from emission reductions in the upwind areas through the application of “all feasible measures” (CARB 2001).

The Tuolumne County portion of the MCAB is a nonattainment area for the state standards for ozone (CARB 2017) and is unclassified or in attainment for the federal standards for ozone and for the federal and state standards for CO, nitrogen dioxide, SO₂, PM₁₀, PM_{2.5}, and lead (CARB 2015). The Tuolumne County Air Pollution Control District (TCAPCD) is responsible for implementing emissions standards and other requirements of federal and state laws regarding most types of stationary emission sources. CARB has determined that the ozone levels in Tuolumne County are caused by “overwhelming transport” of emissions into the air district (CAPCOA 2015). Therefore, the TCAPCD is relieved from preparing an attainment plan for ozone, and no other criteria air pollutant levels are high enough to require an attainment plan. Although there are no required attainment plans, or other local plans specifically addressing air quality, Tuolumne County must conform to existing state and federal air quality standards. Air quality data from the Sonora-Barretta Street monitoring station, which is located in the City of Sonora, are summarized in Table 3.3-1. As shown in Table 3.3-1, the state and federal 8-hour ozone standards were exceeded multiple times between 2014 and 2016.

Table 3.3-1 Ambient Air Quality Data

Pollutant	2014	2015	2016
Ozone, ppm, 1-hour			
Number of days of state exceedances (>0.09 ppm)	0	1	3
Ozone, ppm, 8-hour			
Number of days of state exceedances (>0.070 ppm)	16	11	45
Number of days of federal exceedances (>0.075 ppm)	2	4	25
Notes: ppm = parts per million.			
Data obtained from the Sonora-Barretta Street Monitoring Station, 251 S. Barretta Street, Sonora CA.			
Source: CARB 2018			

SENSITIVE RECEPTORS

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14, the elderly over 65, persons engaged in strenuous work or exercise, and people with cardiovascular and chronic respiratory diseases. The majority of sensitive receptor locations are therefore residences, schools, and hospitals. Sensitive receptors are located throughout Tuolumne County.

3.3.2 Regulatory Setting

FEDERAL

U.S. Environmental Protection Agency

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

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 3.3-2, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, and lead. The primary standards protect public health, and the secondary standards protect public welfare. The CAA also required each state to prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Toxic Air Contaminants

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

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

For evaluation purposes, TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.3-2). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

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

STATE

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA. The CCAA, which was adopted in 1988, required CARB to establish California ambient air quality standards (CAAQS) (Table 3.3-2).

Table 3.3-2 Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS) ^{a,b}	National (NAAQS) ^c	
			Primary ^{b,d}	Secondary ^{b,e}
Ozone	1-hour	0.09 ppm (180 µg/m ³)	– ^e	Same as primary standard
	8-hour	0.070 ppm (137 µg/m ³)	0.070 ppm (147 µg/m ³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	Same as primary standard
	8-hour	9 ppm ^f (10 mg/m ³)	9 ppm (10 mg/m ³)	
Nitrogen dioxide (NO ₂)	Annual arithmetic mean	0.030 ppm (57 µg/m ³)	53 ppb (100 µg/m ³)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)	–
Sulfur dioxide (SO ₂)	24-hour	0.04 ppm (105 µg/m ³)	–	–
	3-hour	–	–	0.5 ppm (1300 µg/m ³)
	1-hour	0.25 ppm (655 µg/m ³)	75 ppb (196 µg/m ³)	–
Respirable particulate matter (PM ₁₀)	Annual arithmetic mean	20 µg/m ³	–	Same as primary standard
	24-hour	50 µg/m ³	150 µg/m ³	
Fine particulate matter (PM _{2.5})	Annual arithmetic mean	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
	24-hour	–	35 µg/m ³	Same as primary standard
Lead ^f	Calendar quarter	–	1.5 µg/m ³	Same as primary standard
	30-day average	1.5 µg/m ³	–	–
	Rolling 3-month average	–	0.15 µg/m ³	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m ³)	No national standards	
Sulfates	24-hour	25 µg/m ³		
Vinyl chloride ^f	24-hour	0.01 ppm (26 µg/m ³)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m³ = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million.

^a CAAQS for ozone, carbon monoxide, SO₂ (1- and 24-hour), NO₂, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

^b Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

^c NAAQS (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. The PM_{2.5} 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

^d Primary NAAQS: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

^e Secondary NAAQS: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

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

Source: CARB 2016

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing PM, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

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

Toxic Air Contaminants

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

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

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the state's cap-and-trade program for greenhouse gas (GHG) emissions. AB 617 imposes a new state-mandated local program to address nonvehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and TACs. AB 617 requires CARB to identify high-pollution communities and directs air districts to focus air quality improvement efforts through adoption of community emission reduction programs within these identified areas. Currently, air districts review individual sources and impose emissions limits on emitters based on best available control technology, pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring community-wide air quality assessment and emission reduction planning. The bill requires CARB, in consultation with the air districts, communities, and other stakeholders, to select initial communities by October 1, 2018, and annually thereafter. It is not known at this time whether Tuolumne County includes any high-pollution communities.

CARB has adopted diesel exhaust control measures and more stringent emissions standards for various transportation-related mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be 85 percent less in 2020 in comparison to year 2000 (CARB 2000). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

LOCAL

Tuolumne County Air Pollution Control District

The TCAPCD is the primary agency responsible for planning to meet NAAQS and CAAQS in the County. CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA. California law authorizes CARB to set ambient (outdoor) air pollution standards (California Health and Safety Code Section 39606) in consideration of public health, safety, and welfare (CAAQS). The TCAPCD is responsible for implementing emissions standards and other requirements of federal and state laws regarding most types of stationary emission sources. The TCAPCD has also set emissions thresholds for certain pollutants for the purposes of the California Environmental Quality Act (CEQA), which are discussed in more detail in the “Thresholds of Significance” section.

The TCAPCD includes Rule 205, which states, “A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to have a natural tendency to cause injury or damage to business or property.” Rule 205 does not apply to odors emanating from agriculture operations necessary for the growing of crops or raising of fowl or animals, which are addressed in Chapter 5.20 of the Tuolumne County Ordinance Code, discussed below.

Tuolumne County General Plan

As the proposed project would update the 1996 General Plan, this document will be discussed in the context of the update within the impact analysis. The General Plan Update, specifically the Air Quality Element, discusses how pollutant emissions will be addressed in the plan area. The policies and implementation programs in the Air Quality Element provide details on how pollutant emissions would be reduced through the implementation of the General Plan Update. The Transportation Element and the Climate Change Element also include policies and implementation programs that would reduce pollutant emissions; they are included below. Specific General Plan Update policies and implementation programs are identified in Section 3.3.3, “Impact Analysis,” below.

Tuolumne County Ordinance Code

Chapter 5.20 of the Tuolumne County Ordinance Code, entitled Right to Farm, is a County policy that serves to conserve, protect, and encourage the development and improvement of the County’s agricultural land and to specifically protect those lands for exclusive agricultural use or uses that do not interfere with agricultural operations. Section 5.20.030 states,

No preexisting or future agricultural operation, including the management and harvesting of timber, or any of its appurtenances conducted or maintained for commercial purposes, and in a manner consistent with proper and accepted customs and standards on agricultural land, shall become or be a nuisance, private or public, due to any changed condition of adjacent land uses in or about the locality thereof, provided that the provisions of this chapter shall not apply whenever a nuisance results from the negligent or improper operation of any such agricultural operation or its appurtenances; or if the agricultural activity of appurtenances obstructs the free passage or use in the customary manner of any navigable lake, river, stream, canal or basin or any public park, square, street or highway.

The ordinance also includes a requirement for the County to give notice of rules of this ordinance to any buyers of real property within the County.

3.3.3 Impact Analysis

METHODS OF ANALYSIS

Short-Term Construction Emissions Methodology

Emissions from construction activities represent temporary impacts that are typically short in duration, depending on the size, phasing, and type of development. Air quality impacts can nevertheless be acute during construction periods, resulting in significant localized impacts to air quality. Construction-related emissions are difficult to quantify at the general plan level because such emissions are dependent on the characteristics of individual development projects. However, because construction associated with 2040 development under General Plan Update would generate temporary criteria pollutant emissions, primarily due to the operation of construction equipment (e.g., PM₁₀ from grading) and truck trips, emissions have been estimated in this analysis, and are based on the anticipated amount of development in the General Plan Update.

The quantitative analysis of construction-related emissions of criteria air pollutants and precursors were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 computer program (CAPCOA 2017). Modeling was based on the total net change in dwelling units and land use types included in Table 2-6 in the Chapter 2, "Project Description," of this EIR. (See Appendix C for all land uses included in the modeling.) The projected development in Table 2-6 includes both the unincorporated areas of the County and the City of Sonora. Future development in the City of Sonora is not part of the project analyzed in this EIR because the City is not under the jurisdiction of, or covered by, the County's General Plan Update. Consequently, the analysis and mitigation in this section is based on a conservative overestimation of future development in the unincorporated areas of the County.

The horizon year of the General Plan Update is 2040. The modeling conducted for this analysis assumes that construction emissions could occur over a period of 21 years (i.e., the period between the potential adoption of the General Plan Update in 2019 and 2040). Although the exact timing of construction activity over this period is unknown, for the purposes of modeling, it was assumed that development would occur gradually in equal annual increments (approximately 5 percent of projected development annually) over this time period. It was also assumed that an average of six single-family homes (1,000 square feet each) would be demolished annually over the horizon of the General Plan, as a result of older houses being replaced (Yaley, pers. comm., 2018). Where project-specific information was not available, default values in CalEEMod were used based on the land use designations and types included in the General Plan Update.

Long-Term Operational Emissions Methodology

Operational emissions of criteria air pollutants and precursors were also estimated using CalEEMod. Modeling used land use-specific information where available, including assumptions associated with all land use designations and types that would be developed as part of the General Plan Update. Where such information was not available, default values in CalEEMod based on the project's location and land use types were used. Operational emissions were estimated using CalEEMod for the following sources: area sources (e.g., landscaping-related), energy use (i.e., electricity use), water use, and solid waste.

Tuolumne County uses propane, heating oil, and woodstoves for space heating. However, CalEEMod assumes that buildings use electricity and natural gas based on energy use averages by location. Future propane use in the County was estimated based on CalEEMod default natural gas use, by land use type. Future heating oil use was estimated based on existing data available in the Tuolumne County Regional Blueprint Greenhouse Gas Study (Rincon Consultants 2012:2-3). Additionally, future projections of area source emissions associated with the use of fireplaces were estimated based on existing wood-burning data available in the Tuolumne County Regional Blueprint Greenhouse Gas Study (Rincon Consultants 2012:2-3).

Mobile-source emissions were estimated using projected annual vehicle miles traveled (VMT) estimates included in the project's traffic study and vehicle emissions factors specific to Tuolumne County, generated

using CARB's EMFAC 2017 emission software. The project-generated annual VMT estimates were derived from the Tuolumne County Transportation Council Travel Demand Model and were included in the project traffic study (Wood Rodgers 2016). VMT estimates were generated for the baseline (2015) and target year (2040), based on the land uses included in the General Plan Update. See Appendix C for the complete traffic study. CO impacts were assessed based on available screening criteria from the Sacramento Metropolitan Air Quality Management District (SMAQMD). SMAQMD screening criteria were used to identify potential CO hotspots caused by project-related increases in traffic congestion at affected intersections because these criteria are valid for efficient consideration of multiple intersections and the TCAPCD does not provide screening criteria. These screening criteria were used along with data included in the General Plan-related traffic study (Appendix C).

The level of health risk from exposure to construction- and operation-related TAC emissions was assessed qualitatively. This assessment was based on the proximity of TAC-generating construction activity to off-site sensitive receptors, the number and types of diesel-powered construction equipment being used, and the duration of potential TAC exposure.

THRESHOLDS OF SIGNIFICANCE

The TCAPCD has established specific thresholds for air quality impacts evaluated under CEQA. Pursuant to the State CEQA Guidelines, air quality impacts related to the projected development under the General Plan Update would be significant if the project would:

- ▲ conflict with or obstruct implementation of the applicable air quality plan;
- ▲ violate any air quality standard or contribute substantially to an existing or project air quality violation—for the purposes of the project locations, result in construction or operations of a project that generated emissions in excess of the following thresholds, except CO, used by the TCAPCD (2017):
 - ROG – 1,000 pounds per day or 100 tons per year
 - NO_x – 1,000 pounds per day or 100 tons per year
 - PM₁₀ – 1,000 pounds per day or 100 tons per year
 - CO – result in an affected intersection experiencing more than 31,600 vehicles per hour. The CO threshold is discussed more below.
- ▲ 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 qualitative thresholds for ozone precursors);
- ▲ expose sensitive receptors to a substantial incremental increase in TAC emissions that exceed 10 in 1 million for carcinogenic risk (i.e., the risk of developing cancer) and/or a noncarcinogenic hazard index of 1.0 or greater; or
- ▲ create objectionable odors affecting a substantial number of people;
- ▲ The TCAPCD thresholds are intended to address individual projects, rather than overall development under the General Plan Update. However, because ROG, NO_x, and PM₁₀ are regional pollutants—they either are suspended in the air matrix or interact at a more atmospheric level—the project-level thresholds are used to address overall development in the General Plan Update. CO, however, is a local pollutant that effects recipients when concentrated at an individual intersection or roadway. TCAPCD has a project-level CO threshold of 1,000 pounds per day/100 tons per year, which may be indicative of a localized impact when this level of CO is produced by an individual project, but is inappropriate for a countywide general plan, where these CO levels would be dispersed throughout the county. This concept was coordinated with TCPACD staff (pers. comm. Bill Sandman 2018). Therefore, while the TCAPCD CO threshold may be appropriate at an individual project level, the threshold would overstate impacts of the

General Plan Update, because these pollutants would be dispersed throughout the County. A more accurate threshold at the general plan level is tied to congestion at a particular roadway intersection coupled with a high volume of cars. Therefore, the threshold of project-affected intersections experiencing more than 31,600 vehicles per hour, based on SMAQMD's CO hotspot screening methodology is used in this EIR. SMAQMD's threshold was selected because it is indicative to CO concentrations expected from the sources of CO pollution that may occur in Tuolumne County, and the TCAPCD's CO thresholds are inapt for a general plan analysis, as described herein.

GENERAL PLAN UPDATE POLICIES

The following policies and implementation programs from the General Plan Update are specifically relevant to air quality:

Community Development Element

- ▲ **Policy 1.B.1:** Protect existing land uses from the infringement of and impacts associated with incompatible land uses.
 - **Implementation Program 1.B.a** – Designate, where possible, land around existing non-residential land uses, such as agriculture, timberlands, mining preserves and industry, for new development that is compatible with these existing uses.
 - **Implementation Program 1.B.b** – Designate, where possible, land around existing residential neighborhoods for uses that are compatible with residences. Designate areas for new urban residential development away from existing incompatible land uses, such as agriculture, mining, industry, solid waste facilities, airports and sewage treatment facilities.
 - **Implementation Program 1.B.c** – Separate new urban residential development from land uses that potentially conflict with housing, such as agriculture, mining, industry, airports and sewage treatment facilities.
 - **Implementation Program 1.B.d** – Consider buffer areas around existing industrial land uses to protect them from infringement of new residential and other potentially incompatible land uses. These buffer areas may include building setbacks and/or limiting land uses within an established distance of these existing land uses.

Transportation Element

- ▲ **Policy 4.B.1:** Develop a modern transportation system that incorporates alternative transportation modes into the system design.
 - **Implementation Program 4.B.b** – Plan for a balanced multimodal transportation network that meets the needs of all users of roads, including bicyclists, pedestrians, and transit users. Incorporate bicycle, pedestrian and transit improvements when designing roadway improvements where appropriate. Support the efforts of the TCTC to develop and Active Transportation Grant for Tuolumne County, the State Route 49 Complete Streets and State Route 49 Congested Corridor Plan.
 - **Implementation Program 4.B.c** – Provide multi-modal access to activity centers such as public facilities, commercial centers and corridors, employment centers, transit stops, schools, parks, recreation areas, and tourist attractions.
 - **Implementation Program 4.B.d** – Promote walking and bicycling through education and outreach programs and activities such as commute campaigns, classes that teach cycling skills, and providing route maps.

- ▲ **Policy 4.B.2:** Expand and improve pedestrian sidewalks and facilities focusing on safety, connectivity, and accessibility.
 - ▲ **Implementation Program 4.B.e** – Develop a Sidewalk Priority Plan identifying all existing sidewalks as well as future sidewalks throughout the County. Prioritize retrofitting existing and constructing new sidewalks that connect residents to schools, bus lines and other transit stops, and parks and community centers.
 - ▲ **Implementation Program 4.B.f** – Require safe and adequate crossing facilities that minimize pedestrian exposure to vehicular traffic, such as curb extensions or refuge islands, wherever feasible.
 - ▲ **Implementation Program 4.B.g** – Develop new or revised street and street crossing design standards to improve pedestrian safety, convenience, and comfort, both as a part of routine public works projects and as a part of ongoing development.
 - ▲ **Implementation Program 4.B.h** – Update the local street design standards for urban areas, where practicable, to include Universal Design criteria for street infrastructure such as sidewalks, pedestrian curb ramps, crosswalks, street lighting, shade trees, and curb extensions to accommodate all users, including people with disabilities and other special needs.
- ▲ **Policy 4.B.3:** Expand and improve the bikeways within Tuolumne County, focusing on safety, connectivity, and accessibility.
 - ▲ **Implementation Program 4.B.i** – Pursue state and federal funds earmarked for new bicycle paths and transit improvements.
 - ▲ **Implementation Program 4.B.j** – Encourage provisions for bicycle facilities at transit nodes, recreational facilities and public spaces.
- ▲ **Policy 4.B.4:** 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 at suitable locations.
- ▲ **Policy 4.B.5:** Maintain and expand, where possible and appropriate, the system of non-motorized connections that link neighborhoods to larger roadways, activity centers and nodes, businesses, community services, parks and recreational facilities, and transit stops and stations.
- ▲ **Policy 4.B.6:** Actively investigate and seek alternative funding sources for bicycle and pedestrian facilities.

Agriculture Element

- ▲ **Policy 8.A.4:** Development proposed adjacent to land designated Agricultural by the General Plan land use diagrams shall provide a buffer from the agricultural land. The buffer shall be 200 feet in width and located on the development site. No residential or non-agricultural buildings may be erected in the buffer area as long as the adjacent land remains designated Agricultural. The buffer may be reduced in width by the Board of Supervisors after considering the recommendation of the Agricultural Advisory Committee if such a reduction is determined appropriate based upon the topography, vegetation, roads or other physical features of the buffer area or other factors considered by the Committee. If the General Plan land use designation of the adjacent land is amended in the future to a designation other than Agricultural, the need for the buffer area will be eliminated and the land use restrictions imposed pursuant to this Policy will cease at that time.

- ▲ **Policy 8.C.2:** Establish a buffer between agricultural land uses and residential/non-agricultural land uses. It shall be the obligation of the party seeking the land use change to ensure that a sufficient buffer is established between the parcels. The buffer shall favor protection of the agricultural land.
 - **Implementation Program 8.C.d** – Implement the standards for buffer zones between new non-agricultural development and land designated for agricultural use established in Policy 8.A.4.

Air Quality Element

- ▲ **Policy 15.A.1:** Accurately determine and fairly mitigate the local and regional air quality impacts of land development projects proposed in the County.
 - **Implementation Program 15.A.a:** Coordinate and cooperate with other local, regional and State agencies to develop a consistent and effective approach to air quality planning and management.
- ▲ **Policy 15.A.2:** Integrate land use planning, transportation planning, and air quality planning to make the most efficient use of public resources and to create a more livable environment.
 - **Implementation Program 15.A.b:** Require an air quality impact evaluation for development projects, as necessary, pursuant to the requirements of the Tuolumne County Air Pollution Control District. The air quality impact evaluation shall be the responsibility of the developer or proponent and prepared by a qualified consultant at their expense.
 - **Implementation Program 15.A.c:** Require project applicants to identify alternatives or amendments for proposed projects that would reduce emissions of air pollutants, if air pollutant emissions exceed applicable air quality standards. Require all air quality mitigation to be real, feasible, cost effective, and enforceable.
 - **Implementation Program 15.A.d:** Require project applicants to implement innovative mitigation measures that include best available control technology and/or best management practices as needed to reduce air quality impacts.
 - **Implementation Program 15.A.e:** Require proposed new development projects to analyze their contribution to increased traffic and to implement, as needed, transportation demand management measures or other improvements to reduce vehicle miles traveled, which, in turn, reduces air pollutant and GHG emission.
 - **Implementation Program 15.A.f:** Work cooperatively with major local employers to offer incentives and services which decrease auto commuting, such as telecommuting and alternative work schedules.
- ▲ **Policy 15.A.3:** Avoid converting land designated for industrial use to non-industrial land use designations where that change would result in land where sensitive receptors could be located in proximity to industry, and avoid converting land to industrial use where the existing surrounding land uses support sensitive receptors, to minimize the health risks to the public resulting from criteria and toxic air pollutant emissions.
 - **Implementation Program 15.A.g:** Establish buffer zones to separate new residential development projects and projects categorized as sensitive receptors (e.g., hospitals, convalescent homes, day care facilities, and schools) from existing industrial sites and/or sites that emit criteria and toxic air pollutants.
 - **Implementation Program 15.A.h:** Establish buffer zones to create an adequate distance between new air pollution point and area sources such as industrial, manufacturing and processing facilities, and residential areas and sensitive receptors.

- **Implementation Program 15.A.i:** Avoid locating new urban residential development projects and other projects categorized as sensitive receptors (e.g., hospitals, convalescent homes, day care facilities, and schools) within 500 feet from industrial sites and/or sites that may emit criteria or toxic air pollutants. If a 500-foot buffer is not feasible, compliance with Implementation Program 15.A.j shall be required.
- **Implementation Program 15.A.j:** When a criteria pollutant or toxic generating source (e.g., industrial sources, distribution centers, dry cleaning facilities, gas stations, major roadways, large combustion sources, etc.) and potentially other sources of diesel particulate matter and other known carcinogens is proposed within 500 feet of a sensitive receptor, require the project applicant to retain a qualified consultant to prepare a health risk assessment in accordance with CARB and the Office of Environmental Health and Hazard Assessment requirements to determine the exposure of project residents/occupants/users to stationary and mobile air quality pollutants prior to issuance of a demolition, grading, or building. The health risk assessment shall be submitted to the County for review and approval. The County shall implement any approved health risk assessment recommendations to a level which would not result in exposure of sensitive receptors to substantial pollutant concentrations.
- ▲ **Policy 15.A.4:** Reduce air emissions from project construction.
 - **Implementation Program 15.A.k:** Require the following dust-control measures during all project-related site preparation activities (i.e., grading, excavation and associated materials hauling) to reduce air quality impacts:
 - Exposed soils shall be watered as needed to control wind borne dust.
 - Exposed piles of dirt, sand, gravel, or other construction debris shall be enclosed, covered and/or watered as needed to control wind borne dust.
 - Vehicle trackout shall be minimized through the use of rumble strips and wheel washers for all trucks and equipment leaving the site.
 - Sweep streets once a day if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).
 - On-site vehicle speed shall be limited to 15 miles per hour on unpaved surfaces.
 - Loads on all haul/dump trucks shall be covered securely or at least two feet of freeboard shall be maintained on trucks hauling loads.
 - Construction equipment shall be maintained and tuned at the interval recommended by the manufacturers to minimize exhaust emissions.
 - Equipment idling shall be kept to a minimum when equipment is not in use.
 - Construction equipment shall be in compliance with the California Air Resources Board off-road and portable equipment diesel particulate matter regulations.

Alternative construction-related air quality measures may be adopted by the decision-making body after considering a project-specific air quality analysis prepared by a qualified consultant.

- ▲ **Policy 15.B.1:** Create a land use pattern that will encourage people to walk, bicycle or use public transit for a significant number of their daily trips.

- **Implementation Program 15.B.a:** Encourage pedestrian oriented development to reduce the use of motor vehicles.
- **Implementation Program 15.B.b:** Establish an incentive program to encourage transit-oriented development, including, where appropriate, exempting such projects from traffic impact mitigation fees.
- **Implementation Program 15.B.c:** Support the development of high density housing, commercial and offices along high priority transit routes.
- **Implementation Program 15.B.d:** Work with Caltrans, transit providers, and property owners to identify park-and-ride sites with convenient access to public transit.
- **Implementation Program 15.B.e:** Seek funding for park-and-ride facilities and develop, or support the development of such facilities, within the identified communities, and permit park-and-ride facilities in commercial and industrial zoning districts.
- **Implementation Program 15.B.f:** Create additional, and improve existing, car-sharing and ride-sharing programs and promote them within the region.
- **Implementation Program 15.B.g:** Work with Caltrans and other agencies to establish transportation demand management programs, such as park-and-ride facilities, transit incentives and telecommute centers.
- ▲ **Policy 15.B.2:** Develop a modern transportation system that incorporates alternative transportation modes into the system design.
- ▲ **Policy 15.C.1:** Require development to reduce criteria and toxic air pollutant emissions from the use of wood burning appliances, through low emission technology and maximize the use of energy conservation and clean or renewable energy sources.
 - **Implementation Program 15.C.a:** Continue to require the installation of only low-emitting, EPA-certified fireplaces, woodstoves or pellet stoves where such wood-burning devices are desired by the developers and/or future homeowners, except in areas with poor air quality or dispersion, or where otherwise prohibited.
 - **Implementation Program 15.C.b:** Develop and implement a wood burning stove and fireplace change-out program to install non-wood burning, or EPA-certified wood burning, stoves and fireplaces.
- ▲ **Policy 15.D.1:** Work closely with federal, state and local agencies to minimize the emissions and smoke impacts fire hazard reduction and forest management burn activities and during wildlife episodes.
 - **Implementation Program 15.D.a:** Encourage alternative methods of disposal of vegetative matter, including, but not limited to, composting, mulching or transporting the material to biomass facilities that are capable of generating energy and designed to reduce emissions.
 - **Implementation Program 15.D.b:** Establish community programs that reduce residential open burning, such as local pick-up and delivery of vegetative matter to biomass facilities or composting projects that do not create a public nuisance.
 - **Implementation Program 15.D.c:** Provide public information through the media and the Air Pollution Control District Burn Day Phone Recorder regarding best management practices for burning, burn permit requirements, burn hours and local and state fire restrictions.

- **Implementation Program 15.D.d:** Where feasible and appropriate, require alternative methods of fire hazard reduction on private and public lands, including, but not limited to, selective thinning of timber stands, mastication and chipping of slash for fuel in biomass facilities.
- **Implementation Program 15.D.e:** Coordinate and cooperate with other agencies to plan and monitor prescribed fires to minimize the impact on public health, taking into consideration the size and location of the proposed burn and the expected weather conditions, among other parameters.
- **Implementation Program 15.D.f:** Participate in committees and task forces that are established for the purpose of developing and discussing smoke management policies and practices necessary to meet the requirements of the Clean Air Act while effectively managing the resources of California.
- **Implementation Program 15.D.g:** Enforce applicable Federal, State and local open burning regulations related to agriculture, wildland vegetation management, forest management, range improvement and fire hazard reduction.

Climate Change Element

- ▲ **Policy 18.A.5:** Promote energy efficiency and alternative energy while reducing energy demand.
 - **Implementation Program 18.A.j:** Facilitate voluntary energy efficient retrofits in existing structures by connecting home and business-owners with technical and financial assistance, such as Federal, State, and utility rebates, and tax credits, through the County's or Tuolumne County Transportation Council's website.
 - **Implementation Program 18.A.k:** Work with Pacific Gas and Electric Company and other electric utility providers to promote voluntary upgrades to energy-efficient technology and products through campaigns targeted at residents and local businesses, ENERGY STAR® appliance change-out programs, and incentives, such as give-a-ways or Federal/State/utility rebates.
 - **Implementation Program 18.A.l:** Work with Pacific Gas and Electric Company and other electric utility providers to encourage local businesses and public agencies to install energy conserving technologies, such as occupancy sensors, and implement energy conserving policies, such as "lights out at night."
 - **Implementation Program 18.A.m:** Reduce the energy demand of public facilities and conserve electricity through the following: a) retrofitting County owned or operated street, traffic signal, and other outdoor lights with energy efficient light emitting diode (LED) lamps; b) retrofitting heating and cooling systems to optimize efficiency, such as replacing HVAC systems; and c) replacing old appliances and technologies with ENERGY STAR® products. Obtain funding for and install renewable energy technologies on public property.
 - **Implementation Program 18.A.n:** Work with Pacific Gas and Electric Company and other electric utility providers to educate residents and businesses about Smart Meters, how to monitor electricity use, and the potential benefits associated with Smart Meters.
 - **Implementation Program 18.A.o:** Work with Pacific Gas and Electric Company and other electric utility providers to promote the use of financial incentives, such as Federal/State/utility rebate and, tax credits, for the voluntary installation of "cool roofs" on existing structures, such as ENERGY STAR® roof products, that have a high solar and thermal reflectance.
 - **Implementation Program 18.A.p:** Encourage the use of electric lawnmowers and leaf blowers over those powered by gasoline.

- **Implementation Program 18.A.q:** Encourage the incorporation of energy conservation into the design of residential and commercial buildings; such as Tier 1 and Tier 2 of the Green Building Code.
- **Implementation Program 18.A.r:** Encourage the use of deciduous landscape trees near new development to provide shade during the hot summer months and allow solar warming during the cold winter months.
- **Implementation Program 18.A.s:** Support the use of alternative energy vehicles by encouraging new development to install electric charging stations for passenger vehicles, in particular at high use and density areas.
- **Implementation Program 18.A.t:** Support development of electric charging stations for passenger vehicles, in particular near transit stop locations and high use parking areas.

PROJECT IMPACTS

This section presents a programmatic-level analysis of potential impacts associated with air quality from projected development under the General Plan Update. Evaluation of environmental impacts associated with the General Plan Update considers the development that would be facilitated by the General Plan Update, in accordance with goals, policies, and implementation programs, to accommodate projected growth in the County. It should be noted that the County's population is projected to grow by 0.6 percent annually over the planning horizon (2040). As discussed in detail in Chapter 2, "Project Description," and the introduction to Chapter 3, this is a relatively low amount of growth.

Impact 3.3-1: Generation of Construction-related Emissions that Would Violate an Existing Air Quality Standard

Projected development under the General Plan Update would result in construction activities associated with the development of new land uses in the County. Construction activity associated with the development of these new land uses would result in emissions of ROG, NO_x, PM₁₀, and PM_{2.5} that would not exceed the daily or annual emissions thresholds established by TCAPCD. Therefore, construction activity associated with projected development under the General Plan Update would not violate an existing air quality standard and this impact would be **less than significant**.

Implementation of the General Plan Update would involve the development of new land uses over the horizon of the plan between 2019 and 2040. Development of these new land uses would result in construction activity that would generate emissions of criteria air pollutants and precursors, including ROG, NO_x, PM₁₀, and PM_{2.5}, from site preparation (e.g., excavation, clearing), off-road equipment, material delivery, worker commute trips, and other miscellaneous activities (e.g., building construction, asphalt paving, application of architectural coatings). Typical construction activities that could occur with land use development include all-terrain forks, fork lifts, cranes, pick-up and fuel trucks, compressors, loaders, backhoes, excavators, dozers, scrapers, pavement compactors, welders, concrete pumps, concrete trucks, and off-road haul trucks, as well as other diesel-fueled equipment, as necessary. Fugitive dust emissions of PM₁₀ and PM_{2.5} are associated primarily with site preparation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and mobile sources. Emissions of ozone precursors are emitted in the exhaust of construction equipment and on-road vehicles. Paving and the application of architectural coatings also results in off-gas emissions of volatile organic compounds. PM₁₀ and PM_{2.5} are also contained in equipment and vehicle exhaust. As discussed previously, specific construction phasing and intensity are unknown. The levels of emissions generated through these activities would depend on the characteristics of individual development projects, including the size and type of land uses being developed, which would determine the length and intensity of construction activity.

Construction activities were estimated to occur incrementally (approximately 5 percent per year) over the remaining General Plan horizon period of 21 years. Table 2-6 in Chapter 2, "Project Description," of this

Recirculated Draft EIR details the projected development under the General Plan Update. Note that development projections included in Table 2-6 are derived from TCTC estimates that include the City of Sonora. Based on Table 2-6, construction emissions estimates were modeled (see Table 3.3-3). For the reasons provided above, these calculations are based on conservative growth estimations.

Table 3.3-3 Modeled Daily Maximum Construction Emissions of Criteria Air Pollutants and Precursors

Construction Phase	Maximum Daily Emissions (lb/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5} ¹
Demolition	4	37	3	12
Site Preparation	5	46	21	12
Grading	5	55	30	8
Building Construction	8	39	5	3
Paving	2	15	1	1
Architectural Coating	91	2	1	1
Maximum Daily Emissions	91	55	30	12
TCAPCD Thresholds	1,000	1,000	1,000	N/A
Exceed Significance Threshold?	No	No	No	N/A

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter; PM₁₀ = respirable particulate matter; ROG = reactive organic gases; TCAPCD = Tuolumne County Air Pollution Control District.

¹ TCAPCD has not identified a threshold of significance for PM_{2.5}; therefore, this information is presented for informational purposes.

See Appendix C for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2018

In addition to daily emissions thresholds, TCAPCD has established annual mass emissions thresholds for certain criteria air pollutants. Table 3.3-4 provides annual emissions from construction activity, as well as the annual thresholds established by TCAPCD.

Table 3.3-4 Modeled Annual Construction Emissions of Criteria Air Pollutants and Precursors

Construction Phase	Annual Emissions (Tons/Year)			
	ROG	NO _x	PM ₁₀	PM _{2.5} ¹
Demolition	0.02	0.18	0.02	0.05
Site Preparation	0.02	0.18	0.08	0.05
Grading	0.05	0.52	0.29	0.08
Building Construction	0.73	3.85	0.55	0.24
Paving	0.01	0.11	0.01	0.01
Architectural Coating	7.06	0.02	0.01	0.00
Annual Emissions	7.88	4.86	0.95	0.42
TCAPCD Thresholds	100	100	100	N/A
Exceed Significance Threshold?	No	No	No	N/A

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_x = oxides of nitrogen; PM_{2.5} = fine particulate matter; PM₁₀ = respirable particulate matter; ROG = reactive organic gases; TCAPCD = Tuolumne County Air Pollution Control District; tons/year = tons per year.

¹ TCAPCD has not identified a threshold of significance for PM_{2.5}; therefore, this information is presented for informational purposes.

See Appendix C for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2018

As shown above, construction activity associated with the General Plan Update would not generate emissions in exceedance of the established maximum daily (Table 3.3-3) or annual emissions thresholds (Table 3.3-4) for ROG, NO_x, and PM₁₀; therefore, there is not potential for violation of an existing air quality standard. It should be noted that PM_{2.5} is a subset of PM₁₀ and TCAPCD has not identified a separate threshold for PM_{2.5}; therefore, impacts related PM_{2.5} are considered to be consistent with impacts related to PM₁₀ (for which TCAPCD does have a threshold of significance).

In addition, the Air Quality Element of the General Plan Update includes policies and implementation programs that specifically focus on reducing criteria air pollutant and precursor emissions from construction activity. Implementation Program 15.A.k includes specific measures for reducing criteria air pollution and precursor emissions associated with construction activity. Measures in Implementation Program 15.A.k to reduce emissions of PM₁₀ and PM_{2.5} include dust suppression techniques, such as watering or covering exposed surfaces, rumble strips and wheel washers for trucks and equipment to reduce dust levels leaving project sites, reduced vehicle speeds for construction equipment on unpaved surfaces, and the covering of material for trucks hauling loads. Implementation Program 15.A.k would reduce emissions of NO_x and PM₁₀ by requiring limited idling times for equipment when not in use, regular maintenance and tuning of construction equipment to reduce exhaust emissions, and compliance with the CARB off-road and portable equipment diesel PM regulations.

As shown in Table 3.3-3 and Table 3.3-4, construction emissions of criteria air pollutants and precursors would be below the daily and annual emissions thresholds established by TCAPCD. Additionally, Implementation Program 15.A.k would help further reduce ROG, NO_x, PM₁₀, and PM_{2.5} emissions from construction activity. Annual construction activity associated with the General Plan Update would not violate an existing air quality standard, and therefore this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.3-2: Generation of Long-term Operational Emissions of Criteria Air Pollutants and Precursors that would Violate an Existing Air Quality Standard

Implementation of the General Plan Update would result in operational activities associated with the development of new land use in the County. These activities would result in emissions of ROG, NO_x, PM₁₀, and PM_{2.5}, but emissions of these pollutants would not exceed the thresholds set by TCAPCD of 1,000 lb/day or 100 tons/year. In addition, the General Plan Update includes policies and implementation programs in the Transportation, Climate Change, and Air Quality Elements that would reduce emissions of air pollutants in the County. The General Plan Update would not exceed TCAPCD's air pollutant thresholds and, therefore, would not violate an existing air quality standard. This impact would be **less than significant**.

Implementation of the General Plan Update would include the development of new land uses in Tuolumne County, resulting in long-term operational emissions of ROG, NO_x, PM₁₀, and PM_{2.5}. Operational emissions would be generated from area sources (e.g., landscaping-related fuel combustion sources, the periodic application of architectural coatings, woodstoves/fireplaces, and the use of consumer products), energy use (e.g., propane, heating oil), and from additional vehicle trips associated with all new land use development. Table 3.3-5 summarizes the maximum daily operation-related emissions of criteria air pollutants and precursors and the daily significance thresholds established by TCAPCD. Table 3.3-6 summarizes the maximum annual operation-related emissions of criteria air pollutants and precursors and includes the annual significance thresholds established by TCAPCD. See Impact 3.3-4 for a discussion of CO.

Table 3.3-5 Summary of Maximum Operational Emissions of Criteria Air Pollutants and Precursors in 2040

Source Type	Maximum Daily Emissions (lb/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5} ¹
Area ²	880	92	105	105
Energy	2	21	1	1
Mobile	109	131	38	16
Total	991	244	144	122
TCAPCD Threshold	1,000	1,000	1,000	N/A
Exceed Significance Threshold?	No	No	No	N/A

Notes: Total values may not add correctly due to rounding.

CO = carbon monoxide; lb/day = pounds per day; N/A = not applicable; NO_x = oxides of nitrogen; PM₁₀ = respirable particulate matter; PM_{2.5} = fine particulate matter; ROG = reactive organic gases; TCAPCD = Tuolumne County Air Pollution Control District.

¹ TCAPCD has not identified a threshold of significance for PM_{2.5}; therefore, this information is presented for informational purposes.

² Area-source emissions include emissions from landscaping, application of architectural coatings, and consumer products, which were estimated based on default model settings. Area-source emissions are also generated by the use of fireplaces/woodstoves; these emissions were estimated using information on the annual wood burned for area heating included in the Tuolumne County Regional Blueprint Greenhouse Gas Study (Rincon Consultants 2012:2-3).

See Appendix C for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2018

Table 3.3-6 Summary of Annual Operational Emissions of Criteria Air Pollutants and Precursors in 2040

Source Type	Maximum Annual Emissions (tons/year)			
	ROG	NO _x	PM ₁₀	PM _{2.5} ¹
Area ¹	78	4	5	5
Energy	<1	4	<1	<1
Mobile	20	24	7	3
Total	98	31	12	8
Tuolumne County APCD Threshold	100	100	100	N/A
Exceed Significance Threshold?	No	No	No	N/A

Notes: Total values may not add correctly due to rounding.

CO = carbon monoxide; lb/day = pounds per day; N/A = not applicable; NO_x = oxides of nitrogen; PM₁₀ = respirable particulate matter; PM_{2.5} = fine particulate matter; ROG = reactive organic gases; TCAPCD = Tuolumne County Air Pollution Control District.

¹ TCAPCD has not identified a threshold of significance for PM_{2.5}; therefore, this information is presented for informational purposes.

² Area-source emissions include emissions from landscaping, application of architectural coatings, and consumer products, which were estimated based on default model settings. Area-source emissions are also generated by the use of fireplaces; these emissions were estimated using information on the annual wood burned for area heating included in the Tuolumne County Regional Blueprint Greenhouse Gas Study (Rincon Consultants 2012:2-3).

See Appendix C for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2018

As shown in Table 3.3-5 and Table 3.3-6, operation-related activities would result in emissions ROG, NO_x, PM₁₀, and PM_{2.5}. However, emissions of these pollutants would not exceed the project thresholds set by TCAPCD of 1,000 lb/day or 100 tons/year level (even though this analysis covers development within the entire General Plan Update). In addition, the General Plan Update includes policies and implementation programs in the Transportation, Climate Change, and Air Quality Elements that would reduce emissions of air pollutants in the County. In the Air Quality Element, Policy 15.A.2 and its associated implementation program would address air quality impacts associated with future development in the County. Policy 15.A.2 and its

associated implementation programs also focus on promoting integrated land use planning, transportation planning, and air quality planning to increase the efficient use of land and public resources and, in turn, would result in improvements in air quality by reducing VMT. Policy 15.B.1 and its associated implementation programs are intended to promote the development of land use patterns that encourage trips made by biking, walking, and public transit, reducing mobile source emissions. Policy 4.B.1 and its associated implementation programs in the Transportation Element include strategies to prioritize the development of active transportation facilities and promote trips made by walking and biking. These two policies would help reduce air quality impacts, particularly NO_x, PM₁₀, and PM_{2.5} emissions, associated with mobile source activity through reductions in vehicle use.

As discussed above, implementation of the General Plan Update would result in emissions of ROG, NO_x, and PM₁₀. However, as shown in Table 3.3-5 and Table 3.3-6, emissions of these pollutants associated with entire buildout of the General Plan Update by 2040 would not exceed the project-level thresholds set by TCAPCD of 1,000 lb/day or 100 tons/year and would, therefore, not violate any existing air quality standard. The General Plan Update also includes policies and implementation programs in the Transportation, Climate Change, and Air Quality Elements that would reduce emissions of air pollutants in the County. The General Plan Update would not exceed the TCAPCD's thresholds for ROG, NO_x, and PM₁₀ and, therefore, would not violate an existing air quality standard. (As discussed under Impact 3.3-1, PM_{2.5} is a subset of PM₁₀ and TCAPCD has not identified a separate threshold for PM_{2.5}; therefore, impacts related PM_{2.5} are considered to be consistent with impacts related to PM₁₀.) This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.3-3: Exposure of Sensitive Receptors to TACs

The development of new land uses would result in TAC emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment used during construction. These emissions could expose nearby existing sensitive receptors to TACs, particularly diesel PM exhaust emissions. The General Plan Update would also allow for the development of residential land uses in close proximity to local roadways and other potential sources of TACs. As a result, existing and new sensitive receptors could be exposed to TACs that may cause health risks. The General Plan Update includes policies and implementation programs specifically for mitigating exposure of existing and new sensitive receptors to TACs. Additionally, all new development undergoing discretionary review would be required to evaluate existing TAC exposure and incorporate available reduction measures, if necessary. Therefore, implementation of the General Plan Update would not result in the exposure of existing or new sensitive receptors to a substantial increase in TAC emissions, and this impact would be **less than significant**.

Diesel PM was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of diesel PM outweighs the potential for all other health impacts (i.e., noncancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003). Thus, diesel PM is the focus of this analysis. With regards to exposure of diesel PM, the dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher level of health risk for any exposed receptor. According to Office of Environmental Health Hazard Assessment's (OEHHA's) 2015 guidance, exposure of sensitive receptors to TAC emissions should be based on a 30-year exposure period for estimating cancer risk at the Maximum Exposed Individual (MEI), with 9- and 70-year exposure periods at the MEI as supplemental information. Furthermore, a 70-year exposure period is required for estimating cancer burden or providing an estimate of population-wide risk (OEHHA 2015:8-1).

Construction Emissions

Construction activities that would result from implementation of the General Plan Update would generate temporary, intermittent emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment

used for site preparation (e.g., demolition, clearing, grading), paving, application of architectural coatings, on-road truck travel, and other miscellaneous activities.

Existing sensitive receptors are located throughout the plan area. However, at the general plan scale, individual sensitive receptors were not identified. In addition, studies show that diesel PM is highly dispersive and that concentrations of diesel PM decline with distance from the source (e.g., 500 feet from a freeway, the concentration of diesel PM decreases by 70 percent) (Roorda-Knape et al. 1999; Zhu et al. 2002a, cited in CARB 2005:9). These studies illustrate that diesel PM is highly dispersive and that receptors must be near emission sources for a long period to experience exposure at concentrations of concern. Given the temporary and intermittent nature of construction activities likely to occur within specific locations in the plan area (i.e., construction is not likely to occur in any one part of the plan area for an extended time), the dose of diesel PM of any one receptor is exposed to would be limited. Therefore, considering the relatively short duration of diesel PM-emitting construction activity at any one location of the plan area and the highly dispersive properties of diesel PM, sensitive receptors would not be exposed to substantial concentrations of construction-related TAC emissions.

Further, the General Plan Update includes policies and implementation programs that would help to reduce TAC emissions from construction activity. Specifically, Implementation Program 15.A.k includes measures for reducing criteria air pollution and precursor emissions associated with construction activity. Measures in Implementation Program 15.A.k to reduce emissions of diesel PM₁₀ emissions include limiting idling times for equipment when not in use, regular maintenance and tuning of construction equipment to reduce exhaust emissions, and compliance with the CARB off-road and portable equipment diesel PM regulations. This implementation program would serve to reduce TAC emissions associated with construction activity and would reduce the potential impact on nearby sensitive receptors during construction activity.

Operation Emissions

Proximity to highways increases cancer risk and exposure to PM. Similarly, proximity to heavily travelled transit corridors and intersections would expose residents to higher levels of diesel PM. CARB recommends avoiding siting new sensitive land uses, such as residences, schools, daycare centers, playgrounds, or medical facilities, within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day (CARB 2005). As shown in Table 3.16-6 of Section 3.16, "Transportation and Circulation" of this Recirculated Draft EIR, there are no urban roads with 100,000 vehicles per day or rural roads with 50,000 vehicles per day within Tuolumne County. The most heavily travelled roadways in Tuolumne County are two-lane highways, including State Routes (SRs) 49, 108, and 120. The existing (2014) average daily traffic (ADT) on SRs 49, 108, and 120 did not exceed 23,500 ADT (see Table 3.16-3 in Section 3.16, "Transportation and Circulation"), and future (2040) ADT volumes would not exceed 29,879 (see Table 3.16-5 in Section 3.16, "Transportation and Circulation"). Due to the relatively low ADT of roadways within Tuolumne County, new sensitive receptors placed close to existing or new roadways would not experience the adverse health effects identified by CARB.

Implementation of the General Plan Update would result in new land uses that could generate new sources of TACs from commercial and industrial land uses (e.g., gasoline dispensing facilities and dry cleaners). Per TCAPCD Rule 427, land uses that would construct or reconstruct stationary emissions from a major source would be required to obtain a permit and would have to install best available control technology for toxics, if deemed applicable by the TCAPCD. Due to the programmatic level of this analysis, specific land use types and location of future development are not available. However, it is possible that future development as a result of the General Plan Update could result in new stationary sources associated with commercial and industrial land use development that could result in TAC exposure to existing or future planned sensitive land uses. However, the Air Quality Element includes policies and implementation programs focused specifically on addressing exposure of sensitive receptors to TACs. Policy 15.A.2 focuses on addressing air quality impacts from new development through requirements for air quality impact evaluations and implementation of innovative mitigation measure to reduce air quality impacts. Policy 15.A.3 provides land use compatibility guidance for the siting of new residential land uses near existing industrial land use designations with the goal of minimizing health risks to people from industrial toxic or TAC emissions. These General Plan Update policies would serve to reduce risk of exposing new and existing sensitive receptors to

TAC emissions. Further, new stationary TAC sources would be subject to Rule 427 and would be required install best available control technology for toxics to receive permitting for the project. New stationary TAC sources that do not meet TCAPCD Rule 427 would not receive permits and would ultimately not be approved for development, ensuring receptors would not be exposed to substantial concentrations of TACs.

Summary

As discussed above, implementation of the General Plan Update could result in exposure of sensitive receptors to construction-related TACs. However, given that development of new land uses under the General Plan Update would occur between 2019 and 2040 and would occur in various areas throughout the County, it is unlikely that any one sensitive receptor would be exposed to construction-related TACs for extended periods of time. Therefore, construction activity as a result of the General Plan Update would not result in the exposure of existing or new sensitive receptors to a substantial increase in TAC emissions. The General Plan Update would also result in an increase in VMT along local roadways within the County as a result of the development of new land uses. Given the relatively low daily traffic volumes on roadways within the County under existing and projected future conditions, existing and new sensitive receptors would not be exposed to roadway traffic levels that could result in adverse health effects from TACs. Regarding stationary sources of TACs, as discussed above, the General Plan Update includes policies and implementation programs that would limit exposure of new sensitive receptors to TACs from stationary sources such as industrial land uses. Additionally, all new development undergoing discretionary review would be required to evaluate existing TAC exposure and incorporate available reduction measures in accordance with TCAPCD requirements, if necessary. In consideration of these factors, implementation of the General Plan Update would not result in the exposure of existing or new sensitive receptors to a substantial increase in TAC emissions. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.3-4: Generation of Long-term Mobile-Source CO Concentrations that would Violate an Existing Air Quality Standard

Long-term operational mobile-source emissions of CO potentially generated by vehicle trips associated with projected development under the General Plan Update would not violate or contribute substantially to localized concentrations of CO that exceed the CAAQS or NAAQS for CO. Additionally, the traffic volume increase under the General Plan Update would not result in affected intersections experiencing more than 31,600 vehicles per hour and, therefore, would not exceed CO hotspot concentration thresholds. As a result, this impact would be **less than significant**.

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, vehicle speed, and traffic delay. A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under stable meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels, adversely affecting nearby sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. CO is a pollutant of localized concern and, therefore, is analyzed at the local level. Construction activities are rarely a cause of localized CO impacts because they do not typically result in substantial traffic increases at any one location. The TCAPCD does not currently have guidance on analyzing exposure to CO hotspots. However, SMAQMD has developed a screening criteria methodology for exposure to CO hotspots and it is a valid approach to use in Tuolumne County because it is based on health exposure criteria.

Under the first tier of SMAQMD screening criteria, a project would result in a less-than-significant impact to air quality for local CO if traffic generated by the proposed project will not result in deterioration of intersection level of service (LOS) to LOS E or F and the project will not contribute additional traffic to an intersection that already operates at LOS E or F. Based on the traffic study prepared for the General Plan Update, numerous intersections would experience LOS deteriorations to LOS D, E, and F. See Table 3.16-6 in

Section 3.16, “Transportation and Circulation,” which includes a list of all intersections affected by the project that were included in the project traffic study. Based on the LOS modeling included in the traffic study, the intersection that would experience the largest degradation in LOS would be South Washington Street and Church Street, which would experience a decrease from LOS E to F for the a.m. peak hour and would continue to experience LOS F during the p.m. peak hour. The intersection of South Washington Street and Church Street is in the City of Sonora. Under SMAQMD criteria, if the first tier of SMAQMD screening criteria is exceeded, then the second tier of screening criteria is examined. Under the second screening tier, a project would result in a less-than-significant CO impact if the project would not cause an affected intersection to experience more than 31,600 vehicles per hour (SMAQMD 2016). Based on the traffic study prepared for the General Plan Update, the intersection that would experience the highest traffic volumes as a result of implementation of the General Plan Update would be Greenley Road and Mono Way, which would have a p.m. peak hour volume of 3,157 vehicles per hour (Appendix Figure 3 of Wood Rogers 2016). SMAQMD’s established screening criteria for CO hotspots is 31,600 vehicles per hour, which means that the peak hourly volume of traffic at this intersection would be less than threshold required to be considered a CO hotspot. As this is the intersection where the highest traffic volumes are anticipated, all other intersections (including the intersection of South Washington Street and Church Street) would, likewise, not exceed the 31,600 vehicle per hour threshold. Implementation of the General Plan Update would not result in traffic contributions to any intersection in the County that would result in a CO hotspot.

The screening criteria established by SMAQMD were based on existing background levels of CO within the Sacramento region and based on the needed total vehicle volume that, when combined with existing CO levels, could trigger a CO hotspot. Therefore, the screening criteria are adaptable to other locations within California if CO background levels within these other areas are similar to or below those that were used in the modeling conducted by SMAQMD. For locations with CO background levels similar to or below those in the Sacramento region, the same or more vehicle volumes would be needed to generate a CO hotspot and result in similar impacts as identified in the SMAQMD screening criteria. Given that Tuolumne County is currently in attainment for CO and is not projected to exceed CAAQS or NAAQS, it is highly unlikely that implementation of the General Plan Update would result in localized CO hotspot impacts from increased vehicle volumes.

Using established CO impact screening methodologies, traffic study results for the project show that future vehicle volumes at affected intersections would not exceed CO hotspot concentration thresholds established by SMAQMD and would, therefore, not result in local CO hotspot impacts. Project-generated local mobile-source CO emissions would not result in, or substantially contribute to, concentrations of CO that exceed the 1-hour or 8-hour CAAQS and NAAQS. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.3-5: Expose Sensitive Receptors to Odors

Projected development under the General Plan Update could result in construction activities that would introduce new odor sources into the plan area (e.g., temporary diesel exhaust emissions during construction and delivery trucks associated with commercial land uses). However, these odor sources would be temporary and intermittent and would largely come from mobile sources. Projected development under the General Plan Update could result in new sensitive receptors being located near existing odor emitting land uses and could potentially cause a nuisance. However, the Community Development and Design Element and Agriculture Element of the General Plan Update both include policies regarding the siting of incompatible land uses that would consider potential odor impacts. Further, except for agricultural operations, TCAPCD Rule 205 prohibits the emission of any material that may cause a nuisance to a person or the public. As a result, projected development under the General Plan Update would not result in odor impacts on new or existing sensitive receptors; therefore, this impact would be **less than significant**.

Implementation of the General Plan Update would result in the development of new land uses in the County that could expose existing sensitive receptors to new land uses that could include odor sources and may cause a nuisance. Additionally, new sensitive receptors could be exposed to existing land uses that include odors and may result in a nuisance. The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the affected receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public, and they often generate citizen complaints to local governments and regulatory agencies. TCAPCD Rule 205 states: “A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or which endanger the comfort, repose, health or safety of any such persons, or the public, or which cause to [sic] have a natural tendency to cause injury or damage to business or property.” Enforcement of TCAPCD Rule 205 would serve to mitigate odor-generating new land uses other than agricultural operations developed as a result of the General Plan Update that may cause a nuisance to nearby sensitive receptors.

In regard to odors generated from agricultural operations, Tuolumne County’s Ordinance Code includes a “Right to Farm” ordinance (Tuolumne County Ordinance Code Chapter 5.20). The ordinance serves to protect and support agricultural land and operations within the County. Section 5.20.030 states,

No preexisting or future agricultural operation, including the management and harvesting of timber, or any of its appurtenances conducted or maintained for commercial purposes, and in a manner consistent with proper and accepted customs and standards on agricultural land, shall become or be a nuisance, private or public, due to any changed condition of adjacent land uses in or about the locality thereof, provided that the provisions of this chapter shall not apply whenever a nuisance results from the negligent or improper operation of any such agricultural operation or its appurtenances; or if the agricultural activity of appurtenances obstructs the free passage or use in the customary manner of any navigable lake, river, stream, canal or basin or any public park, square, street or highway.

To deter from potential conflicts with existing agricultural land uses, as part of the ordinance, the County is required to give notice of this ordinance to buyers of real property located in the County. The County also has a seven-member agricultural grievance committee that has been established to arbitrate and mediate any disputes involving agricultural land uses and issue opinions on whether certain agricultural operations constitute a nuisance. The County’s “Right to Farm” ordinance serves to mitigate issues regarding exposure of sensitive receptors to odors from agricultural land and operations while protecting agricultural land uses in the County. This ordinance would serve to protect agricultural lands in the County during implementation of the General Plan Update and mitigate issues regarding exposure of sensitive receptors to odors from agricultural land and operations that may be considered a nuisance.

The Community Development and Design Element of the General Plan Update includes Policy 1.B.1, which addresses the protection of existing land uses from the impacts associated with the siting of new incompatible land uses. Implementation programs included under Policy 1.B.1 provide specific guidance for appropriately siting land uses surrounding residences so as to not result in impacts on sensitive receptors. Implementation Program 1.B.d specifically addresses buffer areas for industrial land uses to mitigate impacts on new residential and other potentially incompatible land uses. The Agriculture Element also includes policies that address the siting of new residential land uses adjacent to agricultural land uses. Policy 8.A.4 requires new nonagricultural development to provide a 200-foot buffer from adjacent agricultural lands. Policy 8.C.2 requires the establishment of a buffer between agricultural land uses and residential/nonagricultural land uses, which would reduce potential impacts on sensitive receptors. The inclusion of these policies in the General Plan Update would serve to reduce potential odor impacts from the siting of new sensitive receptors in the County. The policies would also reduce potential impacts on existing sensitive receptors from the siting of new land uses that may generate odor and could cause a nuisance.

Minor odors from the use of heavy-duty diesel equipment and the laying of asphalt during construction activities would be intermittent and temporary. Due to the characteristics of diesel exhaust emission, odors generated from the use of heavy-duty diesel equipment would dissipate rapidly within 150 meters (492 feet) (Zhu et al. 2002a, cited in CARB 2005; Zhu et al. 2002b). While construction would occur intermittently

between 2019 and 2040, these types of odor-generating activities would not occur at any single location, or within close proximity to the same off-site receptors, for an extended period of time and would not result in permanent odor sources. Therefore, construction is not anticipated to result in substantial odors.

Future nonresidential land uses or specific facilities in the County could generate odor emissions that could be a nuisance. However, the Community Development and Design Element and Agriculture Element in the General Plan Update include land use compatibility policies that would serve to reduce potential impacts from development of odor generating land uses and reduce potential odor impacts from the siting of new sensitive receptors near existing odor sources. Additionally, TCAPCD Rule 205 regulates nonagricultural uses that potentially emit odors, further reducing the potential for odor impacts on existing and new sensitive receptors in the County. As a result, implementation of the General Plan Update would not result in odor impacts on existing sensitive receptors or future sensitive receptors. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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