
5.3 AIR QUALITY

This section examines the existing conditions in the Planning Area related to air quality, includes a summary of applicable air quality regulations, analyzes potential air quality impacts associated with the proposed Project, and outlines mitigation measures where required.

5.3.1 EXISTING SETTING

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, together with the current regulatory structure that applies to the Sacramento Valley Air Basin (SVAB), which encompasses the City, pursuant to the regulatory authority of the Sacramento Metropolitan Air Quality Management District (SMAQMD).

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that affect the potential for high levels of regional and local air pollutants. The following section describes pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Planning Area.

AIR BASIN CHARACTERISTICS

Sacramento Valley Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The City is located in the SVAB, which includes Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Sacramento, northeastern Solano, and western Placer counties. The air basin is relatively flat, bordered by mountains to the east, west, and north and by the San Joaquin Valley to the south. The SMAQMD is the regulatory agency authorized by the State to oversee air quality in the basin.

Air flows into the SVAB through the Carquinez Strait, moving across the Sacramento Delta, and bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of the SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storm systems. From May to October, the region's intense heat and sunlight lead to high ozone pollutant concentrations. Summer inversions are strong and frequent, but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Most precipitation in the SVAB results from air masses moving in from the Pacific Ocean during the winter months. These storms usually move through the area from the west or northwest. Over half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49 degrees Fahrenheit (°F). During the summer, daytime temperatures can exceed 100°F. Dense fog occurs mostly in mid-winter and never in the summer. Daytime temperatures from April through October average between 70 and 90°F with extremely low humidity. The inland location and surrounding mountains shelter the valley from most of the ocean breezes that keep the coastal regions moderate in temperature. The only breach in the mountain barrier is the Carquinez Strait, which exposes the midsection of the valley to the coastal air mass.

Winds across the Planning Area are an important meteorological parameter because they control the dilution of locally generated air pollutant emissions and their regional trajectory. Based on

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data obtained from the Sacramento Executive Airport, the closest station to the City that measures wind speed and direction, southwest winds are the most predominant (CARB 1992).

Meteorological Influences on Air Quality

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. However, the mountains surrounding the Sacramento Valley can create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right and a temperature inversion exists. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells overlie the valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground (SMAQMD 2011a).

The ozone season (May through October) in the valley is characterized by stagnant morning air or light winds, with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the valley. During about half of the days from July to September, however, a phenomenon called the Schultz Eddy prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north and carry the pollutants out of the valley, the Schultz Eddy causes the wind pattern to circle back south. Essentially, this phenomenon causes the air pollutants to be blown south toward the Sacramento area, which exacerbates the pollution levels in the area and increases the likelihood of violating federal or State air quality standards (SMAQMD 2011a). During late autumn and winter, solar angles are low, resulting in insufficient ultraviolet light and warming of the atmosphere to drive photochemical reactions. Therefore, ozone concentrations do not exceed air quality standards in the air basin during these seasons.

Climatic Influences on Air Quality

Climate can be a significant influence on the air quality in the SVAB. The climate in the air basin is characterized by hot, dry summers and cool, rainy winters. The frequency of hot, sunny days during the summer months in the air basin is an important factor that affects air pollution potential. Higher temperatures result in the formation of ozone. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone. Because summer temperatures in the SVAB typically reach into the 90s (degrees Fahrenheit) and often exceed 100°F, the region is especially prone to photochemical air pollution during this season.

REGIONAL AMBIENT AIR QUALITY

Motor vehicle transportation, including automobiles, trucks, transit buses, and other modes of transportation, is the major contributor to regional air pollution. Stationary sources were once important contributors to both regional and local pollution, and remain significant contributors in other parts of the State and country. However, their role has been substantially reduced in recent years by pollution control programs, as discussed below. Any further progress in air quality improvement now focuses heavily on transportation sources.

Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and State governments have established air quality standards for outdoor or ambient concentrations to protect public health. The national and California ambient air quality standards have been set at levels to protect human health with a determined margin of safety. For some pollutants, there are also secondary standards to protect the environment. Ozone and particulate matter (PM) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead are local pollutants because they tend to accumulate in the air locally. In addition to being considered a regional pollutant, PM is considered a local pollutant. In the Planning Area, ozone and PM are of concern. Health effects commonly associated with criteria pollutants are summarized in **Table 5.3-1**.

TABLE 5.3-1
CRITERIA AIR POLLUTANTS: SUMMARY OF COMMON SOURCES AND EFFECTS

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Nitrogen Dioxide (NO ₂)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming, and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Ozone (O ₃)	Formed by a chemical reaction between volatile organic compounds and nitrous oxides (NO _x) in the presence of sunlight. Volatile organic compounds are also commonly referred to as reactive organic gases (ROGs). Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles and dyes.
Particulate Matter (PM ₁₀ & PM _{2.5})	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
Sulfur Dioxide (SO ₂)	A colorless, nonflammable gas formed when fuel containing sulfur is burned; when gasoline is extracted from oil; or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel; damage crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Lead	Metallic element emitted from metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.

Source: CAPCOA 2011

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CURRENT CRITERIA POLLUTANT EMISSIONS

Operational activities associated with day-to-day operations in the City result in emissions of ROG, nitrogen oxides (NO_x), CO, sulfur oxides (SO_x), respirable particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}). Operational criteria air pollutant emissions are generated from three primary sources as identified in **Table 5.3-2**.

**TABLE 5.3-2
OPERATIONAL CRITERIA AIR POLLUTANTS SOURCES**

Sources	Definitions
Area Source Emissions	<p>Architectural Coatings – Emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings are generated within the City as part of building maintenance.</p> <p>Consumer Products – Consumer products include but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants.</p> <p>Hearths/Fireplaces – The combustion of wood is a major source of particulate matter and reactive organic gases.</p> <p>Landscape Maintenance Equipment – Landscape maintenance equipment generates emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category includes lawnmowers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping.</p>
Energy Source Emissions	<p>Combustion Emissions Associated with Natural Gas and Electricity – Electricity and natural gas are used by almost every building in the City. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. Since air pollutants generated from electrical-generating facilities are already regulated by the California Energy Commission and California Public Utilities Commission, criteria pollutant emissions from off-site generation of electricity is excluded from the evaluation of significance; only natural gas use is considered.</p>
Mobile Source Emissions	<p>Vehicles – Operational, vehicular-generated air pollutants are dependent on both overall daily vehicle trip generation and peak-hour traffic volumes and traffic operations in the City.</p> <p>Fugitive Dust Related to Vehicular Travel – Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates.</p>

AMBIENT AIR QUALITY

Ambient air quality refers to the concentration of pollutants in the air. Ozone, PM₁₀, and PM_{2.5} are the most potent pollutants affecting ambient air quality in the air basin due to their high concentrations. The US Environmental Protection Agency (EPA) and the State of California have established health-based ambient air quality standards (shown in **Table 5.3-3**) for ozone, PM₁₀, PM_{2.5}, and other air pollutants such as CO, NO₂, SO₂, to protect the health and welfare of the population with a reasonable margin of safety.

The determination of whether a region's air quality is unhealthy is made by comparing contaminant levels in ambient air samples to the State and federal standards presented in **Table 5.3-3**. The air quality in a region is considered in attainment by the State if the measured ambient air pollutant levels for ozone, CO, SO₂, NO₂, PM₁₀, and PM_{2.5} are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than ozone, PM₁₀, PM_{2.5}, and those based on annual averages or arithmetic mean) are not exceeded more than once per 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. For PM, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

Table 5.3-3 also shows the federal and State attainment status for the City's portion of the SVAB. Areas with air quality that exceed adopted air quality standards are designated as nonattainment areas for the relevant air pollutants, while areas that comply with air quality standards are designated as attainment areas. As shown, the region is in nonattainment status for federal ozone and PM_{2.5} standards, as well as for State ozone and PM₁₀ standards (CARB 2017a).

TABLE 5.3-3
AIR QUALITY STANDARDS AND FEDERAL AND STATE AMBIENT AIR QUALITY ATTAINMENT STATUS FOR ELK GROVE

Pollutant	Averaging Time	California Standards		National Standards	
		Concentration	Attainment Status	Concentration	Attainment Status
Ozone (O ₃)	8-Hour	0.070 ppm (137 µg/m ³)	Nonattainment	0.070 ppm	Nonattainment
	1-Hour	0.09 ppm (180 µg/m ³)	Nonattainment	No Standard	N/A
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Attainment	9 ppm (10 mg/m ³)	Attainment
	1-Hour	20 ppm (23 mg/m ³)	Attainment	35 ppm (40 mg/m ³)	Attainment
Nitrogen Dioxide (NO ₂)	1-Hour	0.18 ppm (339 µg/m ³)	Attainment	0.100 ppm	Attainment
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	N/A	0.053 ppm (100 µg/m ³)	Attainment
Sulfur Dioxide (SO ₂)	24-Hour	0.04 ppm (105 µg/m ³)	Attainment	0.14 ppm (365 µg/m ³)	Unclassified
	1-Hour	0.25 ppm (665 µg/m ³)	Attainment	0.075 ppm (196 µg/m ³)	Unclassified
	Annual Arithmetic Mean	N/A	N/A	0.030 ppm (80 µg/m ³)	Unclassified
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	Nonattainment	No standard	N/A
	24-Hour	50 µg/m ³	Nonattainment	150 µg/m ³	Attainment
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	Attainment	15 µg/m ³	Nonattainment
	24-Hour	N/A	N/A	35 µg/m ³	Nonattainment

Source: CARB 2017a

Notes: mg/m³ = milligrams per cubic meter; ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter N/A = not applicable

Real-time ambient air quality in the City can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations maintained by the SMAQMD. There is one air quality monitoring station in the City located along Bruceville Road south of Lambert Road, which

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monitors ambient concentrations of ozone. Additionally, concentrations of ozone and airborne particulate matter were obtained from a monitoring station located in the City of Sacramento (Sacramento-T Street air monitoring station) (see **Table 5.3-4**). Ambient emissions concentrations would vary due to localized variations in emissions sources and climate and should be considered representative of ambient concentrations affecting the City.

Table 5.3-4 summarizes the most recent three years of published data from the Bruceville Road monitoring station and the Sacramento-T Street air monitoring station. As depicted, State and federal ozone and PM standards have been exceeded on several occasions during the last three years. CARB provides data through calendar year 2016, based on actual reports from monitoring stations in or near the City.

**TABLE 5.3-4
AMBIENT AIR QUALITY MONITORING DATA FOR ELK GROVE AND SACRAMENTO**

Pollutant Standards	2014	2015	2016
Elk Grove-Bruceville Road Air Quality Monitoring Station			
Ozone			
Max 1-hour concentration (ppm)	0.089	0.091	0.089
Max 8-hour concentration (ppm) (state/federal)	0.072/0.072	0.082/0.082	0.072/0.072
Number of days above state 1-hr standard	0	0	0
Number of days above state/federal 8-hour standard	1	2	1
Sacramento-T Street Air Quality Monitoring Station			
Ozone			
Max 1-hour concentration (ppm)	0.085	0.092	0.094
Max 8-hour concentration (ppm) (state/federal)	0.072/0.072	0.076/0.076	0.074/0.074
Number of days above state 1-hr standard	0	0	0
Number of days above state/federal 8-hour standard	0/3	4	3
Respirable Particulate Matter (PM₁₀)			
Max 24-hour concentration ($\mu\text{g}/\text{m}^3$) (state/federal)	106.4/105.7	59.1/57.8	51.4/50.3
Number of days above state/federal standard	4/0	6/0	1/0
Fine Particulate Matter (PM_{2.5})			
Max 24-hour concentration ($\mu\text{g}/\text{m}^3$) (state/federal)	33.2/26.3	42.1/36.3	39.8/24.4
Number of days above federal standard	0	1	0

Source: CARB 2017b

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; ppm = parts per million

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. Like many other air pollutants, TACs partially result from combustion activities, especially motor vehicles in the City and the region. General Plan policies can reduce source activities that contribute to TACs.

TACs can cause long-term health effects such as cancer, birth defects, neurological damage, or genetic damage; or short-term acute effects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches. Regulating TACs is important not only because of the severity of their health effects, but also because the health effects can occur with exposure to even small amounts of TACs. TACs are not classified as criteria air pollutants and no ambient air quality standards have been established for them.

There are many different types of TACs with varying degrees of toxicity. The effects of various TACs are diverse and their health impacts tend to be local rather than regional; consequently, uniform standards for these pollutants have not been established.

TACs can be separated into carcinogens and noncarcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health effects would not occur and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health effects are believed to occur. These levels are determined on a pollutant-by-pollutant basis. Acute and chronic exposure to noncarcinogens is expressed using a Hazard Index, which compares the ratio of expected exposure levels to health-acceptable exposure levels.

The dose of a TAC 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(s). Dose is positively correlated with the concentration of a toxic substance, which generally disperses with distance from the emissions source under normal meteorological conditions. Dose is also positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for an exposed individual. Thus, the risks estimated for a receptor are higher if a fixed exposure occurs over a longer period. The breathing rate of an exposed individual is also an important factor. For instance, children have higher intake rates on a per kilogram body weight basis and thus receive a higher dose of airborne pollutants.

The California Almanac of Emissions and Air Quality, which is published annually by CARB, presents the trends of various TAC emissions in California (CARB 2013c). Currently, the estimated risk from PM emissions from diesel exhaust (diesel PM) is higher than the risk from all other TACs combined; thus, diesel PM poses the most significant risk to California's population. CARB estimates that 79 percent of the known Statewide cancer risk from the top 10 outdoor air toxics is attributable to diesel PM (SMAQMD 2011a).

In September 2000, CARB adopted the Diesel Risk Reduction Plan, which recommends many control measures to reduce the risks associated with diesel PM and achieve a goal of 85 percent PM reduction by 2020. The key elements of the plan are to clean up existing engines through engine retrofit emissions control devices; adopt stringent standards for new diesel engines; lower the sulfur content of diesel fuel; and implement advanced technology emissions control devices on diesel engines.

Additionally, CARB promulgates Air Toxic Control Measures which specifically address diesel PM emissions from a range of sources, including portable engines, cargo handling equipment used at ports, transport refrigeration units, and idling by commercial vehicles and school buses. For example, the On-Road Heavy-Duty Diesel Vehicle (In-Use) Regulation (13 California Code of Regulations 2025), adopted in 2010, requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Heavier trucks were required to be retrofitted with PM filters beginning January 1, 2012, and older trucks were required to be replaced as of January 1, 2015.

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By January 1, 2023, nearly all trucks and buses will need to have 2010 model year or equivalent engines. The regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses, in addition to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds.

Sensitive Receptors

Certain land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include the elderly, children, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Based on an understanding of sensitive receptors and their locations, the General Plan can assign land uses accordingly to reduce impacts to sensitive receptors.

Residential areas are sensitive receptors to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses, such as parks and golf courses, are considered moderately sensitive to air pollution. Schools and hospitals are also sensitive receptors. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation.

5.3.2 REGULATORY FRAMEWORK

This section details federal, State, and local plans, policies, regulations, and laws that pertain to regional and local air quality conditions in the Planning Area. These regulations provide a framework for addressing air quality related issues in the General Plan and will inform the goals and policies that are adopted.

FEDERAL

Clean Air Act

The EPA is responsible for enforcing the federal Clean Air Act (CAA). The CAA requires the EPA to establish national ambient air quality standards (NAAQS) for six common air pollutants: ozone, CO, NO_x, SO₂, PM₁₀/PM_{2.5}, and lead. The standards identify levels of air quality, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The EPA identifies these pollutants as "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for establishing permissible levels. EPA limits based on human health are called primary standards. The secondary standards of the EPA limits are intended to prevent environmental and property damage.

As part of its enforcement responsibilities, the EPA requires each state with nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

STATE**California Clean Air Act**

CARB oversees air quality planning and control throughout California. CARB is primarily responsible for ensuring implementation of the California Clean Air Act (CCAA), responding to the CAA requirements, and regulating emissions from motor vehicles and consumer products in the State. CARB has established emissions standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The CCAA establishes ambient air quality standards for the state (CAAQS) and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same six criteria pollutants as the CAA and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are generally more stringent than the NAAQS and, in the case of PM₁₀ and NO₂, are far more stringent.

CAAQS are health-based to protect the health and welfare of the populace with a reasonable margin of safety. These pollutants include ozone, CO, NO₂, SO₂, PM₁₀, PM_{2.5}, sulfates, lead, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Toxic Air Contaminant Regulations

In 1983, the California legislature enacted a program to identify the health effects of TACs and reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the CAA (42 United States Code Section 7412[b]) is considered a TAC. Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate best available control technology to minimize emissions. CARB has, to date, established formal control measures for eleven TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under AB 2588, wherein TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, to communicate the results to the public in the form of notices and public meetings.

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Office of Environmental Health Hazard Assessment

The California Office of Environmental Health Hazard Assessment (OEHHA reviews advances in science concerning health effects and exposure assessment. Periodically, OEHHA updates its Health Risk Assessment guidelines, which are used to estimate health risk. In 2015, OEHHA adopted updates to its Health Risk Assessment Guidance Manual, which more intensely characterizes early childhood exposures and refines exposure assessment for all ages (OEHHA 2015). OEHHA guidance, published in 2015, assumes 30 years is a representation of a high-end duration living at a given residence, and 70 years represents a person's lifetime.

LOCAL

The SMAQMD coordinates the work of government agencies, businesses, and private citizens to achieve and maintain healthy air quality for the Sacramento area. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, ensures compliance with permit conditions and with the SMAQMD rules and regulations, and conducts long-term planning related to air quality.

As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the federal CAA Amendments. These milestone reports include compliance demonstrations that the requirements have been met for the Sacramento nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce ROG, NO_x, and PM₁₀ emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations, implementation of a new and modified indirect source review program, adoption of local air quality plans, and stationary-, mobile-, and indirect-source control measures.

Sacramento Area Regional Ozone Attainment Plan

As previously stated, the region is nonattainment for both federal and State ozone standards. The federal 8-hour ozone regulations require that areas classified as serious or above submit a reasonable further progress demonstration plan that shows a minimum of 18 percent volatile organic compound (and/or NO_x) emission reductions over the first six years following the 2002 baseline year, and then an average of 3 percent reductions per year for each subsequent three-year period out to the attainment year. (The 2002 baseline emissions for volatile organic compounds and NO_x in the SVAB equaled 97 tons per day and 109 tons per day, respectively.) The Sacramento Regional 2008 8-Hour Ozone Reasonable Further Progress Plan includes the information and analyses to fulfill CAA requirements for demonstrating reasonable further progress toward attaining the 8-hour ozone NAAQS for the Sacramento region (SMAQMD 2008). In addition, this plan establishes an updated emissions inventory and maintains existing motor vehicle emission budgets for transportation conformity purposes. CARB (2017c) evaluated the efficacy of the plan in November 2017 and concluded that the emission reduction achieved by existing control measures would be sufficient to attain the NAAQS for ozone by June 2025.

Section 181(b)(3) of the CAA permits a state to request that the EPA reclassify or "bump up" a nonattainment area to a higher classification and extend the time allowed for attainment. This bump-up process is appropriate for areas that must rely on longer-term strategies to achieve the emission reductions needed for attainment. The air districts in the Sacramento region submitted a letter to CARB in February 2008 to request a voluntary reclassification (bump-up) of the Sacramento federal nonattainment area from a serious to a severe 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019. On May 5, 2010, the EPA approved the request, effective June 4, 2010.

Sacramento Area Regional PM₁₀ Attainment Plan and PM_{2.5} Implementation Plan

As previously stated, the region is in nonattainment status for both national and California PM₁₀ and PM_{2.5} standards. The SMAQMD prepared the PM₁₀ Implementation/Maintenance Plan and Re-Designation Request for Sacramento County in compliance with the CAA requirements pertaining to PM₁₀ nonattainment areas (SMAQMD 2010). The purpose of this plan is to fulfill the requirements for the EPA to redesignate Sacramento County from nonattainment to attainment of the PM₁₀ NAAQS by preparing the following plan elements and tasks:

- Document the extent to which PM₁₀ air quality standards are exceeded in Sacramento County.
- Determine the emission inventory sources contributing to PM₁₀ concentrations.
- Identify the appropriate control measures that achieved attainment of the PM₁₀ NAAQS.
- Demonstrate maintenance of the PM₁₀ NAAQS.
- Request formal redesignation to attainment of the PM₁₀ NAAQS.

The PM_{2.5} SIP attempts to demonstrate that the EPA's PM_{2.5} standards have been achieved in the SVAB in order to redesignate Sacramento County from nonattainment to attainment of the PM_{2.5} NAAQS (SMAQMD 2016a).

The SMAQMD has also adopted various rules and regulations pertaining to the control of emissions from area and stationary sources. Some of the more pertinent regulatory requirements applicable to the proposed Project are identified as follows (SMAQMD 2011a):

- *Rule 402: Nuisance.* The purpose of this rule is to limit emissions which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.
- *Rule 403: Fugitive Dust.* The purpose of this rule is to require that reasonable precautions be taken so as not to cause or allow the emissions of fugitive dust from noncombustion sources from being airborne beyond the property line from which the emission originates.
- *Rule 442: Architectural Coatings.* The purpose of this rule is to limit the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the district.

5.3.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. A project is considered to have a significant effect on the environment if it will:

- 1) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

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- 2) Expose sensitive receptors to substantial pollutant concentrations.
- 3) Create objectionable odors affecting a substantial number of people.
- 4) Conflict with or obstruct implementation of any applicable air quality plan.
- 5) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

For individual and subsequent projects developed consistent with the General Plan, the following SMAQMD standards would apply (SMAQMD 2015):

- Short-term (construction) project-generated emissions of NO_x above 85 pounds per day (lb/day), 80 lb/day of PM₁₀, and 82 lb/day of PM_{2.5};
- Long-term (operational) project-generated emissions of NO_x or ROG above 65 lb/day, 80 lb/day of PM₁₀, and 82 lb/day of PM_{2.5}; or
- Project-generated TAC emissions from stationary sources that would result in an incremental increase in cancer risk greater than 10 in 1 million at any off-site receptor.
- Ground-level concentration of project-generated TAC emissions from stationary sources that would result in a Hazard Index greater than 1 at any off-site receptor.

METHODOLOGY

The analysis in this section is consistent with the recommendations of the SMAQMD's Guide to Air Quality Assessment in Sacramento County, Chapter 9, "Program-Level Analysis of General Plans and Area Plans" (SMAQMD 2016b). The analysis primarily focuses on the extent to which the Project would conflict with air quality planning efforts. The net increase in criteria air pollutant (PM₁₀ and PM_{2.5}) and ozone precursor (ROG and NO_x) emissions (i.e., pollutants for which the region is in nonattainment of ambient air quality standards) generated by the proposed Project were estimated based on predicted vehicle miles traveled (VMT) and land use buildout assumptions contained in the proposed Land Use map.

Construction and operational emissions were estimated based on the net change in land uses and associated growth forecasts between 2015 baseline conditions and buildout of the proposed Project. Construction emissions account for estimated changes in acreage of on-site and off-site improvements. Both short-term construction emissions and long-term operational emissions were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2, computer program. This model was developed in coordination with the South Coast Air Quality Management District and is the most current emissions model approved for use in California by various air districts, including the SMAQMD. **Appendix C** includes outputs from the model runs for both construction and operational activity associated with future buildout conditions.

Operational on-road mobile emissions (i.e., local and regional mobile-source emissions of ROG, NO_x, PM₁₀, and PM_{2.5}) were estimated using the latest version of CARB's Mobile-Source Emission Factor Model (EMFAC 2014) based on inputs from the transportation analysis (see Section 5.13, Transportation, of this EIR). For more specific information regarding modeling inputs and outputs, see **Appendix C**.

The Project was also reviewed to determine consistency with the control measures of the SMAQMD Sacramento Regional NAAQS 2008 8-Hour Ozone Attainment and Reasonable Further Progress Plan.

General Plan Policies and Standards

The proposed Project contains the following policies and standards for managing future development in the City to improve air quality within the Planning Area.

Policy NR-4-1: Require all new development projects which have the potential to result in substantial air quality impacts to incorporate design and/or operational features that result in a reduction in emissions equal to 15 percent compared to an “unmitigated baseline project.” An unmitigated baseline project is a development project which is built and/or operated without the implementation of trip reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.

Standard NR-4-1a: As part of the environmental review of projects that are not exempt, the City shall identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures to the extent feasible and appropriate, potentially including—in the case of projects which may conflict with applicable air quality plans—emission reductions in addition to those required by Policy NR-4-1.

Policy NR-4-2: Minimize air pollutant emissions from all City facilities and operations to the extent feasible and consistent with the City’s need to provide a high level of public service.

Policy NR-4-3: Implement and support programs that reduce mobile source emissions.

Policy NR-4-4: Promote pedestrian/bicycle access and circulation to encourage residents to use alternative modes of transportation in order to minimize direct and indirect emissions of air contaminants.

Policy NR-4-5: Emphasize demand management strategies that seek to reduce single-occupant vehicle use in order to achieve State and federal air quality plan objectives.

Policy NR-4-6: Offer a public transit system that is an attractive alternative to the use of private motor vehicles.

Policy NR-4-7: Support intergovernmental efforts directed at stringent tailpipe emission standards and inspection and maintenance programs for all feasible vehicle classes, as well as revisions to the Air Quality Attainment Plan.

Policy NR-4-8: Require that development projects incorporate best management practices during construction activities to reduce emissions of criteria pollutants.

Standard NR-4-8.a: All future projects with construction emissions shall incorporate the Sacramento Metropolitan Air Quality Management District’s (SMAQMD) Basic Construction Emission Control Practices as identified in the

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most current version of the SMAQMD CEQA Guide in effect at the time of construction.

Standard NR-4-8.b: All projects with construction emissions exceeding the SMAQMD ozone precursors thresholds shall implement enhanced exhaust control practices as identified in the most current version of the SMAQMD CEQA Guide in effect at the time of construction.

Standard NR-4-8.c: All projects with construction emissions exceeding the SMAQMD fugitive particulate matter (PM) thresholds shall implement enhanced fugitive PM dust control practices as identified in the most current version of the SMAQMD CEQA Guide in effect at the time of construction.

Standard NR-4-8.d: For projects exceeding the SMAQMD NO_x and PM construction emissions thresholds that cannot be mitigated to less than significant with implementation of Standards NR-4-8.a, NR- 4-8.b, and NR-4-8.c, the project shall pay a mitigation fee into the SMAQMD's off-site mitigation program.

Policy NR-4-9: Prohibit the future siting of sensitive land uses, such as hospitals, schools, day care facilities, elderly housing, convalescent facilities, and all residential uses within the distances recommended by the California Air Resources Board for air pollutant emission sources, unless adequate mitigation measures are adopted and implemented.

Policy NR-4-10: Require new air pollution point sources, such as industrial, manufacturing, and processing facilities, to be located an adequate distance from residential areas and other sensitive land uses.

Policy NR-4-11: Work with Sacramento County and the Sacramento Metropolitan Air Quality Management District to address cross-jurisdictional and regional transportation and air quality issues.

Policy NR-4-12: Coordinate with the Sacramento Metropolitan Air Quality Management District on the review of proposed development projects, specifically projects that could conflict with any applicable air quality plans and/or the State Implementation Plan.

Policy NR-4-13: Minimize the exposure of sensitive land uses to objectionable odors.

Standard NR-4-13.a: Future sensitive land uses, such as hospitals, schools, day care facilities, elderly housing, convalescent facilities, and all residential uses shall not be sited within the distance from odor sources recommended in the SMAQMD's most current CEQA Guide - Recommended Odor Screening Distance Table unless documentation is provided that the proposed site would not expose a substantial number of people to objectionable odors.

The Mobility Element references sustainable development and reduction in VMT, which would produce co-benefits to air quality related to operational mobile- and area-source emissions within the Planning Area. The following policies would produce benefits to ambient air quality within the Planning Area:

Policy MOB-1-1: Achieve State-mandated reductions in VMT by requiring land use and transportation projects to comply with the following metrics and limits. These metrics and limits shall be used as thresholds of significance in evaluating projects subject to CEQA.

Projects that do not achieve the limits outlined below shall be subject to all feasible mitigation measures necessary to reduce the VMT for, or induced by, the project to the applicable limits. If the VMT for or induced by the project cannot be reduced consistent with the performance metrics outlined below, the City may consider approval of the project, subject to a statement of overriding considerations and mitigation of transportation impacts to the extent feasible, provided some other stated form of public objective including specific economic, legal, social, technological or other considerations is achieved by the project.

- a) **New Development** – Any new land use plans, amendments to such plans, and other discretionary development proposals (referred to as “development projects”) are required to demonstrate a 15 percent reduction in VMT from existing (2015) conditions. To demonstrate this reduction, conformance with the following land use and cumulative VMT limits is required:
- (i) **Land Use** – Development projects shall demonstrate that the VMT produced by the project at buildout is equal to or less than the VMT limit of the project’s General Plan land use designation, as shown in Table 6-1,¹ which incorporates the 15 percent reduction from 2015 conditions.
 - (ii) **Cumulative for Development Projects in the Existing City** – Development projects within the existing (2017) City limits shall demonstrate that cumulative VMT within the City and including the project would be equal to or less than the established Citywide limit of 5,412,660 VMT (total daily VMT), which incorporates the 15 percent reduction from 2015 conditions.
 - (iii) **Cumulative for Development Projects in Study Areas** – Development projects located in Study Areas shall demonstrate that cumulative VMT within the applicable Study Area would be equal to or less than the established limit shown in Table 6-2,² which incorporates the 15 percent reduction from 2015 conditions.
- b) **Transportation Projects** – Transportation projects likely to lead to a substantial or measurable increase in VMT shall:
- (i) **Not increase VMT per service population.** Projects must demonstrate that the VMT effect of the project does not exceed the project’s baseline condition VMT.

¹ Refer to page 6-6 of the Mobility Element of the General Plan Update for Table 6-1.

² Refer to page 6-7 of the Mobility Element of the General Plan Update for Table 6-2.

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- (ii) **Be consistent with the regional projections and plans.** The project shall be specifically referenced or listed in the region's MTP/SCS and accurately represented in the regional travel forecasting model. Qualifying transportation projects that are not consistent with the MTP/SCS shall also demonstrate that the cumulative VMT effect does not increase regional VMT per service population.

Policy MOB-3-2: Support strategies that reduce reliance on single-occupancy private vehicles and promote the viability of alternative modes of transport.

Standard MOB-3-2.a: Require new commercial development for projects equal to and greater than 100,000 square feet to provide an electric vehicle charging station and new residential development to pre-wire for plug-in electric vehicles.

Policy MOB-4-5: Encourage employers to offer incentives to reduce the use of vehicles for commuting to work and increase commuting by active transportation modes. Incentives may include a cash allowance in lieu of a parking space and on-site facilities and amenities for employees such as bicycle storage, shower rooms, lockers, trees, and shaded seating areas.

The Community and Resource Protection Element also contains the following policy which would provide benefits related to air quality:

Policy NR-2-4: Maintain and enhance an urban forest by preserving and planting trees in appropriate densities and locations to maximize energy conservation and air quality benefits.

The Urban and Rural Development Element of the General Plan also contains the following policy related to air quality and odor:

Policy AG-1-3: Recognize the right of existing agricultural uses to continue as long as individual owners/farmers desire. As appropriate for the neighborhood, allow for buffers or feathering of lot sizes where appropriate between farmland and urban uses. Additionally, continue implementing the City's Right to Farm regulations and property title disclosures to notify prospective buyers of agricultural activities in the area.

Policy AG-1-6: Limit the siting of projects with land uses that might result in conflicts near existing agriculture due to noise, air quality, or odors.

PROJECT IMPACTS AND MITIGATION MEASURES

Short-Term Construction-Related Criteria Air Pollutant Impacts (Standard of Significance 1)

Impact 5.3.1 Buildout of the proposed Project could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards for ozone, PM₁₀, and PM_{2.5}. This is considered a **potentially significant** impact.

Construction-related activities would result in Project-generated emissions of ROG, NO_x, PM_{2.5}, and PM₁₀ from site preparation (e.g., grading and clearing), off-road equipment, material delivery, worker commute exhaust emissions, vehicle travel, building construction, asphalt paving, and

application of architectural coatings. Fugitive dust emissions would be associated primarily with site preparation and would vary as a function of soil silt content, soil moisture, wind speed, and area of disturbance. Other PM emissions would result from use of internal combustion engines, and from tire and brake wear. Emissions of ozone precursors of ROG and NO_x would be associated primarily with exhaust from construction equipment, haul truck trips, and worker trips. ROG would be emitted during asphalt paving and the application of architectural coatings.

Since the timing and intensity of future development under the proposed Project is not known at this time, construction-related emissions were modeled assuming an equal annual distribution of proposed development consistent with the General Plan over a 20-year period as measured from the baseline year of 2015 through 2035. For the purposes of this analysis, the Project’s nonresidential square footage and residential units are divided by 20 to generally characterize potential annual construction-related air pollutant emissions. This impact discussion assumes full growth potential as identified in Section 2.0, Project Description, within 20 years to present a conservative estimate of annual pollutant emissions.

Construction-generated emissions were calculated using CalEEMod, which is designed to model emissions for land use development projects, based on typical construction requirements. Modeling was based primarily on CalEEMod default values for Sacramento County. CARB regulations require off-road diesel-powered construction fleets to incrementally reduce diesel PM and NO_x emissions through the year 2028. Therefore, to provide a more conservative estimate, 2015 was assumed as the “worst-case” construction year. Construction equipment requirements and usage rates used in the model were based on model default assumptions as shown in **Appendix C**.

Predicted maximum average daily construction-generated emissions for the Project are summarized in **Table 5.3-5**, which shows Project emissions resulting from construction would exceed the SMAQMD significance criteria of 85 lb/day for NO_x and 80 lb/day for PM₁₀.

**TABLE 5.3-5
AVERAGE ANNUAL CONSTRUCTION EMISSIONS FROM DEVELOPMENT
UNDER THE PROPOSED 2035 GENERAL PLAN UPDATE**

Construction Year	Average Annual Daily Emissions (lb/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
“Worst-Case” Construction Year (2015)	161.3 ¹	378.5	235.0	64.0
SMAQMD Threshold of Significance	N/A	85	80	82
Exceed SMAQMD Threshold?	—	Yes	Yes	No

Source: Ascent Environmental 2017. Refer to **Appendix C** for model data outputs.

Notes: lb/day = pounds per day, ROG = reactive organic gases, NO_x = nitrogen oxides, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter.

¹ ROG emissions were adjusted to reflect a more accurate phasing of construction and associated emissions.

Existing Regulations and Proposed General Plan Policies That Provide Mitigation

Construction-generated sources of criteria air pollutants from new development under the Project would be minimized through implementation of General Plan Policy NR-4-8, which includes Standards NR-4.8.a through NR-4.8.d that require implementation of the SMAQMD recommended standard construction mitigation.

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All projects that will involve construction activities, regardless of the significance determination, are required to implement the SMAQMD Basic Construction Emission Control Practices (Basic Practices) for controlling fugitive dust at construction sites. These practices collectively reduce fugitive PM by approximately 54 percent. For projects that will generate maximum daily NO_x emissions exceeding the SMAQMD threshold of significance, the SMAQMD recommends implementation of the Enhanced Exhaust Control Practices for off-road construction equipment. The SMAQMD considers implementation of the Enhanced Exhaust Control Practices to achieve a 20 percent reduction for NO_x and a 45 percent reduction for PM₁₀ from off-road construction equipment exhaust when compared to the State fleet average. The SMAQMD requires projects that exceed the PM₁₀ and PM_{2.5} emissions thresholds after implementation of the Basic Practices to implement all feasible and applicable measures of the Enhanced Fugitive PM Dust Control Practices. Implementation of the Enhanced Fugitive PM Dust Control Practices will reduce total fugitive PM dust emissions by an additional 21 percent above the Basic Practices (SMAQMD 2017).

For projects where emissions still exceed the SMAQMD daily emissions threshold for NO_x and PM after application of the above measures, the SMAQMD requires the project applicant to pay into the SMAQMD's construction mitigation fund to offset construction-generated emissions of NO_x and/or PM. Payment into this program allows the air district to offset the contribution of emissions associated with individual construction projects by removing other NO_x or PM generating sources elsewhere in the air basin. Although construction has the potential to locally exceed the CAAQS for ozone resulting from ROG emissions, the SMAQMD has no established daily thresholds for temporary construction emissions. The SMAQMD requires that all construction activities in the SVAB adhere to Rule 403, which stipulates taking reasonable precautions to prevent the emissions of fugitive dust, such as using water or chemicals for control of dust in construction operations or limiting the speed of off-road construction equipment traveling across unpaved surfaces.

Conclusion

As shown in **Table 5.3-5**, construction emissions of NO_x and PM₁₀ could exceed the SMAQMD thresholds of significance. This impact would be **potentially significant**. The SMAQMD (2016b) CEQA Guide, Chapter 9, "Program-Level Analysis of General and Area Plans," recommends that general or area plans found to have a significant adverse impact implement all feasible mitigation measures to reduce the impact; and that binding, enforceable mitigation measures be incorporated as policies and implementation programs within the general or area plan.

Because multiple projects could be constructed simultaneously, which would collectively generate emissions, and project-specific details are unknown for individual projects at this time, it cannot be known with certainty that implementation of Standards NR-4-8.a through NR-4-8.d would reduce aggregated emissions to below the applicable SMAQMD thresholds. There are no additional plan-level measures available that would further reduce impacts from short-term construction-related emissions. All feasible construction emission reduction measures have been incorporated into the Project through the inclusion of the General Plan Policy NR-4-8, as discussed above.

Mitigation Measures

No additional feasible mitigation available beyond compliance with existing regulations and proposed General Plan policies.

All feasible construction emission reduction measures have been incorporated into the Project through the inclusion of the General Plan Policy NR-4-8 and implementation of Standards NR-4-8.a through NR-4-8.d would reduce aggregated emissions. However, these standards may not be

sufficient to fully reduce emissions below the applicable SMAQMD thresholds, especially since a component includes payment of a mitigation fee. There are no other additional available mitigation measures that would further reduce impacts from short-term construction-related emissions. No additional plan-level measures mitigation are available. Therefore, impacts associated with short-term construction emissions under the Project would be **significant and unavoidable**.

Long-Term Criteria Air Pollutant Impacts (Standard of Significance 1)

Impact 5.3.2 The Project could result in long-term operational emissions that could violate or substantially contribute to a violation of federal and State standards for ozone and coarse and fine particulate matter. This is considered a **potentially significant** impact.

Implementation of the Project would result in long-term increases in operational emissions of criteria air pollutants and ozone precursors (i.e., ROG and NO_x). Project-generated increases in emissions would be predominantly associated with motor vehicle use. To a lesser extent, area sources, such as the use of natural gas-fired appliances, landscape maintenance equipment, and architectural coatings, would also contribute to overall increases in operational emissions.

Mobile-source emissions were calculated using EMFAC 2014 and the daily average VMT values generated within the Planning Area boundary for the baseline year 2015 (i.e., 2,321,878) and Project conditions for 2035 (i.e., 4,562,035).³ The vehicle fleet mix information contained in the EMFAC model for Sacramento County is representative of vehicles in Elk Grove and was therefore used for purposes of preparing a Project model.

Area-source emissions were estimated using CalEEMod. Area-source emissions include emissions from consumer products, landscaping and maintenance, wood-burning appliances, and other off-road equipment. Energy-related emissions would be associated with space and water heating. Both area-source and energy emissions were calculated using land use type and acreage inputs consistent with the Project description and default model assumptions in CalEEMod.

Consistent with guidance provided by the SMAQMD, the net change in total daily emissions associated with operation of development generated through Project buildout was estimated for the assumed buildout year and compared with existing conditions in **Table 5.3-6**.

TABLE 5.3-6
NET CHANGE IN OPERATIONAL EMISSIONS:
PROJECT COMPARED WITH BASELINE CONDITIONS

Emission Source	Net Change in Average Daily Emissions (lb/day) ¹			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Baseline Emissions				
Area-Source Emissions	6,596	71	32	32
Energy-Source Emissions	132	1,176	92	92

³ These average daily VMT figures were calculated using the boundary method in which only the portion of trips which occurs within the boundary of the Planning Area is included in the VMT total.

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Emission Source	Net Change in Average Daily Emissions (lb/day) ¹			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Mobile-Source Emissions	396	2,976	36	34
Total	7,124	4,223	160	158
Operational Emissions with the Project				
Area-Source Emissions	7,876	96	47	47
Energy-Source Emissions	156	1,384	108	108
Mobile-Source Emissions	248	1,193	22	13
Total	8,280	2,673	177	168
Net Change in Daily Emissions				
Area-Source Emissions	1,280	25	15	15
Energy-Source Emissions	24	208	16	16
Mobile-Source Emissions	-148	-1,783	-14	-21
Total Net Change	1,156	-1,550	17	10

Source: Ascent Environmental 2017

Notes: lb/day = pounds per day, ROG = reactive organic gases, NO_x = oxides of nitrogen, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter

¹ Emissions estimates assumes full buildout of Study Areas under the Project by 2035.

As shown in **Table 5.3-6**, emissions of NO_x in the City would substantially decrease as compared to baseline conditions. This is primarily because mobile-source operational emission factors would decrease due to more stringent vehicle emission standards over the planning period. EMFAC 2014, the emissions model used in this analysis, accounts for already enacted (present) and approved (future) vehicle emissions control measures contained in SIPs submitted to the EPA, smog check programs, truck and bus emissions rules, and fuel economy standards, which would result in foreseeable mobile-source emission reductions in the region. Total PM₁₀ and PM_{2.5} emissions would experience a slight net increase under the Project compared to baseline conditions.

As shown above, total emissions of ROG would increase substantially. This increase is attributable to the development of the four currently undeveloped Study Areas, which is a component of the Project. The model assumes the full development of the anticipated capacity of the North Study Area (323 dwelling units [DUs]), East Study Area (4,806 DUs), South Study Area (16,250 DUs), and the West Study Area (9,224 DUs). Operational emissions of ROG would occur from the use of consumer products (i.e., cleaning supplies, kitchen aerosols, cosmetics, toiletries, pesticides, and fertilizers) and reapplication of architectural coatings (i.e., paint).

Proposed General Plan Policies That Provide Mitigation

General Plan Policy NR-4-1 requires that all new development projects in the City with the potential to result in substantial air quality impacts incorporate features to reduce emissions equal to 15 percent compared to an "unmitigated baseline" project. An unmitigated baseline project is a development project that is built and/or operated without the implementation of trip reduction, energy conservation, or similar features. Standard NR-4-1a requires appropriate mitigation measures to the extent feasible and appropriate, potentially including—in the case of projects which may conflict with applicable air quality plans—emission reductions in addition to those required by Policy NR-4-1.

The General Plan contains additional policies that would contribute to lower operational-related emissions. Policy NR-4-2 aims to minimize air pollutant emissions from all City facilities and operations while maintaining a high level of public service. As such, it would be expected that municipal building emissions would be minimized.

Policy MOB-1-1 requires that new land use plans, amendments to such plans, and other discretionary development proposals demonstrate 15 percent reduction in VMT from existing conditions. While the primary intent of this policy would be to reduce emissions of greenhouse gases (see Section 5.7, Greenhouse Gas Emissions), this policy would have beneficial effects on ambient air quality in the Planning Area. However, a 15 percent reduction in VMT may be achieved through several pathways which are unknown at the time of writing this Draft EIR. As such, the composition of reductions for air pollutants would differ depending on the type of project. Policy MOB-4-5 encourages employers to offer incentives to reduce the use of vehicles for commuting to work and increase commuting by active transportation modes and Standard MOB-3-2.a requires new commercial development greater than 100,000 square feet to provide an electric vehicle charging station and new residential development to pre-wire for plug-in electric vehicles, which would further reduce emissions.

Operational emissions would additionally be reduced through the implementation of Policy NR-4-3, which promotes programs that would reduce mobile-source emissions of criteria air pollutants (i.e., VMT). Further, Policies NR-4-4, NR-4-5, NR-4-6 would reduce single-occupant vehicle use through emphasis on demand management strategies and development of attractive alternative public transit options, which would serve to improve ambient air quality in the Planning Area to meet and/or maintain the NAAQS and CAAQS. Implementation of Policy NR-4-7 would also produce air quality benefits through the support of intergovernmental efforts to enforce more stringent tailpipe emission standards and inspection and maintenance programs.

Ambient air quality in the Planning Area would also benefit from Policy NR-4-11, which advocates working with Sacramento County and the SMAQMD to address cross-jurisdictional and regional transportation and air quality issues. Finally, successful implementation of Policy NR-2-4 would provide air quality benefits through the maintenance and enhancement of an urban forest in the Planning Area.

Conclusion

The proposed Project would result in a net increase in criteria air pollutant emissions. development under the Project would occur in an unpredictable pattern, and would vary in size, land use type, and build-out duration. Given that the rate, magnitude, and location of development under the proposed Project is uncertain at the time of writing this Draft EIR, an initial estimate of Project-related air pollutant emissions, along with a theoretical maximum 15 percent reduction in average daily emissions for air pollutants was applied to full buildout as compared to baseline conditions. **Table 5.3-7** summarizes the emissions shown in **Table 5.3-6** with the application of a 15 percent reduction from General Plan Policy NR-4-1.

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TABLE 5.3-7
NET CHANGE IN OPERATIONAL EMISSIONS:
GENERAL PLAN POLICY NR 4-1 APPLIED TO PROJECT COMPARED WITH BASELINE CONDITIONS

Emissions Scenario	Average Daily Emissions (lb/day) ¹			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Baseline Project	7,124	4,223	160	158
Unmitigated Project	8,280	2,673	177	168
Project with 15% Reduction per GP Policy NR 4-1 ²	7,038	2,272	150	143
Net Change from Baseline	-86	-1,951	-10	-15

Source: Ascent Environmental 2017

Notes: lb/day = pounds per day, ROG = reactive organic gases, NO_x = oxides of nitrogen, PM₁₀ = respirable particulate matter, PM_{2.5} = fine particulate matter.

¹ Emissions estimates assume full buildout of Study Areas under the Project by 2035. Values reflect the net change in emissions from 2015 as compared to 2035 under two scenarios (i.e., unmitigated project and project with General Plan Policy NR-4-1).

² The application of a 15 percent reduction in air pollutants from the application of General Plan Policy NR-4-1 assumes that all development would be subject to the policy; however, some future individual projects could still exceed the project-level thresholds of significance with application of the policy. Additionally, some development projects could fall below the operational project-level threshold of significance; and, finally, reductions shown do not account for any additional reductions in air pollution associated with vehicle miles traveled associated with General Plan Policy MOB-1.1

As shown above, implementation of General Plan Policy NR-4-1 could help reduce emissions of ROG, NO_x, PM₁₀, and PM_{2.5} to levels below the baseline conditions. However, as stated previously, there is inherent uncertainty as to size, intensity, and timing of future development that could occur over the Project's assumed buildout. The values shown in **Table 5.3-7** assume that all future development under the Project would trigger the requirements of General Plan Policy NR-4-1, which requires a 15 percent reduction in emissions. However, not all future development would be subject to the requirements of General Plan Policy NR-4-1: some smaller development projects could generate emissions at levels below the SMAQMD thresholds of significance and, thus, would not be subject to the 15 percent reduction requirement under General Plan Policy NR-4-1. In addition, because the thresholds are based on daily emissions, some larger projects could generate project-level emissions that exceed the SMAQMD thresholds, even with a 15 percent reduction after application of General Plan Policy NR-4-1. Similarly, multiple unrelated projects could be constructed concurrently, and the combined emissions from those multiple projects could exceed thresholds. Therefore, because the details of future development (e.g., the size, intensity, duration of construction, overlap of construction with other projects) cannot be determined at this time, the assumed levels of emissions estimated and presented in **Table 5.3-7** may not fully encompass total net changes in future emissions with the Project.

Emissions of operational air pollutants would be assessed on a project-by-project basis and, where applicable, projects will be required to reduce emissions by 15 percent. However, due to the uncertainties discussed above, the reductions that may be achieved through implementation of General Plan policies cannot be assumed to be sufficient to reduce operational emissions to meet the SMAQMD thresholds for all projects and in instances where concurrent projects may combine to exceed thresholds. Therefore, emissions associated with the proposed Project could exceed the SMAQMD significance thresholds; thus, this impact would be **potentially significant**.

Mitigation Measures

No additional feasible mitigation available beyond compliance with proposed General Plan policies.

Policies included in the proposed Project would reduce emissions of criteria air pollutants in the Planning Area, but it cannot be assumed to be sufficient to reduce operational emissions to meet the SMAQMD thresholds. No further mitigation is available. There are no additional plan-level measures available that would reduce impacts from long-term operational-related emissions. All feasible operational emissions reduction measures have been incorporated into the Project through the inclusion of the General Plan policies discussed above. There could be additional project-specific mitigation measures to reduce long-term operational-generated emissions of air pollutants to levels below the SMAQMD's thresholds of significance. However, the nature, feasibility, and effectiveness of such project-specific mitigation cannot be determined at this time. As such, the City cannot assume that mitigation would be available and implemented such that all future operational-related emissions of air pollutants would be reduced to less-than-significant levels. Therefore, this impact would remain **significant and unavoidable**.

Exposure of Sensitive Receptors to Substantial Carbon Monoxide Pollutant Concentrations (Standard of Significance 2)

Impact 5.3.3 The Project would not contribute to localized concentrations of mobile-source carbon monoxide that would exceed applicable ambient air quality standards. This impact would be **less than significant**.

As noted previously, Sacramento County, which encompasses the City, is currently designated attainment for both California and national CO ambient air quality standards, and the county typically experiences low background CO concentrations.

Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited: CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Therefore, CO modeling is typically conducted for intersections that are projected to operate at unacceptable levels of service during peak commute hours and have unusually high volumes of traffic.

The City does not have a methodology for assessing CO exposure; therefore, SMAQMD guidance was applied. The SMAQMD (2016c) provides a two-tiered, project-level screening procedure to determine whether detailed CO hotspot modeling is required for a proposed development project. This preliminary screening methodology provides lead agencies with a conservative indication of whether project-generated vehicle trips would result in the CO concentrations that exceed thresholds of significance. According to the SMAQMD, the Project would result in a less than significant impact to air quality for local CO if:

- Traffic generated by the Project would not result in deterioration of intersection level of service (LOS) to LOS E or F;⁴ or
- The Project would not contribute additional traffic to an intersection that already operates at LOS E or F.

⁴ Level of service (LOS) is a measure used by traffic engineers to determine the effectiveness of transportation infrastructure. LOS is most commonly used to analyze intersections by categorizing traffic flow with corresponding safe driving conditions. LOS A is considered the most efficient level of service and LOS F the least efficient.

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As discussed in Section 5.13, Transportation, implementation of the proposed Project would result in LOS E or F operations at several study intersections.

According to the SMAQMD, if the first tier of screening criteria is not met, the second tier of screening criteria must be examined. The second tier of the screening criteria states that the Project would result in a less than significant impact to air quality for local CO if:

- The Project would not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The Project would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway, or other locations where horizontal or vertical mixing of air would be substantially limited; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the county average (as identified by the EMFAC or CalEEMod models).

As discussed in Section 5.13, none of the intersections analyzed in the Planning Area would have more than 31,600 vehicles per hour. The Kammerer Road/Grant Line Road/SR 99 southbound ramps intersection would have the greatest volume of traffic in the Planning Area with 9,010 during the A.M. and 9,240 vehicle trips during the P.M. peak periods. These volumes are well below the 31,600 vehicles per hour threshold used by the SMAQMD. In addition, the proposed Project would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway where horizontal or vertical mixing of air would be substantially limited. The mix of vehicle types is not anticipated to be substantially different from the county average. Therefore, the Project would not exceed the SMAQMD's significance thresholds and would not expose people to CO hot spots. This would be considered a **less than significant** impact.

Mitigation Measures

None required.

Exposure of Sensitive Receptors to Toxic Air Contaminant Pollutant Concentrations (Standard of Significance 2)

Impact 5.3.4 The proposed Project could result in increased exposure of existing or planned sensitive land uses to stationary or mobile-source TACs that would exceed applicable health risk standards. As a result, this impact is considered **potentially significant**.

Sensitive land uses are generally defined as locations where people reside or where the presence of TAC emissions could adversely affect the health of sensitive receptors (i.e., persons occupying the given land use[s]). Typical sensitive receptors include residents, schoolchildren, hospital patients, and the elderly. Construction of future projects in the Planning Area could result in short-term emissions of TACs. Long-term emissions of TACs would be primarily associated with mobile emissions and, to a lesser extent, from new stationary sources.

Short-Term Construction Sources

Diesel-powered construction equipment is a primary potential source of TACs and associated with the release of diesel PM. CARB identified particulate exhaust emissions from diesel-fueled engines as a TAC in 1998.

Health-related risks associated with diesel PM are primarily linked to long-term exposure and the correlated risk of contracting cancer. As disclosed above OEHHA guidance assumes 30 years is a representation of a high-end duration living at a given residence and 70 years represents a person's lifetime; thus, the calculation of cancer risk associated with exposure to TACs should generally be based on a 70- or 30-year period of exposure. However, OEHHA also advises that such assessments should be limited to the period/duration of activities associated with the Project (OEHHA 2015). Thus, the duration of the proposed construction activities would only constitute a small percentage of the total 70- or 30-year exposure period. The timing and intensity of future construction activities allowed under the proposed Project is not known at this time. While the construction of uses allowed in the Planning Area could occur over several years, it is not anticipated that construction of the entire Planning Area would last 70 or 30 years.

Existing Regulations and Proposed General Plan Policies That Provide Mitigation

General Plan Policy NR-4-8 requires that development projects incorporate the applicable SMAQMD construction mitigation measures. The SMAQMD considers implementation of the Enhanced Exhaust Control Practices to achieve a 20 percent reduction for NO_x and a 45 percent reduction for PM₁₀ from off-road construction equipment exhaust when compared to the State fleet average.

Conclusion

With reductions achieved through compliance with SMAQMD construction mitigation measures, and because the use of diesel-powered equipment during construction would be temporary and episodic and not concentrated in any one area for extended periods, diesel PM generated by Project construction would not be expected to create conditions where the probability of contracting cancer is greater than 10 in 1 million for nearby receptors. Construction TAC impacts would be **less than significant**.

Long-Term Operational Sources

As discussed in Section 5.0, Introduction to the Environmental Analysis and Assumptions Used, the effect of the environment on the project is generally not a CEQA consideration, including the effect of existing unhealthy concentrations of TACs on new sensitive receptors (with the exception of schools).

Major freeways and major roadways, defined by CARB as facilities that accommodate more than 100,000 daily vehicle trips, are another source of TACs, particularly diesel PM. Locating sensitive land uses such as residences, schools, or parks near major freeways and major roadways that accommodate more than 100,000 daily vehicle trips could result in negative health effects.

The only roadways that would exceed a volume of 100,000 vehicles per day in the Planning Area are SR 99, which runs directly through the Planning Area, and I-5, adjacent to the western boundary of the Planning Area. Annual average daily trips values for baseline (2015) and future conditions were projected by Fehr & Peers for segments of SR 99 and I-5 in the Planning Area and are presented in **Table 5.3-8**.

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**TABLE 5.3-8
DAILY TRAFFIC VOLUMES FOR BASELINE AND PROJECT CONDITIONS (2015 AND 2035)**

Roadway Segment	Daily Traffic Volumes		
	Existing Volume (2015)	Future Volume (2035)	Exceeds 100,000 Daily Vehicle Trips?
SR-99			
Calvine Rd. to Sheldon Rd.	104,500	202,800	Yes
Sheldon Rd. to Bond Rd.	96,500	196,300	Yes
Bond Rd. To Elk Grove Blvd.	81,300	177,700	Yes
Elk Grove Blvd. to Whitelock Pkwy.	71,500	157,900	Yes
Whitelock Pkwy. to Grant Line Rd.	71,500	132,700	Yes
Grant Line Rd. to Eschinger Rd.	76,700	131,900	Yes
I-5			
Cosumnes River Blvd. to Laguna Blvd.	95,600	155,200	Yes
Laguna Blvd. to Elk Grove Blvd.	76,700	130,700	Yes
Elk Grove Blvd. to Hood Franklin Blvd.	64,000	113,200	Yes

Source: Fehr & Peers 2017

Notes: Rd. = Road, Blvd. = Boulevard, Pkwy. = Parkway

As shown in **Table 5.3-8**, existing traffic volumes on SR 99 from Calvine Road to Sheldon Road exceed the CARB- and SMAQMD-recommended 100,000 daily vehicle trips screening thresholds for exposure of sensitive receptors to TACs. With the addition of the Project, 2035 traffic volumes on the roadway segments would increase substantially such that volumes would surpass the 100,000 daily vehicle trips threshold for all segments shown.

Existing Regulations, Guidelines, and Proposed General Plan Policies That Provide Mitigation

Proximity to Mobile Source TAC Emissions

In April 2005, CARB released the *Air Quality and Land Use Handbook: A Community Health Perspective*, which offers guidance on siting sensitive land uses in proximity to sources of air toxics. The handbook recommends that sensitive land uses be sited no closer than 500 feet from a major freeway or major roadway, a buffer distance that was developed to protect sensitive receptors from exposure to diesel PM. This distance was based on traffic-related studies that showed a 70 percent drop in PM concentrations at a distance of 500 feet from the roadway. Presumably, acute and chronic risks as well as lifetime cancer risk due to diesel PM exposure are lowered proportionately (CARB 2005).

The SMAQMD builds upon the CARB guidance in its March 2011 *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways*. The SMAQMD provides a three-part screening approach to assess cancer risk when siting sensitive receptors near congested roadways. New receptors located beyond the 500-foot buffer zone, as recommended by CARB, would not require further evaluation under the SMAQMD protocol; however, new sensitive receptors located within the 500-foot buffer must be assessed against an evaluation criterion of 276 cancer cases in one million. This evaluation is derived from roadway orientation, project orientation, and peak hourly traffic volumes provided by Caltrans (SMAQMD 2011b).

In accordance with General Plan Policy NR-4-9, future sensitive land uses proposed within 500 feet of these roadway segments would be compared to the SMAQMD screening table to assess whether TAC exposure would exceed the evaluation criterion (i.e., 276 cancer cases in one million). In cases where the evaluation criterion is exceeded, project applicants would be required to conduct site-specific air dispersion modeling and a health risk assessment (SMAQMD 2011b).

In April 2017, CARB released the *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways* report as a supplement to the *Air Quality and Land Use Handbook*. Increased development under the Project would result in increased traffic volumes on SR 99 and I-5. In such cases, the following strategies could be applied to reduce exposure from mobile-source TACs (CARB 2017d):

- Use of designs that promote air flow and pollutant dispersion along street corridors.
- Construction of solid barriers, such as sound walls.
- Planting of vegetation for pollutant dispersion.

As previously mentioned, Policy NR-2-4 directs the City to foster and enhance an urban canopy to improve ambient air quality within the Planning Area. Deployment of this policy would be consistent with the above-referenced CARB strategy to use vegetation to disperse air pollution. General Plan policies such as MOB-3-1, MOB-3-2, MOB-3-5, MOB-3-6, and MOB-3-7 would serve to improve the design of roadways in the Planning Area to include speed-reducing measures, traffic signaling, and promote alternative modes of transportation including walking, bicycling, and public transit. Utilization of these modes would reduce dependency on single-occupancy vehicles and would reduce daily trips on roadway segments.

General Plan Policy MOB-7-5 commits the City to assisting Caltrans in implementing improvements to I-5 and SR 99 as outlined in the most recent Caltrans Transportation Concept Report. The report entails multiple improvement strategies, including the deployment of Traffic Operations System Elements, which serve to improve the efficiency of roadways without adding new capacity. Strategies include use of traffic signaling, which is consistent with the CARB guidance to reduce exposure of sensitive receptors to TACs (Caltrans 2017).

Stationary Sources

General Plan Policy NR-4-9 prohibits the future siting of sensitive land uses (including schools) within distances specified by the SMAQMD of stationary sources of TACs unless adequate mitigation measures are adopted and implemented.

Policy NR-4-10 requires that new air pollution point sources (e.g., industrial, manufacturing, and processing facilities) be located an adequate distance from sensitive receptors. If a new stationary source of TACs is proposed to be sited in or near the Planning Area, it would be subject to the rules under the SMAQMD Regulation 2, Permits. Under this regulation, each new stationary source is evaluated by the SMAQMD to determine whether it has the potential to produce concentrations of TACs that would result in a health risk. The SMAQMD would assess the impact from TACs based on its guidance document, *Supplemental Risk Assessment Guidelines for New and Modified Sources*, as well as guidance documents from the OEHHA, CARB, and California Air Pollution Control Officers Association (CAPCOA). The SMAQMD requires emission controls, similar to best available control technology, called toxic best available control technology (T-BACT) for certain sources. In addition to T-BACT requirements, permits for equipment that may emit TACs may also contain conditions required by the National Emission Standards for Hazardous Air

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Pollutants and Air Toxic Control Measures promulgated by the EPA and CARB, respectively. In short, a new stationary source of TACs would not receive the authority to construct or permit to operate if it would result in:

- an incremental increase in cancer risk greater than 10 in one million at any off-site receptor; and/or
- an off-site ground-level concentration of noncarcinogenic TACs generated from the use that would result in a Hazard Index greater than 1 (unless approved by OEHHA).

These permitting requirements are identical to the SMAQMD's thresholds of significance for TACs generated by stationary sources or land uses that include nonpermitted sources (e.g., truck distribution yards). Therefore, lead agencies can determine that a new stationary source of TACs that attains the authority to construct and permit to operate from the district would not exceed the SMAQMD's applicable TAC thresholds of significance.

Conclusion

It is reasonably foreseeable that increased traffic on roadways resulting from the proposed Project could exacerbate existing concentrations of TACs, resulting in a health risk for existing or new sensitive receptors. Implementation of General Plan Policies NR-2-4, NR-4-9, NR-4-10, MOB-3-1, MOB-3-2, MOB-3-5, MOB-3-6, MOB-3-7, MOB-3-13, and MOB-7-5 would serve to lower exposure of sensitive receptors to sources of TACs throughout the Planning Area. As discussed previously, the CARB Diesel Risk Reduction Plan and Air Toxic Control Measures would help reduce future emissions of diesel PM (the primary TAC of concern in mobile emissions). However, the amount of reduction in diesel PM concentrations and the resulting reduction in health risks cannot be anticipated for any specific area, including the Planning Area. As such, it cannot be assumed that the policies discussed above or the CARB diesel PM reduction efforts would be sufficient to reduce exposure of sensitive receptors to TACs to a less than significant level. For these reasons, the Project could expose sensitive land uses to mobile-source TACs and result in increased health risks above the SMAQMD thresholds and the impact would be **potentially significant**.

Mitigation Measures

No additional feasible mitigation available beyond compliance with existing regulations and proposed General Plan policies.

All feasible mobile source TAC health risk reduction measures have been incorporated into the Project through the inclusion of the General Plan policies discussed above. There could be additional project-specific mitigation measures to reduce the health risks of mobile-source TACs to levels below the SMAQMD's thresholds of significance. However, the nature, feasibility, and effectiveness of such project-specific mitigation cannot be determined at this time. As such, the City cannot assume that mitigation would be available and implemented such that all future health risk increases (i.e., an incremental increase in cancer risk greater than 10 in one million or concentrations of TACs with a Hazard Index greater than 1) from exposure to TACs would be reduced to less than significant levels. Therefore, this impact would remain **significant and unavoidable**.

Exposure of Sensitive Receptors to Odorous Emissions (Standard of Significance 3)

Impact 5.3.5 Implementation of the Project could result in increased exposure of sensitive receptors to odorous emissions as compared to baseline conditions. The

potential exposure of sensitive receptors to odors would be considered **potentially significant**.

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 receptors. While offensive odors rarely cause any physical harm, they can be unpleasant and lead to distress among the public and generate citizen complaints to local governments and regulatory agencies. Land uses commonly considered to be potential sources of odorous emissions include wastewater treatment plants, sanitary landfills, food processing facilities, chemical manufacturing plants, rendering plants, paint/coating operations, and agricultural feedlots and dairies.

A major source of odor within the Planning Area originates from agricultural activity. Agricultural odors are primarily related to dairy farm operations. Odors associated with dairy farm operations are generated by the breakdown of manure. These processes typically result in the generation of hydrogen sulfide, methane, and ammonia. Fertilizer and pesticide use in agricultural areas can also generate noticeable odors.

The Sacramento Regional Sanitation District (Regional San) wastewater treatment plant (WWTP) is located 1 mile north of northern boundary of the Planning Area. The SMAQMD recommends that projects including sensitive receptors be located with a buffer zone of at least 2 miles from WWTPs; however, the SMAQMD (2016d) notes that "odor screening distances should not be used as absolute thresholds of significance for an odor determination." Implementation of the Project would not introduce dissimilar land uses to the portion of the Planning Area within the vicinity of the WWTP as compared to baseline conditions. Further, development under the Project would undergo project-specific environmental review, wherein odor impacts would be assessed, and mitigation would be implemented if feasible and necessary.

The proposed Project could result in the development of industrial land uses that could be a source of odors. However, the actual uses that would be developed is not known at this time, as no specific development projects are currently proposed or have been identified. As such, the degree of impact with respect to potential odors associated with future projects and their effects on adjacent receptors is uncertain.

Existing Regulations and Proposed General Plan Policies and Standards That Provide Mitigation

Agricultural properties are protected pursuant to Chapter 14.05 of the Municipal Code, provided farming activities are properly conducted in accordance with City standards. General Plan Policy AG-1-6 limits the siting of projects with sensitive land uses within existing agricultural sites to mitigate odor impacts. Policy AG-1-3 allows for buffers or feathering of lot sizes between farmland and urban uses and property title disclosures, pursuant to Municipal Code Chapter 14.05, to reduce potential impacts.

General Plan Policy NR-4-13 and Standards NR-4-13.a and NR-4-13.b would prohibit siting of new sources of odors or siting of new sensitive land uses near existing sources of odor if the minimum screening distances listed in the SMAQMD CEQA Guide – Recommended Odor Screening Distances (SMAQMD 2009) is not met, or evidence is provided that a significant number of people would not be exposed to substantial odors.

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Conclusion

Implementation of the Project could result in increased exposure of sensitive receptors to odors. Implementation of General Plan Policies AG-1-3, AG-1-6, and NR-4-13 and Municipal Code Section 14.05 would help reduce exposure of substantial numbers of people to adverse odors, but there is inherent uncertainty regarding the size, land use type, specific building locations and site designs, and build-out periods for future individual development projects that would occur under the Project. Emissions of odors and exposure to existing odors would be assessed on a project-by-project basis. It is reasonably foreseeable that, depending on the project, receptors could be subjected to adverse odors; thus, this impact would be **potentially significant**.

Mitigation Measures

No additional feasible mitigation available beyond compliance with existing regulations and proposed General Plan policies.

Policies included in the proposed Project would help reduce the possibility of odor exposure in the Planning Area, but it cannot be assumed to be sufficient to reduce odors to less than significant levels. There are no additional plan-level measures available that would reduce impacts from short-term and long-term odors. All feasible odor reduction measures have been incorporated into the Project through the inclusion of the General Plan policies discussed above. There could be additional project-specific mitigation measures to reduce odors to less than significant levels. However, the nature, feasibility, and effectiveness of such project-specific mitigation cannot be determined at this time. As such, the City cannot assume that mitigation would be available and implemented such that all future odors would be reduced to less than significant levels. Therefore, this impact would remain **significant and unavoidable**.

Conflict with or Obstruct Implementation of an Applicable Air Quality Plan (Standard of Significance 4)

Impact 5.3.6 The Project would be substantially consistent with all applicable control measures in the Sacramento Regional NAAQS 8-Hour Ozone Attainment and Further Progress Plan (Attainment Plan), but because the Project would exceed the SMAQMD's air quality thresholds of significance, the Project would not be considered to be fully consistent with the Plan's goals. This impact would be **potentially significant**.

The primary goal of the Attainment Plan is to achieve attainment status for ozone under the NAAQS. The SMAQMD recommends that compliance with its CEQA thresholds of significance be used as the measure for determining consistency with the Attainment Plan's objectives to reduce ozone precursor emissions to levels below the NAAQS. If no significant air quality impacts are identified, after the application of all feasible mitigation, the Project would be consistent with the Attainment Plan. As explained in Impacts 5.3.1, 5.3.2, and 5.3.7, implementation of the Project would result in significant and unavoidable impacts after the application of all feasible mitigation. Therefore, the Project would not be considered fully consistent with the primary goal of the Attainment Plan.

As such, levels of criteria air pollutants associated with the Project during construction activity and under full buildout could conflict with long-term ozone planning efforts for the Sacramento region and/or contribute substantially to a net increase in ozone concentrations for Sacramento County, which is in nonattainment for both the State and federal standards for ozone. For these reasons, this impact would be **potentially significant**.

Mitigation Measures

No additional feasible mitigation available beyond compliance with existing regulations and proposed General Plan policies.

All feasible operational emission reduction measures have been incorporated into the Project through the inclusion of the General Plan policies. There are no additional plan-level measures available that would reduce impacts from short-term construction or long-term operational-related emissions. There could be additional project-specific mitigation measures to reduce emissions of air pollutants to levels below the SMAQMD's thresholds of significance. However, the nature, feasibility and effectiveness of such project-specific mitigation cannot be determined at this time. As such, the City cannot assume that mitigation would be available and implemented such that all future emissions of air pollutants would be reduced to less than significant levels. Therefore, this impact would remain **significant and unavoidable**.

5.3.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative setting for air quality is the Sacramento Valley Air Basin. The SVAB includes the counties of Sacramento, Placer, Yuba, Sutter, and parts of Solano and Yolo counties. The climate and geography of the lower SVAB severely limits the dilution and transportation of any air pollutants that are released to the atmosphere. At current levels of development (residential, commercial, industrial) and activity, the air basin exceeds the state/federal ambient standards for particulates and ozone. As a result, the region is required to submit air quality attainment plans (i.e., Sacramento Area Regional Ozone Attainment Plan and/or the Sacramento Area Regional PM₁₀ Attainment Plan) that present comprehensive strategies to reduce air pollutant emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations, enhancement of CEQA participation, implementation of a new and modified indirect source review program, adoption of local air quality plans, and stationary-, mobile, and indirect-source control measures. Cumulative growth in population, vehicle use, and industrial activity in the SVAB region could inhibit efforts to improve regional air quality and attain the ambient air quality standards. For example, the Capital SouthEast Connector project has proposed to construct a 35-mile-long multimodal transportation facility that would link communities in Sacramento and El Dorado counties, including Elk Grove, Rancho Cordova, Folsom, and El Dorado Hills. According to the EIR prepared for the Capital SouthEast Connector project, it would have a significant cumulative impact on NO_x emissions and there is no feasible mitigation to reduce NO_x emissions to a less than significant level. Therefore, the combined emissions from the Capital SouthEast Connector project and the Project would also exceed significance thresholds and the cumulative impact is considered significant.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Air Quality Impacts

Impact 5.3.7 The proposed Project in combination with growth throughout the air basin will exacerbate existing regional problems with criteria air pollutants and ozone precursors. This is considered a **cumulatively considerable** impact.

Due to the region's nonattainment status for ozone and PM, if Project-generated emissions of either of the ozone precursor pollutants (i.e., ROG and NO_x) or PM exceed the long-term SMAQMD

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thresholds, the Project's cumulative impacts would be considered significant as determined by the SMAQMD. In addition, if the Project results in a change in land use and corresponding increases in VMT, the regional emissions inventories contained in regional air quality control plans, such as the Sacramento Area Regional Ozone Attainment Plan and/or the Sacramento Area Regional PM₁₀ Attainment Plan, may not account for the resultant increase in VMT. Substantial increases in VMT that are not accounted for in the emissions inventory may result in a considerable cumulative contribution to the region's existing air quality nonattainment status.

The proposed Project would result in an increase in VMT not accounted for in these regional air quality control plans; however, the implementation of the aforementioned General Plan policies, as well as deployment of SB 743, would produce beneficial effects to ambient air quality. However, the efficacy of policies contained in the Mobility Element would be project-dependent and require project-specific environmental review.

The proposed Project includes specific policies (i.e., General Plan Policies MOB-1-1 and MOB-1-2) that target reductions in VMT within the Planning Area. General Plan Policy MOB-1-1 requires new projects to be consistent with State-mandated reductions in VMT through compliance with metrics and limits as contained in the General Plan Update. For projects that do not comply, all feasible mitigation measures necessary to reduce VMT to acceptable limits must be implemented. Further, the Statewide deployment of the provisions of SB 743 would manage congestion while promoting infill development and active transportation, thus reducing Statewide VMT and improving ambient air quality. However, the Project proposes changes in land uses as compared to baseline conditions and, as discussed in Impact 5.3.2, predicted long-term operational emissions attributable to the Project would exceed the SMAQMD significance thresholds. As such, development constructed and operated under the proposed Project could result in a **cumulatively considerable** contribution to regional problems with criteria air pollutants and ozone precursors.

Mitigation Measures

No additional feasible mitigation available beyond compliance with proposed General Plan policies.

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