3.3 AIR QUALITY

This section includes a discussion of existing air quality conditions, a summary of applicable air quality regulations, and an analysis of potential short-term and long-term air quality impacts that could result from implementation of a future corporation yard. The methods of analysis for short-term construction, long-term regional (operational), local mobile-source, and toxic air emissions are consistent with the recommendations of the Sacramento Metropolitan Air Quality Management District (SMAQMD), the California Air Resources Board (CARB), and the U.S. Environmental Protection Agency (EPA).

Comments received on the notice of preparation regarding air quality, included a comment from the California State Parks and Prairie City State Vehicular Recreation Area (SVRA) regarding air quality impacts to the project site from the dust generated by off-highway vehicle (OHV) recreation.

3.3.1 Regulatory Setting

Air quality within the project site is regulated through the efforts of various federal, State, regional, and local government agencies. These agencies work to improve air quality through legislation, planning, policy-making, education, and a variety of other programs. The agencies responsible for improving the air quality within the air basin are discussed below.

FEDERAL

U.S. Environmental Protection Agency

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

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 3.3-1, EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with aerodynamic diameter of 10 micrometers or less (PM_{10}) and fine particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and lead. The primary standards protect public health and the secondary standards protect public welfare. The CAA also required each state to prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. Individual SIPs are modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

Toxic Air Contaminants/Hazardous Air Pollutants

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

Table 3.3-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c]	
			Primary[b,d]	Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	–[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	–
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	–	–
	3-hour	–	–	0.5 ppm (1300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	–
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	–	Same as primary standard
	24-hour	50 µg/m^3	150 µg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	12.0 µg/m^3	15.0 µg/m^3
	24-hour	–	35 µg/m^3	Same as primary standard
Lead[f]	Calendar quarter	–	1.5 µg/m^3	Same as primary standard
	30-Day average	1.5 µg/m^3	–	–
	Rolling 3-Month Average	–	0.15 µg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	25 µg/m^3		
Vinyl chloride[f]	24-hour	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

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

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

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

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

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

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

[f] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. This allows for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2016a

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

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants, for which acceptable levels of exposure can be determined and for which ambient standards have been established (Table 3.3-1). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

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

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

STATE

CARB is the agency responsible for coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish California ambient air quality standards (CAAQS) (Table 3.3-1).

Criteria Air Pollutants

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

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

Toxic Air Contaminants

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

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

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

AB 617 of 2017 aims to help protect air quality and public health in communities around industries subject to the State's cap-and-trade program for GHG emissions, AB 617 imposes a new State-mandated local program to address non-vehicular sources (e.g., refineries, manufacturing facilities) of criteria air pollutants and TACs. The bill requires CARB to identify high-pollution areas and directs air districts to focus air quality improvement efforts through adoption of community emission reduction programs within these identified areas. Currently, air districts review individual sources and impose emissions limits on emitters based on best available control technology (BACT), pollutant type, and proximity to nearby existing land uses. This bill addresses the cumulative and additive nature of air pollutant health effects by requiring community-wide air quality assessment and emission reduction planning.

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

LOCAL

The project site lies within the jurisdictional boundaries of Sacramento County; therefore, the County's policies, as well as Sacramento LAFCo's polices, would apply. Furthermore, if the SOIA and annexation are approved, the project site would be in the jurisdiction of the City of Folsom. Thus, applicable policies of the City of Folsom's General Plan are described below.

Sacramento Metropolitan Air Quality Management District

Criteria Air Pollutants

SMAQMD is the primary agency responsible for planning to meet NAAQS and CAAQS in Sacramento County. SMAQMD works with other local air districts in the Sacramento region to maintain the region's portion of the SIP for ozone. The SIP is a compilation of plans and regulations that govern how the region and State will comply with the federal CAA requirements to attain and maintain the NAAQS for ozone. The Sacramento Region has been designated as a "severe" 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019.

SMAQMD has developed a set of guidelines for use by lead agencies when preparing environmental documents. The guidelines contain thresholds of significance for criteria pollutants and TACs, and also make recommendations for conducting air quality analyses. After SMAQMD guidelines have been consulted and the air quality impacts of a project have been assessed, the lead agency's analysis undergoes a review by SMAQMD. SMAQMD submits comments and suggestions to the lead agency for incorporation into the environmental document.

All projects are subject to adopted SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of future projects within the project site may include but are not limited to the following:

- **Rule 201**: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may be required to obtain permit(s) from SMAQMD before equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact SMAQMD early to determine whether a permit is required,

and to begin the permit application process. Portable construction equipment (e.g., generators, compressors, pile drivers, lighting equipment) with an internal combustion engine greater than 50 horsepower must have a SMAQMD permit or CARB portable equipment registration.

- **Rule 202**: New Source Review. The purpose of this rule is to provide for the issuance of authorities to construct and permits to operate at new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, by which authorities to construct such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards.

- **Rule 402**: Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other materials 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 developer or contractor is required to control dust emissions from earthmoving activities or any other construction activity to prevent airborne dust from leaving the project site.

- **Rule 442**: Architectural Coatings. The purpose of the rule is to limit the emissions of VOCs from the use of architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District.

- **Rule 902**: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of material containing asbestos.

Toxic Air Contaminants

At the local level, air districts may adopt and enforce CARB control measures. Under SMAQMD Rule 201 ("General Permit Requirements"), Rule 202 ("New Source Review"), and Rule 207 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from SMAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including New Source Review standards and air toxics control measures. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. Sensitive receptors are people, or facilities that generally house people (e.g., schools, hospitals, residences), that may experience adverse effects from unhealthful concentrations of air pollutants.

Odors

Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and SMAQMD. SMAQMD's Rule 402 (Nuisance) regulates odorous emissions.

Sacramento County General Plan

The following policies and standards of the *Sacramento County 2030 General Plan* (Sacramento County 2011) are applicable to the project:

- **Policy AQ-1.** New development shall be designed to promote pedestrian/bicycle access and circulation to encourage community residents to use alternative modes of transportation to conserve air quality and minimize direct and indirect emission of air contaminants.

- **Policy AQ-3.** Buffers and/or other appropriate mitigation shall be established on a project-by-project basis and incorporated during review to provide for protection of sensitive receptors from sources of air pollution or odor. CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (2005)

and SMAQMD's *Protocol for Evaluating the Location of Sensitive Land uses Adjacent to Major Roadways* (2011) shall be utilized when establishing these buffers.

- **Policy AQ-4.** Developments which meet or exceed thresholds of significance for ozone precursor pollutants as adopted by the SMAQMD, shall be deemed to have a significant environmental impact. An Air Quality Mitigation Plan shall be submitted to the County of Sacramento prior to project approval, subject to review and recommendation as to technical adequacy by the Sacramento Metropolitan Air Quality Management District.

- **Policy AQ-5.** Reduce emissions associated with vehicle miles travelled and evaporation by reducing the surface area dedicated to parking facilities; reduce vehicle emissions associated with "hunting" for on-street parking by implementing innovative parking solutions including, shared parking, elimination of minimum parking requirements, creation of maximum parking requirements, and utilize performance pricing for publicly owned parking spaces both on- and off-street, as well as creating parking benefit districts.

- **Policy AQ-10.** Encourage vehicle trip reduction and improved air quality by requiring development projects that exceed the SMAQMD's significance thresholds for operational emissions to provide on-going, cost-effective mechanisms for transportation services that help reduce the demand for existing roadway infrastructure.

- **Policy AQ-11**. Encourage contractors operating in the county to procure and to operate low-emission vehicles, and to seek low-emission fleet status for their off-road equipment.

- **Policy AQ-16.** Prohibit the idling of on- and off-road engines when the vehicle is not moving or when the off-road equipment is not performing work for a period of time greater than five minutes in any one-hour period.

- **Policy AQ-17.** Promote optimal air quality benefits through energy conservation measures in new development.

- **Policy AQ-19.** Require all feasible reductions in emissions for the operation of construction vehicles and equipment on major land development and roadway construction projects.

City of Folsom General Plan

The following policies of the *City of Folsom General Plan* (1993) are applicable to the project:

- **Policy 31.3.** The City shall encourage the adoption of more stringent vehicle emission standards and enhancements to the Smog Check program through active participation in hearings held by the State Legislature, CARB, and the Bureau of Automotive Repair.

- **Policy 31.4.** To minimize air quality impacts, mitigation measures shall be required for transportation emissions associated with all development estimated to generate 2,000 or more trips per day. Measures may include:

    1. Project proponent funding of roadway improvements.

    2. Commercial/industrial project proponent sponsorship of van pools or club buses.

    3. Project proponent funded transit subsidies sufficient to reduce emissions from transit through the substitution of diesel-fueled buses with buses powered by alternative fuels, such as methanol and electric.

    4. Commercial/industrial project sponsored daycare and employee services at the employment site.

    5. Park and ride lots.

- **Policy 31.5.** The City shall work with CARB and SMAQMD in establishing a carbon monoxide monitoring program in order to accurately determine the status of carbon monoxide air quality and to quantify the impacts of growth and development in the Folsom area.

- **Policy 31.6.** Non-retail industrial and non-retail commercial projects which directly emit air pollutants should be located in areas designated for industrial development, and separated from residential mixed-use areas.

- **Policy 31.7.** All employers of 50 or more full-time employees per shift shall develop and implement incentive-based trip reduction programs for their employees. Incentives may include:

    1. Provision of reserved and preferentially located parking spaces for the exclusive use of employees who actively participate in ridesharing.

    2. Provision of secure bicycle storage facilities.

    3. Provision of shower and locker facilities for use by employees who commute by non-motorized means.

    4. Distribution by employers of current information regarding the availability, cost, and schedules of public transit.

    5. Employer provision of economic incentives to maximize the use of transit, ridesharing, van pooling and non-motorized transportation.

3.3.2 Environmental Setting

The project site is in the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Shasta, Tehama, Glenn, Butte, Colusa, Yuba, Sutter, Yolo, Sacramento Counties and a portion of Placer and Solano Counties.

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

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

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

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50 degrees Fahrenheit (°F) to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also, characteristic of SVAB winters are periods, of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

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

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

The local meteorology of the project site and surrounding area is represented by measurements recorded at the Western Regional Climate Center's (WRCC) meteorological station at Folsom Dam. The average total annual precipitation is approximately 24 inches. January temperatures range from an average minimum of 38°F to an average maximum of 54°F. July temperatures range from an average minimum of 60°F to an average maximum of 95°F (WRCC 2017a). The predominant wind direction is from the south (WRCC 2017b).

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants indicate the quality of the ambient air. Brief descriptions of key criteria air pollutants in the SVAB and their health effects are provided below. Criteria air pollutants include ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. However, ozone, PM_{10}, and $PM_{2.5}$ are the criteria air pollutants of primary concern in this analysis because of their nonattainment status with respect to the applicable NAAQS and/or CAAQS. The attainment status of criteria air pollutants in Sacramento County with respect to the CAAQS and the NAAQS are shown in Table 3.3-2. Monitoring data representative of ambient air concentrations in the project site are provided in Table 3.3-3.

Ozone

Ground-level ozone is not emitted directly into the air, but is created by chemical reactions between ROG and NO_X. This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone at ground level is a harmful air pollutant, because of its effects on people and the environment, and is the main ingredient in smog (EPA 2016).

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2016). Emissions of the ozone precursors ROG and NO_X have decreased over the past two decades because of more stringent motor vehicle standards and cleaner burning fuels (CARB 2014).

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with

photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local sources of NO_X emissions (EPA 2012).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, or pulmonary edema, breathing abnormalities, cough, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2016).

Particulate Matter

PM_{10} is emitted directly into the air, and includes fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires and natural windblown dust, as well as particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2014; EPA 2016). $PM_{2.5}$ includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Direct emissions of $PM_{2.5}$ have steadily declined in the SVAB between 2000 and 2010 and then are projected to increase very slightly through 2035. Emissions of $PM_{2.5}$ in the SVAB are primarily generated by the same sources as emissions of PM_{10} (CARB 2014).

Acute health effects of PM_{10} exposure include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, and premature death. Chronic health effects include alterations to the immune system and carcinogenesis (EPA 2016).

Table 3.3-2 Attainment Status Designations for Sacramento County

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Attainment (1-hour)[1]	Nonattainment (1-hour) Classification=Severe[2]
	Nonattainment (8-hour)[3] Classification=Severe	Nonattainment (8-hour)
	Nonattainment (8-hour)[4] Classification=Severe	
Respirable particulate matter (PM_{10})	Attainment (24-hour)	Nonattainment (24-hour)
		Nonattainment (Annual)
Fine particulate matter ($PM_{2.5}$)	Nonattainment (24-hour)	(No State Standard for 24-Hour)
	Attainment (Annual)	Attainment (Annual)
Carbon monoxide (CO)	Attainment (1-hour)	Attainment (1-hour)
	Attainment (8-hour)	Attainment (8-hour)
Nitrogen dioxide (NO_2)	Unclassified/Attainment (1-hour)	Attainment (1-hour)
	Unclassified/Attainment (Annual)	Attainment (Annual)
Sulfur dioxide (SO_2)[5]	(Attainment Pending) (1-Hour)	Attainment (1-hour)
		Attainment (24-hour)
Lead (Particulate)	Attainment (3-month rolling average)	Attainment (30-day average)
Hydrogen Sulfide	No Federal Standard	Unclassified (1-hour)
Sulfates		Attainment (24-hour)
Visibly Reducing Particles		Unclassified (8-hour)
Vinyl Chloride		Unclassified (24-hour)

Notes:
[1] Air Quality meets federal 1-hour Ozone standard (77 FR 64036). EPA revoked this standard, but some associated requirements still apply. SMAQMD attained the standard in 2009. SMAQMD has requested EPA recognize attainment to fulfill the requirements.
[2] Per Health and Safety Code (HSC) § 40921.5(c), the classification is based on 1989 – 1991 data, and therefore does not change.
[3] 1997 Standard.
[4] 2008 Standard.
[5] 2010 Standard.
Source: SMAQMD 2016

MONITORING STATION DATA AND ATTAINMENT DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. Table 3.3-3 summarizes the air quality data measured at monitoring stations near the project site during the last three years (2013–2015). The Folsom-Natoma Street station is the closest station to the project site with recent data for ozone and $PM_{2.5}$. The Roseville-N Sunrise Boulevard station is the closest station to the project site with recent data for PM_{10}.

Table 3.3-3 Summary of Annual Data on Ambient Air Quality (2013-2015)[1]

	2013	2014	2015
Ozone			
Maximum concentration (1-hr/8-hr avg, ppm)	0.100/0.084	0.114/0.093	0.111/0.094
Number of days State standard exceeded (1-hr/8-hr)	7/34	3/11	6/23
Number of days national standard exceeded (8-hr)	34	11	23
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration (24-hour µg/m^3)	52.0	38.1	35.7
Number of days national standard exceeded (24-hour measured)	1	1	0
Respirable Particulate Matter (PM_{10})			
Maximum concentration (24-hour µg/m^3)	54.1	31.8	59.1
Number of days State standard exceeded (24-hour measured)	1	0	1
Number of days national standard exceeded (24-hour measured)	0	0	0

Notes: µg/m^3 = micrograms per cubic meter; avg = average; hr = hour; ppm = parts per million
[1] Measurements from the Folsom-Natoma Street Station for ozone and fine particulate matter ($PM_{2.5}$), and Roseville-N Sunrise Boulevard for respirable particulate matter PM_{10}.
Source: CARB 2017

Both CARB and EPA use monitoring data to designate areas according to their attainment status for criteria air pollutants (attainment designations are summarized above in Table 3.3-2).

TOXIC AIR CONTAMINANTS

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

According to the California Almanac of Emissions and Air Quality[1] (CARB 2009), most of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being exhaust emissions of particulate matter from diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs that pose the greatest level of risk in California include benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene. Sources of these TACs vary considerably and include (but are not limited to) consumer products, gasoline dispensing stations, auto

[1] Although a more recent version of the almanac was available in 2013, this 2009 version of the almanac is the latest version that contains TAC information.

repair and auto body coating shops, dry cleaning establishments, chrome plating and anodizing shops, welding operations, and other stationary sources.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, CARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB in the year 2000. Since 1990, the health risk associated with diesel PM has been reduced by 52 percent. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2014). There are no existing TAC sources in the project vicinity.

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human. There are no existing odor sources (e.g., wastewater treatment facilities, landfills, composting facilities) in the project vicinity.

SENSITIVE RECEPTORS

Sensitive receptors are generally considered to include those land uses where exposure to pollutants could result in health-related risks to individuals. Residential dwellings and places where people recreate or congregate for extended periods of time such as parks or schools are of primary concern because of the potential for increased and prolonged exposure of individuals to pollutants. There are no existing sensitive receptors located within 1,000 feet of the project site.

3.3.3 Environmental Impacts and Mitigation Measures

METHODOLOGY

While approval of the SOIA and annexation, along with changes to land use and zoning designations, would not result in physical changes to the site, approval of the SOIA/annexation would remove barriers to the development of a future corporation yard at this site. Therefore, this analysis considers the potential environmental impacts of the development of a future corporation yard.

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

Construction and operational emissions of a future corporation yard are compared to SMAQMD-recommended thresholds.

Construction and operational emissions of criteria air pollutants and precursors were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 computer program (CAPCOA 2016), as recommended by SMAQMD. Modeling was based on project-specific information (e.g., size, area to be graded, area to be paved) where available; reasonable assumptions based on typical construction activities; and default values in CalEEMod that are based on the project's location and land use type. Construction would begin as early as 2022 over an estimated period of 24 months, and project buildout is anticipated to be in 2050. The City currently has a wide variety of uses at the current corporation yard and supporting locations, and most of these uses would be moved to the new yard. The new yard would include uses by the following City departments: Parks and Recreation, Public Works, and Utilities. Table 3.3-4 shows the anticipated facility needs at project buildout. The covered and uncovered outdoor storage areas were modeled as paved areas in CalEEMod.

Table 3.3-4 Proposed Land Use (Buildout-2050)

Space Component	Modeled Land Use Type
Parks and Recreation Department	
Park Maintenance	Unrefrigerated Warehouse – No Rail
Public Works Department	
Street Maintenance	Unrefrigerated Warehouse – No Rail
Transit	Unrefrigerated Warehouse – No Rail
Fleet Management Division	Unrefrigerated Warehouse – No Rail
Solid Waste	
Collections	Unrefrigerated Warehouse – No Rail
Household Hazardous Waste (HHW)	Unrefrigerated Warehouse – No Rail
Transfer Station	Unrefrigerated Warehouse – No Rail
Environmental and Water Resources (Utilities) Department	
Administration	Office
Utility Maintenance	Unrefrigerated Warehouse – No Rail
Wastewater	Unrefrigerated Warehouse – No Rail
Water	Unrefrigerated Warehouse – No Rail
Water Treatment Plant - Plant Maintenance	Unrefrigerated Warehouse – No Rail
Common/Shared	
Office Support	Office
Field/Shop Support	Unrefrigerated Warehouse – No Rail
Total	

Notes: SF = square feet

Source: City of Folsom 2008

Specific model assumptions and inputs for these calculations can be found in Appendix B.

CO impacts were assessed qualitatively, using the screening criteria set forth by SMAQMD and results from the project-specific traffic study. The level of health risk from exposure to construction- and operation-related TAC emissions was assessed qualitatively. This assessment was based on the proximity of TAC-generating construction activity to off-site sensitive receptors, the number and types of diesel-powered construction equipment being used, and the duration of potential TAC exposure.

Impacts related to odors were also assessed qualitatively, based on proposed construction activities, equipment types and duration of use, overall construction schedule, and distance to nearby sensitive receptors. To evaluate an odor impact, SMAQMD recommends the lead agency provide the buffer distance and a description of the land features and topography in the buffer zone that separates nearby sensitive receptors and the odor source.

THRESHOLDS OF SIGNIFICANCE

Per Appendix G of the CEQA Guidelines and SMAQMD recommendations, air quality impacts would be significant if development of the project site would:

- cause construction-generated emissions of criteria air pollutant or precursors that exceed the SMAQMD-recommended thresholds of 85 lb/day for NO_X, 80 lb/day and 14.6 tons/year for PM_{10}, and 82 lb/day and 15 tons/year for $PM_{2.5}$ and/or uncontrolled fugitive dust emissions;
- result in a net increase in long-term operational emissions of criteria air pollutant or precursors that exceed the SMAQMD-recommended thresholds of 65 lb/day for ROG and NO_X, 80 lb/day and 14.6 tons/year for PM_{10}, and 82 lb/day and 15 tons/year for $PM_{2.5}$.;
- result in long-term operational local mobile-source CO emissions that would violate or contribute substantially to localized concentrations that exceed the 1-hour CAAQS of 20 ppm or the 8-hour CAAQS of 9 ppm;
- generate TAC emissions that would expose sensitive receptors to an incremental increase in cancer risk that that exceed 10 in 1 million and/or a hazard index of 1.0 or greater; or
- create objectionable odors affecting a substantial number of people.

ISSUES NOT DISCUSSED FURTHER

All issues applicable to air quality listed under the significance criteria above are addressed in this section.

As described in Chapter 2, *Project Description, t*he project has three potential access options. The evaluation of air quality would not be affected by these options. Therefore, this is not discussed further in this section.

ENVIRONMENTAL IMPACTS

Impact 3.3-1: Construction emissions of criteria air pollutants and ozone precursors.

Construction-related activities from a future corporation yard would result in emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ from site preparation (e.g., excavation, clearing), off-road equipment, material and equipment delivery trips, and worker commute trips, and other miscellaneous activities (e.g., building construction, asphalt paving, application of architectural coatings). Construction activities would not result in mass emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ that would exceed SMAQMD's thresholds of significance. Therefore, construction-generated emissions would not contribute to the existing nonattainment status of the SVAB for ozone and PM. This impact would be **less than significant**.

Construction-related activities from a future corporation yard would result in emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ (a subset of PM_{10}) from site preparation (e.g., excavation, clearing), off-road equipment, material delivery, worker commute trips, and other miscellaneous activities (e.g., building construction, asphalt paving, application of architectural coatings). Fugitive dust emissions of PM_{10} and $PM_{2.5}$ are associated primarily with site preparation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and vehicle miles traveled on and off the site. Emissions of ozone precursors, ROG and NO_X, are associated

primarily with construction equipment and on-road mobile exhaust. Paving and the application of architectural coatings result in off-gas emissions of ROG. PM_{10} and $PM_{2.5}$ are also contained in vehicle exhaust.

Typical construction activities would require all-terrain forks, fork lifts, cranes, pick-up and fuel trucks, compressors, loaders, backhoes, excavators, dozers, scrapers, pavement compactors, welders, concrete pumps, concrete trucks, and off-road haul trucks, as well as other diesel-fueled equipment as necessary.

Construction activities could begin as early as 2022 and assumed to be complete in 24 months. Conservative assumptions were used and individual phases were overlapped (i.e., site preparation, grading, building construction, and architectural coating) to account for construction activities occurring simultaneously. As such, reported emissions represent a conservative estimate of maximum daily emissions. It is also important to note that as construction continues in the future, equipment exhaust emission rates would decrease as newer, more emission-efficient construction equipment replaces older, less efficient equipment. For specific assumptions and modeling inputs, refer to Appendix B.

The project would implement SMAQMD's Basic Construction Emission Control Practices in accordance with SMAQMD requirements to minimize diesel PM and NO_X emissions. In accordance with SMAQMD guidance (SMAQMD 2009), the measures and quantifiable mass emission reductions are included below:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads (55 percent reduction in fugitive dust emissions).
- Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used (9 percent reduction in fugitive dust).
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

These measures collectively reduce fugitive dust emissions by 54 percent. Although these measures would reduce diesel PM and NO_X emissions, the reductions are not quantified (SMAQMD 2009).

Table 3.3-5 summarizes the modeled maximum daily emissions from the construction activities by year over the estimated 24-month buildout period (ending in 2023). Annual emissions for PM_{10} and $PM_{2.5}$ for each modeled year of construction were also estimated. The emissions reductions from the dust control measures were not quantified.

As shown in Table 3.3-5, maximum daily emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ and annual emissions of PM_{10} and $PM_{2.5}$ would not exceed the respective thresholds throughout the estimated 24-month buildout period. Based on conservative modeling, construction of a future corporation yard would not exceed NO_X,

PM_{10}, and $PM_{2.5}$ thresholds. Therefore, construction emissions would not contribute to the existing nonattainment condition in the SVAB with respect to the CAAQS and NAAQS for ozone and PM. This would be a **less-than-significant** impact.

Table 3.3-5 Summary of Maximum Daily Emissions of Criteria Air Pollutants and Precursors Associated with Construction a Future Corporation Yard

Construction Year	ROG lb/day	NO_X lb/day	PM_{10}, lb/day (fugitive/exhaust/total)	PM_{10}, tons/year (fugitive/exhaust/total)	$PM_{2.5}$ (fugitive/exhaust/total)	$PM_{2.5}$ tons/year (fugitive/exhaust/total)
2022	17	77	38/4/41	<1/<1/<1	20/3/24	<1/<1/<1
2023	90	33	18/2/20	<1/<1/<1	10/1/11	<1/<1/<1
SMAQMD Threshold of Significance	NONE	85	-/-/80	14.6	-/-/82	15
Exceed Significance Threshold?	N/A	No	No	No	No	No

Notes: lb/day = pounds per day; N/A = not applicable; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; tons/year = tons per year

Total values may not add correctly due to rounding. See Appendix B for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2017

Mitigation Measures

None required.

Impact 3.3-2: Long-term operational emissions of air pollutants.

Implementation of a future corporation yard would not result in long-term operational emissions of ROG, NO_X, and PM_{10} that exceed SMAQMD's thresholds of significance (65 lb/day for ROG, 65 lb/day for NO_X, 80 lb/day and 14.6 tons/year for PM_{10}). Therefore, operation-generated emissions would not conflict with the air quality planning efforts and contribute substantially to the nonattainment status of SVAB with respect to ozone and PM_{10}. This impact would be **less than significant**.

Operations of a future corporation yard would result in the generation of long-term operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ because of mobile, stationary, and area-wide sources. The City currently has a wide variety of uses at the current corporation yard and locations, and these uses would be moved to the new yard. Mobile-source emissions of criteria air pollutants and precursors would result from vehicle trips generated by employee commute trips and fleet vehicles. Stationary and area-wide sources would include the combustion of natural gas for space and water heating (i.e., energy use), the use of landscaping equipment and other small equipment, the periodic application of architectural coatings, and generation of ROG from the use of consumer products.

Table 3.3-6 summarizes the maximum daily operation-related emissions of criteria air pollutants during the winter and summer seasons, as well as annual emissions of PM_{10} and $PM_{2.5}$, at full buildout. Table 3.3-6 shows the annual operation-related emissions of criteria air pollutants at full buildout (2050). Emissions were calculated based on the proposed land use in CalEEMod and trip rates from Section 3.11, *Transportation and Circulation*. It was assumed that the existing trip generation of the Leidesdorff Yard would cease, and would all occur at a future corporation yard. At complete buildout, a future corporation yard would generate a total (i.e., additional trips plus existing) of up to 937 average daily trips (ADT). CalEEMod default trip distance for the County were used. Trip rate estimates were derived from data generated in the traffic impact analysis conducted for a future corporation yard (see Section 3.11, *Transportation and Circulation*). Twenty-five percent of project-generated trips entering and leaving a future corporation yard would be heavy-duty vehicles and 6 percent would be buses. For detailed modeling assumptions and inputs refer to Appendix B. As shown in Table 3.3-6, operation-related activities would not exceed SMAQMD-recommended thresholds of significance for any criteria air pollutant. Thus, this would be a **less-than-significant** impact.

Table 3.3-6 Summary of Maximum (Unmitigated) Operational Emissions of Criteria Air Pollutants and Precursors at Full Buildout (2050)

Source Type	Maximum Daily Emissions (lb/day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
SUMMER				
Area[1]	5	<1	<1	<1
Energy[2]	<1	<1	<1	<1
Mobile	2	9	6	2
Total Summer Daily Emissions	**7**	**9**	**6**	**2**
WINTER				
Area[1]	5	<1	<1	<1
Energy[2]	<1	<1	<1	<1
Mobile	2	9	6	2
Total Winter Daily Emissions	**7**	**9**	**6**	**2**
Annual Emissions	**N/A**	**N/A**	**2 tons/year**	**<1 tons/year**
SMAQMD Threshold of Significance[3]	65	65	80 lb/day and 14.6 tons/year	82 lb/day and 15 tons/year
Exceed Significance Threshold?	No	No	No	No

Notes: Notes: lb/day = pounds per day; N/A = not applicable; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; ROG = reactive organic gases; tons/year = tons per year

[1] Area-source emissions include emissions from landscaping, application of architectural coatings, and consumer products, and are estimated based on default model settings.

[2] Energy emissions include off-site emissions associated with natural gas consumption for space heating/cooling, and appliance use.

[3] Mass emission significance criteria apply to the sum of area, energy, and mobile sources.

Bold values indicate emissions that would exceed local significance criteria. Total values may not add correctly due to rounding. See Appendix B for detailed input parameters and modeling results.

Source: Modeling performed by Ascent Environmental in 2017

Mitigation Measures

None required.

Impact 3.3-3: Mobile-source CO concentrations.

Long-term operation-related local mobile-source emissions of CO generated by the development a future corporation yard would not violate a standard or contribute substantially to an existing or projected air quality violation or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be **less than significant**.

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under certain meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels at nearby sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. As a result, it is recommended that CO not be analyzed at the regional level, but at the local level.

Construction would occur over at least 24 months and, therefore, traffic related to construction activities would also be spread over the duration of construction activities. As such, construction-generated traffic is not anticipated to result in large peaks at any one time over the course of construction. This analysis focuses on operational-related traffic.

Traffic generated by a future corporation yard would be associated primarily with the operational phase. At complete buildout, a future corporation yard would generate up to 937 ADT, including up to 83 trips during the a.m. peak hour and up to 31 during the p.m. peak hour (see Section 3.11, *Transportation and Circulation*). Heavy-duty vehicles would constitute 25 percent of the trips generated by a future corporation yard.

SMAQMD provides a screening methodology to determine whether CO emissions generated by traffic at congested intersections have the potential to exceed, or contribute to an exceedance of, the 8-hour CAAQS of 9.0 micrograms per cubic meter (µg/m^3) or the 1-hour CAAQS of 20.0 µg/m^3. The screening methodology has two tiers of screening criteria. If the first set is not met, then the second tier may be applied. It states that the following criteria must be met:

First-Tier
A project will result in a less-than-significant impact to air quality for local CO if:

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

Second-Tier
If all the following criteria are met, a project will result in a less-than-significant impact to air quality for local CO.

- The project will not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The project will 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 will 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 CalEEMod model).

Based on the traffic study conducted (see Section 3.11, *Transportation and Circulation*) a future corporation yard would result in the deterioration of LOS to area intersections. This would include the following intersections: Prairie City Road and U.S. Route 50 (U.S. 50) (Westbound ramps), and Prairie City Road and White Rock Road. Further, Scott Road (Eastbound) and White Rock Road intersection near the future corporation yard already experiences a LOS of E and would experience added traffic volume as a result of a future corporation yard. Therefore, both conditions of the first tier of screening would occur so a future corporation yard traffic conditions are evaluated against SMAQMD's second tier of screening.

As described in the traffic study conducted for a future corporation yard (see Table 3.11-4 in Section 3.11, *Transportation and Circulation*), a future corporation yard would generate a maximum of 83 trips during the a.m. peak hour and up to 31 during the p.m. peak hour. Therefore, none of the intersections would be anticipated to accommodate traffic volumes that would exceed 31,600 vehicles per hour, even assuming all trips occurred at the same intersection. The total trip generation of a future corporation yard is 937, which is below the criteria for a single intersection. Also, due to stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, CO emissions are expected to be substantially lower in future years than under existing conditions. Furthermore, a future corporation yard would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, below-grade roadway, or other location in which horizontal or vertical mixing of mobile-source CO emissions would be substantially limited. Thus, local mobile-source CO emissions generated by a future corporation yard would not result in or substantially contribute to concentrations that exceed the 1-hour or 8-hour ambient air quality standards for CO. As a result, this impact would be **a less-than-significant** impact.

Mitigation Measures
None required.

Impact 3.3-4: Exposure of sensitive receptors to TACs.

Construction- and operation-related emissions of TACs associated with the implementation of a future corporation yard would result an incremental increase in cancer risk greater than 10 in one million or a hazard index greater than 1.0 at existing or future sensitive receptors. Therefore, this impact would be potentially **significant**.

Particulate exhaust emissions from diesel fueled engines (diesel PM) was identified as a TAC by CARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed above in Section 3.3.1, *Regulatory Setting*, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs (CARB 2003). With regards to exposure of diesel PM, the dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher level of health risk for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period. According to the Office of Environmental Health Hazard Assessment (OEHHA), *Guidance Manual for Preparation of Health Risk Assessments*, which determine the exposure of sensitive receptors to TAC emissions should be based on a 30-year exposure period for estimating cancer risk at the maximum exposed individual resident (MEIR), with 9- and 70-year exposure periods at the MEIR as supplemental information. Furthermore, 70-year exposure period is required for estimating cancer burden or providing an estimate of population-wide risk (OEHHA 2015:8-1).

The exposure of sensitive receptors to TAC emissions from construction and operational sources generated by a future corporation yard are discussed separately below. Diesel PM is the focus of this analysis because it is known that diesel PM would be emitted during construction and operation of a future corporation yard.

Construction

Construction-related activities would result in temporary, intermittent emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used for site preparation, grading, paving, on-road truck travel, and other miscellaneous activities. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods of time such that they would expose a single receptor to excessive diesel PM emissions. This analysis focuses primarily on heavy-duty construction equipment used on-site that may affect nearby off-site existing and future land uses.

It is important to consider that the use of off-road heavy-duty diesel equipment would be limited to the construction phase. As construction progresses, activity intensity and duration would vary throughout the site. Emissions of diesel PM would not be generated at any single location during the entire construction phase because construction would occur at different locations throughout a future corporation yard. As such, diesel PM-emitting construction activity would not take place near any single existing or future receptor for extended periods of time, or even during the entire construction period.

There are no existing off-site residential receptors located within 1,000 feet of a future corporation yard; however, there are proposed residential receptors located approximately 250 feet north of a future corporation yard. The proposed residential receptors could be occupied during construction of a future corporation yard that could be exposed to TAC emissions from construction sources. Studies show that diesel PM is highly dispersive, and receptors must be near emission sources to result in the possibility of exposure to concentrations of concern and must be in close proximity for a long duration of time.

Construction activities are temporary and intermittent in nature and diesel PM are highly dispersive; however, construction-related TAC emissions could expose sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0.

Long-Term Operation

Operation of the Prairie City SVRA OHV recreation generates fugitive dust; however, the Prairie City SVRA OHV track is located 2,300 feet south of a future corporation yard. Furthermore, a future corporation yard

does not propose addition of any new sensitive receptors, and operation of a future corporation yard includes industrial activities which are compatible with the OHV recreation. To limit fugitive dust, Prairie City SVRA limits vehicle speeds in the unpaved, non-OHV-riding areas; implements fugitive dust mitigation practices involving water and dust suppressants on a regular schedule and as needed; applies moisture retention chemicals to the soil; and amends track soils with sand, topsoil, and rice hulls as needed (California State Parks 2015). Therefore, the separating distance and fugitive dust control measures would minimize fugitive dust generated by operation of the Prairie City SVRA OHV.

A future corporation yard does not include the addition of any new sensitive receptors so this impact addresses TAC sources associated with operation of the new and relocated corporation yard. Operation from a future corporation yard could result in new sources of TACs associated with an increase in heavy-duty truck trips (i.e., diesel exhaust) on City roads, diesel exhaust emissions associated with daily operational activities at the corporation yard (e.g., loading, unloading, idling, fueling). There are no existing off-site residential receptors located within 1,000 feet of the future corporation yard; however, there are proposed residential receptors located approximately 250 feet north of the project site that, if constructed and operated prior to the construction of the corporation yard, could be exposed to TAC emissions from operational sources.

The future corporation yard would result in increases in mobile-source emissions on local roadways, including US 50, associated with traffic generated by a future corporation yard. Existing traffic volumes on US 50 are approximately 94,000 per day (Caltrans 2017). Guidance from SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways* and CARB's *Air Quality and Land Use Handbook* recommends that new sensitive receptors not be placed within 500 feet of freeways or urban streets with volumes that exceed 100,000 per day (CARB 2005).

Based on the traffic study conducted, the future corporation yard would result in 937 ADT (i.e., new TAC sources), traveling through 12 different intersections (see Table 3.11-7 in Section 3.11, *Transportation and Circulation*). Total trips generated by a future corporation yard dispersed over many intersections and roadways throughout the project site would result in fewer vehicles than 937 on any given road, and therefore; would not be considered a substantial increase in mobile-source TACs (CARB 2005). A future corporation yard-related increases in TACs would not result in a substantial increase to existing TAC levels on existing roadways.

CARB's *Air Quality and Land Use Handbook* recommends that new sensitive receptors not be placed within 1,000 feet of a distribution center that accommodates more than 100 trucks per day (CARB 2005). Although no existing off-site residential receptors are located within 1,000 feet of a future corporation yard, there are proposed residential receptors located approximately 250 feet north of a future corporation yard. Diesel PM-generating trucks loading/unloading and idling at a future corporation yard could potentially expose future sensitive receptors to increased TAC emissions. In summary, construction-related emissions of TACs associated with the implementation a future corporation yard would not result an incremental increase in cancer risk greater than 10 in one million or a hazard index greater than 1.0 at existing or future sensitive receptors. However, diesel PM-generating trucks loading/unloading and idling at a future corporation yard could expose residents of nearby approved developments to increased TAC emissions, thus resulting in an incremental increase in cancer risk that that exceeds 10 in one million and/or a hazard index of 1.0 or greater. This impact would be **significant**.

Mitigation Measure 3.3-1: Incorporate design features to minimize exposure of sensitive receptors to TACs.

Prior to construction, the City of Folsom will implement the following measures to address TAC exposure:

Construction

- Enforce idling time restrictions for construction vehicles;
- Require construction vehicles to operate with the highest tier engines commercially available; and
- Increase use of electric and renewable fuel-powered construction equipment.

Operation

- Proposed high-diesel truck traffic areas that have the potential to emit TACs or host TAC-generating activity shall be located as far away from existing and proposed off-site sensitive receptors as possible such that they do not expose sensitive receptors to TAC emissions that exceed an incremental increase of 10 in one million for the cancer risk and/or a noncarcinogenic Hazard Index of 1.0; and

- Signs shall be posted at all truck loading areas which indicate that diesel powered delivery trucks must be shut off when not in use for longer than 5 minutes on the premises to reduce idling emissions of diesel PM.

Significance after Mitigation

Implementation of Mitigation Measure 3.3-1 would incorporate measures to minimize exposure of sensitive receptors and ensure that any construction activities and new sources of TACs associated with a future corporation yard construction and operation would not expose sensitive land uses to excessive TAC levels. Thus, the TAC sources generated by a future corporation yard construction and operation would not result in an incremental increase in cancer risk greater than 10 in one million or a hazard index greater than 1.0 at existing or future sensitive receptors and this impact would be reduced to **less than significant**.

Impact 3.3-5: Exposure of sensitive receptors to odors.

A future corporation yard would introduce new odor sources into the area (e.g., temporary diesel exhaust emissions during construction and heavy-duty trucks associated with industrial land use). Construction and long-term operation of a future corporation yard would not result in the exposure of sensitive receptors to excessive odors. Therefore, this impact would be **less than 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 affected receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generate citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose a substantial number of people to objectionable odors would be deemed to have a significant impact.

Minor odors from the use of heavy-duty diesel equipment, and the laying of asphalt during construction activities would be intermittent and temporary, and would dissipate rapidly from the source with an increase in distance. Proposed residential receptors are located to the north of a future corporation yard. Construction activities would primarily occur during daytime hours, when many residents who are employed or are students typically are not home. Thus, the approved surrounding sensitive receptors would not be subject to potential objectionable odors associated with construction activities.

Operation of the industrial land use would generate minor odors associated with exhaust fumes from heavy-duty vehicles; however, a future corporation yard would not generate substantial objectionable odors. The site is surrounded by mostly vacant, undeveloped land. An aggregate quarry is located to the south and Aerojet's Area 41 remediation site is to the east. No major odor sources (i.e., dairy, wastewater treatment plant, landfill) exist in the immediate vicinity of a future corporation yard. Therefore, the implementation of a future corporation yard would not result in exposure of a substantial number of people to objectionable odors. This would be a **less-than-significant** impact.

Mitigation Measures

No mitigation is required.