3A.2 AIR QUALITY – LAND

3A.2.1 AFFECTED ENVIRONMENT

The SPA is located in Sacramento County, California, which is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). SMAQMD is the primary local agency with respect to air quality for all of Sacramento County. Sacramento County is within the Sacramento Valley Air Basin (SVAB), which also includes all of Butte, Colusa, Glenn, Shasta, Sutter, Tehama, Yolo, and Yuba Counties, the western portion of Placer County, and the eastern portion of Solano County. Off-site elements of the project are located in Sacramento and El Dorado Counties, for which air quality is also regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB); at a local level, air quality in these two counties is regulated by SMAQMD and the El Dorado County Air Quality Management District (EDCAQMD), respectively. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent. Applicable regulations associated with criteria air pollutant, TAC, and odor emissions are described separately below. Air quality in this area is determined by such natural factors as topography, climate, and meteorology, in addition to the presence of existing air pollution sources and conditions. These factors are discussed below.

TOPOGRAPHY, CLIMATE, AND METEOROLOGY

The SVAB is relatively flat, bordered by mountains to the east, west, and north. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento–San Joaquin River Delta, bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Periods of dense and persistent low-level fog that are most prevalent between storms are characteristic of SVAB winter weather. From May to October, the region's intense heat and sunlight lead to high ozone 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 area results from air masses that move in from the Pacific Ocean during the winter months. These storms usually move from the west or northwest. More than half the total annual precipitation falls during the winter rainy season (November–February); the average winter temperature is a moderate 49 degrees Fahrenheit (°F). During the summer, daily temperatures range from 50°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.

Regional flow patterns affect air quality patterns by moving pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. An inversion layer develops when a layer of warm air traps cooler air close to the ground. Such temperature inversions hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground. During summer mornings and afternoons, these inversions are present over the SPA. During summer's longer daylight hours, plentiful sunshine provides the energy needed to fuel photochemical reactions between reactive organic gases (ROGs) and oxides of nitrogen (NO), which results in ozone formation.

In the winter, temperature inversions dominate during the night and early morning hours but frequently dissipate by afternoon. The greatest pollution problems during this time of year are from carbon monoxide (CO) and NO_X. High CO concentrations occur on winter days with strong surface inversions and light winds. CO transport is extremely limited.

The local meteorology of the project area is represented by measurements recorded at the Folsom Dam station. The normal annual precipitation, which occurs primarily from November through March, is approximately 24 inches (Western Regional Climate Center 2009). January temperatures range from an average minimum of 37.9°F

to an average maximum of 53.7°F. July temperatures range from an average minimum of 60.3°F to an average maximum of 94.5°F (Western Regional Climate Center 2009). The predominant wind direction and speed is from the south-southwest at approximately 10 mph (ARB 1994).

EXISTING AIR QUALITY—CRITERIA AIR POLLUTANTS

California and National Ambient Air Quality Standards

ARB and EPA currently focus on the following air pollutants as indicators of ambient air quality: ozone, CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as "criteria air pollutants."

EPA has established primary and secondary national ambient air quality standards (NAAQS) for the following criteria air pollutants: ozone, CO, NO_2, SO_2, respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. The primary standards protect the public health and the secondary standards protect public welfare. In addition to the NAAQS, ARB has established California ambient air quality standards (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 an additional margin of safety to protect sensitive receptors, particularly children and infants (ARB 2009a). The NAAQS and CAAQS as discussed above are listed in Table 3A.2-1.

Ozone

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of ROGs and NO_X in the presence of sunlight. ROGs are volatile organic compounds (VOCs) that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

A highly reactive molecule, ozone readily combines with many different components of the atmosphere. Consequently, high levels of ozone tend to exist only while high ROG and NO_X levels are present to sustain the ozone formation process. After the precursors have been depleted, ozone levels rapidly decline. Because these reactions occur on a regional scale, ozone is a regional pollutant.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004).

Table 3A.2-1
Summary of Ambient Air Quality Standards and Attainment Designations

Pollutant	Averaging Time	California		National Standards[1]		
		Standards [2,3]	Attainment Status (Sacramento County) [4]	Primary [3,5]	Secondary [3,6]	Attainment Status (Sacramento County) [7]
Ozone	1 hour	0.09 ppm (180 µg/m^3)	N	–	–	–
	8 hours	0.07 ppm (137 µg/m^3)	–	0.08 ppm (157 µg/m^3)	Same as primary standard	N
Carbon monoxide (CO)	1 hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	–	U/A
	8 hours	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
Nitrogen dioxide (NO_2) [8]	Annual arithmetic mean	0.030 ppm (56 µg/m^3)	–	0.053 ppm (100 µg/m^3)	Same as primary standard	U/A
	1 hour	0.18 ppm (338 µg/m^3)	A	–		–
Sulfur dioxide (SO_2)	Annual arithmetic mean	–	–	0.030 ppm (80 µg/m^3)	–	U
	24 hours	0.04 ppm (105 µg/m^3)	A	0.14 ppm (365 µg/m^3)	–	
	3 hours	–	–	–	0.5 ppm (1,300 µg/m^3)	
	1 hour	0.25 ppm (655 µg/m^3)	A	–	–	–
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	N	-	Same as primary standard	N
	24 hours	50 µg/m^3		150 µg/m^3		
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	N	15 µg/m^3	Same as primary standard	U/A
	24 hours	–	–	35 µg/m^3		
Lead [9]	30-day average	1.5 µg/m^3	A	–	–	–
	Calendar quarter	–	–	1.5 µg/m^3	Same as primary standard	
Sulfates	24 hours	25 µg/m^3	A	No national standards		
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m^3)	U			
Vinyl chloride [9]	24 hours	0.01 ppm (26 µg/m^3)	U/A			

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		Standards [2,3]	Attainment Status (Sacramento County) [4]	Primary [3,5]	Secondary [3,6]	Attainment Status (Sacramento County) [7]
Visibility-reducing particle matter	8 hours	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U		No national standards	

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million.

[1] National standards (other than those for ozone and particulate matter and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current Federal policies.

[2] California standards for ozone, CO (except Lake Tahoe), 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.

[3] Concentration expressed first in units in which it was issued (i.e., parts per million [ppm] or micrograms per cubic meter [$\mu g/m^3$]). Equivalent units given in parentheses are based on a reference temperature of 25°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.

[4] Unclassified (U): The data are incomplete and do not support a designation of attainment or nonattainment.
Attainment (A): The state standard for that pollutant was not violated at any site in the area during a 3-year period.
Nonattainment (N): There was at least one violation of a state standard for that pollutant in the area.

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

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

[7] Nonattainment (N): Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.
Attainment (A): Any area that meets the national primary or secondary ambient air quality standard for the pollutant.
Unclassifiable (U): Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

[8] On February 19, 2008, the Office of Administrative Law approved a new NO_2 ambient air quality standard that lowers the 1-hour standard to 0.19 ppm and establishes a new annual standard of 0.030 ppm. These changes became effective March 20, 2008.

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

Source: ARB 2008a, ARB 2008b

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults. Exposure to ambient levels of ozone ranging from 0.10 part per million (ppm) to 0.40 ppm for 1–2 hours has been found to substantially alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes (the amount of air inhaled and exhaled), and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to these adverse health effects, evidence exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increased response of the respiratory system to challenges and a decrease in the immune system's ability to defend against infection (Godish 2004).

In 1997, EPA promulgated a new 8-hour standard in recognition of impacts resulting from daylong exposure. On April 15, 2004, EPA designated areas of the country that exceed the 8-hour standard ozone standard as nonattainment. The designations were in place as of February 2009. These designations have triggered new planning requirements for the 8-hour standard.

On-road motor vehicles and other mobile sources are by far the largest contributors to NO_X emissions. According to the 2008 emissions inventory for Sacramento County, approximately 58% of NO_X emissions in Sacramento County are generated by on-road motor vehicles (ARB 2009b). More stringent mobile source emission standards and cleaner burning fuels have largely contributed to the decline in NO_X emissions. ROG emissions have been decreasing for the last 30 years because of more stringent motor vehicle standards and new rules for control of ROG from various industrial coating and solvent operations (ARB 2008c). Even so, the ozone problem in the SVAB ranks among the most severe in the state. Peak ozone values in the SVAB have not declined as quickly over the last several years as they have in other urban areas. The peak 8-hour indicator remained fairly constant from 1987 to 1990. Since 1990, the peak 8-hour indicator has decreased slightly, and the overall decline for the 20-year period is almost 13%. Looking at the number of days above the state and national standards, the trend is much more variable. However, the number of 8-hour exceedance days has declined by more than 50% since 1988 (ARB 2008c).

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 (EPA 2009a). The combined emissions of NO and NO_2 are referred to as NO_X and 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 NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, such as coughing, difficulty with breathing, vomiting, headache, and eye irritation, during or shortly after exposure. After a period of approximately 4–12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has occasionally been linked with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung function (EPA 2009a).

Carbon Monoxide

CO is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. In fact, 56% of the nationwide CO emissions are from on-road mobile sources

and 22% from non-road engines and vehicles such as construction equipment and boats. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2009a).

The highest CO concentrations are generally associated with cold, stagnant weather conditions that occur during winter. In contrast to problems caused by ozone, which tends to be a regional pollutant, CO problems tend to be localized.

Sulfur Dioxide

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant; constriction of the bronchioles occurs with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources; construction operations; fires and natural windblown dust; and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG (EPA 2009a). Fine particulate matter ($PM_{2.5}$) is a subgroup of PM_{10}, consisting of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less (ARB 2008c).

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with metals, polycyclic aromatic hydrocarbons (PAH), and other toxic substances adsorbed onto fine particulate matter (referred to as the "piggybacking effect") or with fine dust particles of silica or asbestos. Generally, effects may result from both short-term and long-term exposure to elevated concentrations of PM_{10} and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2008a). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and may contain substances that are particularly harmful to human health. Direct emissions of PM_{10} and $PM_{2.5}$ increased in the SVAB 1975 and 2005 and are projected to continue increasing through 2020 (ARB 2008c).

Direct emissions of both PM_{10} and $PM_{2.5}$ increased in the SVAB between 1975 and 2005 and are projected to increase through 2020. These emissions are dominated by area wide sources, primarily because of development. Direct emissions of PM from mobile and stationary sources have remained relatively steady (ARB 2008c).

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline (discussed in detail below), metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2009a).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have declined dramatically (by 95% between 1980 and 1999), and levels of lead in the air decreased by 94% between 1980 and 1999. Of all lead emissions, transportation sources, primarily airplanes, contribute only 13%. A recent National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in human blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (as well as the removal of lead from soldered cans) (EPA 2009a).

The decrease in lead emissions and ambient lead concentrations over the past 25 years is California's most dramatic success story with regard to air quality management. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have virtually eliminated all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB identified lead as a toxic air contaminant.

California and National Area Designations

Criteria air pollutant concentrations are measured at several monitoring stations in the SVAB. The Folsom-Natoma Street station is the closest monitoring station to the SPA with recent data for ozone, NO_2, and PM_{10}. The When data was not available at the Natoma Street station, as determined by ARB, air pollutant monitoring data was obtained from the Del Paso Manor station in Sacramento, which is the next closest monitoring station to the SPA. In general, the ambient air quality measurements from these monitoring stations are representative of the air quality in the vicinity of the SPA. Table 3A.2-2 summarizes the air quality data from the most recent 3 years for these two monitoring stations.

Both ARB and EPA use this type of monitoring data to designate the attainment status with respect to the CAAQS and NAAQS, respectively, for criteria air pollutants. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are "nonattainment," "attainment," and "unclassified." The "unclassified" designation is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. The Natomas Street station is "unclassified."

EXISTING AIR QUALITY—TOXIC AIR CONTAMINANTS

A toxic air contaminant (TAC), or in Federal terms a hazardous air pollutant (HAP), 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. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3A.2-1).

According to the *California Almanac of Emissions and Air Quality 2008 Edition* (ARB 2008c), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but

Table 3A.2-2
Summary of Annual Ambient Air Quality Data (2006–2008)

	2006	2007	2008
Ozone			
Maximum concentration (1-hour/8-hour average, ppm)	0.133/0.110	0.129/0.123	0.166/0.123
Number of days state 1-hour standard exceeded	31	13	38
Number of days national 1-hour/8-hour standard exceeded	1/42	1/21	5/50
Nitrogen Dioxide (NO_2)			
Maximum concentration (1-hour, ppm)	0.044	0.049	0.042
Annual average concentration (ppm)	0.008	0.007	0.007
Number of days state 1-hour standard exceeded	0	0	0
Carbon Monoxide (CO) [a]			
Maximum concentration (1-hour/8-hour average, ppm)	4.4/3.49	3.5/2.90	2.9/2.49
Number of days state standard exceeded	0	0	0
Number of days national standard exceeded	0	0	0
Fine Particulate Matter ($PM_{2.5}$) [a]			
Maximum concentration ($\mu g/m^3$) [b]	78.0	61.0	74.4
Number of days national standard exceeded (measured [c])	19	22	8
Number of days national standard exceeded (estimated)	19.3	26.1	24.1
Respirable Particulate Matter (PM_{10})			
Maximum concentration ($\mu g/m^3$) [d]	67.0	75.0	72.0
Number of days state standard exceeded (measured) [c]	7	5	2
Number of days national standard exceeded (measured) [c]	0	0	0

Notes: $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million

[a] Data was obtained from the Del Paso Manor monitoring station in Sacramento, which is the closest monitoring station to the SPA that monitors for CO and $PM_{2.5}$.

[b] Maximum concentration shown are based on national monitoring methods.

[c] Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

[d] Maximum concentrations shown are based on state monitoring methods.

Sources: ARB 2009c, EPA 2009b

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, and lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a PM exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies on chemical speciation to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1, 3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, *para*-dichlorobenzene, formaldehyde, methylene

chloride, and perchloroethylene are the TACs for which data are available that pose the greatest existing ambient risk in California.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Based on receptor modeling techniques, ARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB. Since 1990, the health risk associated with diesel PM has been reduced by 52%. Overall, levels of most TACs, except for *para*-dichlorobenzene and formaldehyde, have gone down since 1990 (ARB 2008c).

EXISTING AIR QUALITY—NATURALLY OCCURRING ASBESTOS

In addition, naturally occurring asbestos (NOA), which was identified as a TAC in 1986 by ARB, is located in many parts of California and is commonly associated with ultramafic rocks (Clinkenbeard et al. 2002). Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Ultramafic rocks form in high-temperature environments well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks or along their boundaries (Churchill and Hill 2000).

For individuals living in areas of NOA, there are many potential pathways for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt; dust raised from unpaved roads and driveways covered with crushed serpentine; grading and earth disturbance associated with construction activity; rock blasting; quarrying; gardening; and other human activities. For homes built on asbestos outcroppings, asbestos can be tracked into the home and can also enter as fibers suspended in outdoor air. Once such fibers are indoors, they can be entrained into the air by normal household activities, such as vacuuming (as many respirable fibers will simply pass through vacuum cleaner bags).

People exposed to low levels of asbestos may be at elevated risk (e.g., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (quantity of fibers), and also increases with the time since first exposure. Although there are a number of factors that influence the disease-causing potency of any given asbestos (such as fiber length and width, fiber type, and fiber chemistry), all forms are carcinogens.

At the request of SMAQMD, the California Geological Survey (formerly the California Division of Mines and Geology) prepared a report called the *Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California* (Higgins and Clinkenbeard 2006). According to the map presented in this report more than half of the SPA is located in "areas moderately likely to contain NOA." Although geologic conditions are more likely for asbestos formation in particular areas identified by the map, the presence thereof is not certain. (See Section 3A.7, "Geology, Soil, Minerals, and Paleontological Resources – Land" for additional information regarding NOA.)

EXISTING AIR QUALITY—ODORS

Typically odors are 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).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell 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; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to 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.

3A.2.2 REGULATORY FRAMEWORK

CRITERIA AIR POLLUTANTS

Federal Plans, Policies, Regulations, and Laws

At the Federal level, 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.

The CAA required EPA to establish primary and secondary NAAQS (Table 3A.2-1). The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility for reviewing all state SIPs to determine conformation to the mandates of the CAAA and determine whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) that imposes additional control measures may be prepared for the nonattainment area. Failure to submit an approvable SIP or to implement the plan within the mandated time frame may result in application of sanctions to transportation funding and stationary air pollution sources in the air basin.

In addition, general conformity requirements were adopted by Congress as part of the CAAA and were implemented by EPA regulations in 1993. General conformity requires that all Federal actions conform to the SIP as approved or promulgated by EPA. The purpose of the general conformity program is to ensure that actions taken by the Federal government do not undermine state or local efforts to achieve and maintain NAAQS. Before a Federal action is taken, it must be evaluated for conformity with the SIP. All reasonably foreseeable emissions, both direct and indirect, predicted to result from the action are taken into consideration and must be identified as to location and quantity. If it is found that the action would create emissions above *de minimis* threshold levels specified in EPA regulations, or if the activity is considered regionally significant because its emissions exceed 10% of an area's total emissions, the action cannot proceed unless mitigation measures are specified that would bring the project into conformance.

General conformity applies in both Federal nonattainment and maintenance areas. Within these areas, it applies to any Federal action not specifically exempted by the CAA or EPA regulations. Emissions from construction activities are also included. General conformity does not apply to projects or actions that are covered by the transportation conformity rule. If a Federal action falls under the general conformity rule, the Federal agency responsible for the action is responsible for making the conformity determination. In some instances, a state will make the conformity determination under delegation from a Federal agency. Private developers are not

responsible for making a conformity determination, but can be directly affected by a determination. General conformity with respect to the project will be determined within the record of decision.

State Plans, Policies, Regulations, and Laws

ARB 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 ARB to establish CAAQS (Table 3A.2-1). The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Other ARB responsibilities include overseeing compliance with California and Federal laws by local air districts, approving local air quality plans, submitting SIPs to EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

ARB and local air pollution control districts are currently developing plans for meeting new national air quality standards for ozone and $PM_{2.5}$. California's adopted 2007 State Strategy was submitted to EPA as a revision to the SIP in November 2007 (ARB 2008d).

Regional and Local Plans, Policies, Regulations, and Laws

Sacramento Metropolitan Air Quality Management District

SMAQMD attains and maintains air quality conditions in Sacramento County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean-air strategy of SMAQMD includes the preparation of plans for the attainment of ambient air-quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SMAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA and amendments thereof (CAAA), and the CCAA.

SMAQMD's *Guide to Air Quality Assessment in Sacramento County* is an advisory document that provides lead agencies, consultants, and project applicant(s) with uniform procedures for addressing air quality in environmental documents. A new version of the guide was released in December 2009 and supersedes the version released in July 2004 (SMAQMD 2009a). The new version of the guide does not include the development of new thresholds of significance; however, it does include updated methodologies for evaluating potential impacts and refined list of recommended mitigation measures. In addition, the guide contains the following applicable components:

- criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
- specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
- methods available to mitigate air quality impacts; and
- information for use in air quality assessments and environmental impact reports (EIRs) that will be updated more frequently such as air quality data, regulatory setting, climate, and topography.

As mentioned above, SMAQMD adopts rules and regulations. All projects are subject to SMAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the project 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 require 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 over 50 horsepower (hp) are required to have a SMAQMD permit or ARB portable equipment registration.

- **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 SPA.

- **Rule 417: Wood Burning Appliances.** The developer or contractor is prohibited from installing any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

- **Rule 442: Architectural Coatings.** The developer or contractor is required to use coatings that comply with the volatile organic compound (VOC) content limits specified in the rule.

- **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 asbestos-containing material.

In addition, effective as of October 10, 2005, if modeled construction-generated emissions for a project are not reduced to SMAQMD's threshold of significance (85 pounds per day [lb/day]) by the application of the standard construction mitigation, then an off-site construction mitigation fee is recommended. The fee must be paid before a grading permit can be issued. This fee is used by SMAQMD to purchase off-site emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies. SMAQMD provides a Mitigation Fee Calculator for determining the fee for construction projects when off-site mitigation is needed (SMAQMD 2009b).

El Dorado County Air Quality Management District

EDCAQMD attains and maintains air quality conditions in El Dorado County in a manner similar to that described above for SMAQMD (e.g., planning, regulation, and enforcement). Refer to the discussion of SMAQMD above for further detail.

Specific EDCAQMD rules applicable to the off-site elements may include, but are not limited to:

- **Rule 202: Visible Emissions.** A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.

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

- **Rule 215: Architectural Coatings.** The rule concerns emissions of VOCs associated with the application of architectural coatings.

- **Rule 223: Fugitive Dust—General Requirements.** The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

- **Rule 223-1: Fugitive Dust—Construction, Bulk Material Handling, Blasting, Other Earthmoving Activities and Carryout and Trackout Prevention.** The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

- **Rule 223-2: Fugitive Dust –Asbestos Hazard Mitigation.** The purpose of this rule is to reduce the amount of asbestos particulate matter entrained in the ambient air as a result of any construction or construction related activities, that disturbs or potentially disturbs naturally occurring asbestos by requiring actions to prevent, reduce or mitigate asbestos emissions.

- **Rule 224: Cutback Asphalt Paving Material.** This rule concerns the discharge to the atmosphere of VOCs caused by the use or manufacture, mixing, storage and application of Cutback or Emulsified asphalt for paving, road construction or road maintenance.

- **Rule 501: General Permit Requirement.** This rule provides an orderly procedure for the review of new sources of air pollution and the orderly review of the modification and operation of existing sources through the issuance of permits. Procedures for issuing, modifying, or renewing Title V permits to operate for stationary sources which are subject to Rule 522 Title V – Federal Operating Permit Program, shall also be consistent with the procedures specified in that rule.

Air Quality Plans

SMAQMD, in coordination with the air quality management districts and air pollution control districts of El Dorado, Placer, Solano, Sutter, and Yolo Counties (including EDCAQMD), prepared and submitted the 1994 *Air Quality Attainment Plan* (AQAP) in compliance with the requirements set forth in the CCAA, which specifically addressed the nonattainment status for ozone and, to a lesser extent, CO and PM_{10}.

The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP was fulfilled with the preparation and adoption of the 1994 Ozone Attainment Plan (OAP). The OAP stresses attainment of ozone standards and focuses on strategies for reducing reactive organic gases (ROG) and oxides of nitrogen (NO). It promotes active public involvement, enforcement of SMAQMD rules and regulations, public education in both the public and private sectors, development and promotion of transportation and land use programs designed to reduce vehicle miles traveled (VMT) in the region, and implementation of control measures for stationary and mobile sources. The OAP became part of the SIP in accordance with the requirements of the CAAA and amended the 1991 AQAP. However, at that time, the region could not show that the national ozone (1-hour) standard would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment" coupled with additional emissions requirements on stationary sources. Additional triennial reports were also prepared in 1997, 2000, 2003, and 2006 in compliance with the CCAA and act as incremental updates.

Sacramento County and the western portion of El Dorado County are also part of the Sacramento Federal Ozone Nonattainment Area (SFNA), which also comprises of Yolo County and portions of Placer, and Solano Counties. As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. Milestone reports were prepared for 1996, 1999, 2002, and most recently in 2006 for the 8-hour ozone standard. These milestone reports include compliance demonstrations that the requirements have been met for the SFNA. The AQAPs and reports present comprehensive strategies to reduce emissions of ROG, NO_X, and PM_{10} 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 control measures for stationary, mobile, and indirect sources.

The Sacramento region was classified by EPA on June 15, 2004, as a "serious" nonattainment area for the national 8-hour ozone standard with an attainment deadline of June 15, 2013. Emission reductions needed to achieve the air quality standard were identified based on air quality modeling. An evaluation of proposed new control measures and associated ROG and NO_X emission reductions concluded that no set of feasible controls was available to provide the needed emission reductions before the attainment deadline year. Given the magnitude of the shortfall in emission reductions and the schedule for implementing new control measures, the earliest possible attainment demonstration year for the Sacramento region is determined to be the "severe" area deadline of 2019.

Section 181(b)(3) of the CAA permits a state to request that EPA reclassify a nonattainment area to a higher classification and extend the time allowed for attainment. This process is appropriate for areas that must rely on longer term strategies to achieve the emission reductions needed for attainment.

The board of directors for each of the five air districts (including SMAQMD and EDCAQMD) that compose the SFNA requested that ARB submit a formal request for voluntary reclassification from "serious" to "severe" for the 8-hour ozone nonattainment area with an associated attainment deadline of June 15, 2019. ARB submitted that request on February 14, 2008.

On March 24, 2008, EPA published in the *Federal Register* a finding of Failure to Submit the 2011 Reasonable Further Progress Plan for the SFNA. The failure to submit finding triggered the following sanctions clocks:

- **Offset sanctions:** More stringent emission mitigation requirements for new and modified businesses, "major stationary sources," if a complete plan is not submitted within 18 months after EPA's finding of failure to submit the plan.

- **Federal highway funding sanctions:** Prohibiting transportation projects from receiving Federal transportation funding if a complete plan is not submitted within 24 months after EPA findings.

The sanctions clocks will stop after the air districts (including SMAQMD and EDCAQMD) submit the 2011 Reasonable Further Progress Plan and EPA accepts the plan as complete. The *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (SMAQMD 2008a) was published and a public meeting was held in March 2009 to consider approval of the SIP (SMAQMD 2008b). EPA has not yet approved the plan at of the time of writing this EIR/EIS and SMAQMD I waiting for EPA to make a completeness finding (Anderson, pers. comm., 2009).

Although the region has made significant progress in reducing ozone, a problem has arisen with regard to another requirement set forth in the CAA. The region's transportation plan must conform and thus show that it does not harm the region's chances of attaining the ozone standard. The SIP is tied to a "motor vehicle emissions budget;" transportation planners must ensure that emissions anticipated from plans and improvement programs remain within this budget. The instance where no conformity determination can be made is known as conformity lapse. This occurred in October 2004. This Sacramento Regional Nonattainment Area 8-Hour Ozone Rate-of-Progress Plan (February 2006) proposes to update the allowable motor vehicle emissions budgets used to demonstrate that projected regional emissions with all of the new transportation projects will conform to the levels established in the air quality plan.

Sacramento County General Plan

The following goals, objectives, and policies from the Sacramento County General Plan (Sacramento County 1993) regarding air quality are applicable to the on-site and off-site project elements under the Proposed Project

Alternative and the other four action alternatives. There are no Sacramento County General Plan policies related to air quality that would apply to the No Project Alternative.

GOAL: Air Quality which protects and promotes the public health, safety, welfare, and environmental quality of the community.

Objective: The integration of air quality planning with the land use, transportation and energy planning processes.

Objective: A safe and healthful environment for pollution sensitive residential land uses and sensitive receptors.

Objective: A reduction in motor vehicle emissions through a decrease in the average daily trips and VMT.

Objective: Compliance with Federal and state air quality standards.

Objective: A reduction in releases of ozone depleting compounds in order to ensure the protection of the stratospheric ozone layer.

Objective: A reduction in motor vehicle emissions through increasing reliance on electric and other clean alternative fuel and low emission vehicles.

- **Policy AQ-1:** Minimize air pollutant emissions from Sacramento County facilities and operations.
- **Policy AQ-2:** Use ARB, SMAQMD and Sacramento Area Council of Governments (SACOG) guidelines for Sacramento County facilities and operations in order to comply with mandated measures to reduce emissions from fuel consumption, energy consumption, surface coating operations, and solvent usage.
- **Policy AQ-3:** Promote optimal air quality benefits through energy conservation measures in new development.
- **Policy AQ-4:** Support SMAQMD's development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds and rules to more adequately address the air quality impacts of proposed project plans and proposals.
- **Policy AQ-5:** Require BACT to reduce air pollution emissions.
- **Policy AQ-6:** Provide disincentives for single-occupant vehicle trips through parking supply and pricing controls in areas where supply is limited and alternative transportation modes are available so as not to cause economic disruption, or through other measures identified by SMAQMD and incorporated into regional plans.
- **Policy AQ-7:** Support the use of demand management and pricing controls as near-term measures for attaining AQAP goals and policies.
- **Policy AQ-8:** Implement the Sacramento City/County Bikeways Master Plan.
- **Policy AQ-9:** Secure adequate funding for Regional Transit so that transit is a viable transportation alternative. Development shall pay its fair share of the cost of transit facilities required to serve the project.
- **Policy AQ-10:** Provide incentives for the use of transportation alternatives, including a program for the provision of financial incentives for builders that construct ownership housing within a quarter mile of existing and proposed light rail stations.

- **Policy AQ-11:** Require as a building standard the installation of electrical service in all new residential development that can be used for the overnight charging of electrical vehicles.

- **Policy AQ-12:** The County shall establish an incentive based program for the installation of electrical service for recharging electrical vehicles in public and private parking facilities sufficient to meet demand.

- **Policy AQ-13:** Require the consideration of high occupancy vehicle (HOV) lanes in all street and highway widening and new construction projects for arterials and wider rights-of-way.

- **Policy AQ-14:** Develop a model County employee trip reduction program which may include, but not be limited to, flexible and compressed work schedules, commuter matching services, telecommuting, preferential carpool/vanpool parking, carpool/vanpool and transit subsidies, and all other commute alternative incentives.

- **Policy AQ-15:** All new major indirect sources of emissions shall be reviewed and modified or conditioned to achieve a reduction in emissions. This indirect source review program will be developed in coordination with SACOG and SMAQMD, and include the following features:

    - A 15% reduction in emissions from the level that would be produced by a base-case project assuming full trip generation per the current Institute of Transportation Engineers (ITE) Trip Generation Handbook.

    - A focus on cost-effectiveness measured in terms of cost per ton of pollutant avoided.

    - A list of cost-effective measures to be developed, maintained, and annually reviewed by SMAQMD.

    - A maximum expenditure cap which will be computed for each indirect source on the basis of factors including, but not limited to, total emissions and project value.

    - A process for obtaining a waiver from the 15% requirement if it is found that a lower level of reduction is all that can be achieved with cost-effective measures and offsets, or that achieving the full 15% reduction would cost more than expenditure cap.

    - An exception for projects which have already undergone the indirect source review at some point in the development approval process.

    - A procedure to give full credit for other measures required in a project that may also achieve a reduction in emissions.

- **Policy AQ-16:** Support intergovernmental efforts directed at stricter tailpipe emissions standards.

- **Policy AQ-17:** Require that development projects be located and designed in a manner which will conserve air quality and minimize direct and indirect emission of air contaminants.

- **Policy AQ-18:** Encourage employment-intensive development, having the potential to employ 200 or more employees, where adequate transit service is planned, and discourage such development where adequate transit service is not planned.

- **Policy AQ-19:** Identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures or offset fees.

- **Policy AQ-20:** Submit development proposals to SMAQMD for review and comment in compliance with CEQA prior to consideration by the appropriate decision making body.

- **Policy AQ-21:** Provide for the location of ancillary employee services (including, but not limited to, child care, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.
- **Policy AQ-22:** Provide for buffers between sensitive land uses and sources of air pollution or odor.
- **Policy AQ-23:** Promote mixed-use development to reduce the length and frequency of vehicle trips.
- **Policy AQ-24:** Provide for increased intensity of development along existing and proposed transit corridors.
- **Policy AQ-25:** Require that new development be designed to promote pedestrian and bicycle access and circulation.
- **Policy AQ-26:** Accommodate growth within existing urban areas (infill) as a priority over urban expansion.
- **Policy AQ-27:** Require that all employee parking areas for new development be designed with controllable access.
- **Policy AQ-28:** Require that large new developments dedicate land for use as park-and-ride lots if suitably located.
- **Policy AQ-29:** Require traffic counter loops and traffic management hardware at nonresidential garage entrances, driveways, new intersections, and other appropriate locations.
- **Policy AQ-30:** Require that new commercial and industrial projects adjacent to bus stops make provisions in their project design for park-and-ride spaces.
- **Policy AQ-31:** Preserve and ensure the dedication of rights-of-way and station sites along future light rail extensions.
- **Policy AQ-32:** Require that new and replacement fuel storage tanks at automobile and light duty truck refueling stations be clean-fuel compatible, if technically and economically feasible.
- **Policy AQ-33:** Require the recovery of chlorofluorocarbons (CFCs) when air conditioning and refrigeration units are serviced or disposed.
- **Policy AQ-34:** Support revisions to the AQAP to accelerate and strengthen market-based strategies consistent with the General Plan.
- **Policy AQ-35:** In conjunction with SMAQMD and SACOG, support and participate in a public education and outreach program dealing with air quality issues, with a goal of attaining a solid foundation of public support for needed air quality measures.
- **Policy AQ-36:** Coordinate air quality planning efforts with other local, regional, and state agencies.
- **Policy AQ-37:** Maximize air quality benefits through selective use of vegetation in landscaping and through revegetation of appropriate areas.
- **Policy AQ-38:** A conformity analysis shall be conducted to assure that transportation plans, programs, and projects will not impair efforts to meet air quality standards.

At the time of writing this EIR, the Sacramento County General Plan is undergoing its first comprehensive update since it was last adopted in 1993. This update is necessary to plan for growth in the next planning cycle (2005-

2030) as well as to address new emerging planning issues. The update is expected to be adopted in 2010 (Sacramento County Planning and Community Development Department 2009).

El Dorado County General Plan

The following goals, objectives, and policies from the El Dorado County General Plan (El Dorado County 2004) regarding air quality are applicable to the proposed off-site roadways that would extend from the Folsom Heights property east into El Dorado Hills under the Proposed Project Alternative. There are no El Dorado County General Plan policies related to air quality that would apply to the other four action alternatives or the No Project Alternative.

- **Policy TC-1q:** The County shall utilize road construction methods that seek to reduce air, water, and noise pollution associated with road and highway development.

- **Policy TC-3a:** The County shall support all standards and regulations adopted by the El Dorado County Air Quality Management District governing transportation control measures and applicable state and Federal standards.

- **Policy 6.3.1.1:** The County shall require that all discretionary projects and all projects requiring a grading permit, or a building permit that would result in earth disturbance, that are located in areas likely to contain naturally occurring asbestos (based on mapping developed by the California Department of Conservation [DOC]) have a California-registered geologist knowledgeable about asbestos-containing formations inspect the project area for the presence of asbestos using appropriate test methods. The County shall amend the Erosion and Sediment Control Ordinance to include a section that addresses the reduction of thresholds to an appropriate level for grading permits in areas likely to contain naturally occurring asbestos (based on mapping developed by the DOC). The Department of Transportation and the County Air Quality Management District shall consider the requirement of posting a warning sign at the work site in areas likely to contain naturally occurring asbestos based on the mapping developed by the DOC.

GOAL 6.7: Air Quality Maintenance

A. Strive to achieve and maintain ambient air quality standards established by the U.S. Environmental Protection Agency and the California Air Resources Board.

B. Minimize public exposure to toxic or hazardous air pollutants and air pollutants that create unpleasant odors.

Objective 6.7.1: El Dorado County Clean Air Plan – Adopt and enforce the El Dorado County Clean Air Act Plan in conjunction with the County Air Quality Management District.

Objective 6.7.2: Vehicular Emissions – Reduce motor vehicle air pollution by developing programs aimed at minimizing congestion and reducing the number of vehicle trips made in the County and encouraging the use of clean fuels.

- **Policy 6.7.2.5:** Upon reviewing projects, the County shall support and encourage the use of, and facilities for, alternative-fuel vehicles to the extent feasible. The County shall develop language to be included in County contract procedures to give preference to contractors that utilize low-emission heavy-duty vehicles.

Objective 6.7.7: Construction Related, Short-Term Emissions – Reduce construction related, short-term emissions by adopting regulations which minimize their adverse effects.

- **Policy 6.7.7.1:** The County shall consider air quality when planning the land uses and transportation systems to accommodate expected growth, and shall use the recommendations in the most recent version of the El Dorado County Air Quality Management (AQMD) Guide to Air Quality Assessment: Determining

Significance of Air Quality Impacts Under the California Environmental Quality Act, to analyze potential air quality impacts (e.g., short-term construction, long-term operations, toxic and odor-related emissions) and to require feasible mitigation requirements for such impacts. The County shall also consider any new information or technology that becomes available prior to periodic updates of the Guide. The County shall encourage actions (e.g., use of light-colored roofs and retention of trees) to help mitigate heat island effects on air quality.

Objective 6.7.8: The Effects of Air Pollution on Vegetation – Monitor ongoing scientific research regarding the adverse effects, if any, of air pollution on vegetation.

- **Policy 6.7.8.1:** The County shall monitor ongoing scientific research regarding the adverse effects, if any, of air pollution on vegetation, including commercially valuable timber, threatened or endangered plant species, and other plant species. If and when such research conclusively determines, or if and when the weight of scientific opinion concludes, that air pollution is causing significant harm to vegetation within El Dorado County or similarly situated areas, the County, through its periodic review of the General Plan pursuant to Policy 2.9.1.2, shall consider whether to add policies to the General Plan to try to mitigate such harm.

City of Folsom General Plan

The following goals, objectives, and policies from Air Quality Element of the City of Folsom General Plan (City of Folsom 1988) regarding air quality are applicable to the Proposed Project Alternative and the other four action alternatives. There are no City of Folsom General Plan policies related to air quality that would apply to the No Project Alternative.

Air Quality Element Goals and Policies

GOAL 31: To improve the air quality of the City of Folsom including:

1. Achievement and Maintenance of ambient air quality standards established by the U.S. Environmental Protect Agency and the California Air Resources Board.

2. Minimizing public exposure to toxic or hazardous air pollutants.

3. Limiting visibility reducing particulate matter in the atmosphere.

4. Minimizing public exposure to air pollutants which create a public nuisance through irritation to the senses or unpleasant odor.

- **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 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 31.6:** 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 ride-sharing.

    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.

- **Policy 31.9:** The city should encourage bicycle usage though the development and maintenance of a safe and comprehensive bikeway system which includes:

    1. The provision of securely anchored bicycle racks.

    2. Sidewalks in residential development with protective curbing and adequate lighting.

- **Policy 31.10:** The City of Folsom shall develop, as part of its transportation plan and Transportation and Circulation. Element of the General Plan, a transit development plan so that Folsom residents may safely and conveniently use transit for work, school, shopping, recreational, and other trips within the City and outside of the City.

Goal 32: To minimize public exposure to toxic or hazardous air pollutants.

TOXIC AIR CONTAMINANTS

It is important to understand that TACs are not considered criteria air pollutants and thus are not specifically addressed through the setting of ambient air quality standards. Instead, EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology (MACT and BACT) to limit emissions. These in conjunction with additional rules set forth by SMAQMD establish the regulatory framework for TACs (see discussion under "State and Local Toxic Air Contaminant Programs" below).

Federal Hazardous Air Pollutant Program

EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP for major sources of HAPs may differ from those for area sources. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (tpy) of any HAP or more than 25 tpy of any combination of HAPs; all other sources are considered area sources.

The CAAA called on EPA to promulgate emissions standards in two phases. In the first phase (1992–2000), EPA developed technology-based emissions standards designed to reduce emissions as much as feasible. These standards are generally referred to as requiring maximum available control technology (MACT). For area sources, the standards may be different, based on generally available control technology. In the second phase, EPA

promulgated health risk–based emissions standards were deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA also required EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 of the CAAA required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

State and Local Toxic Air Contaminant Programs

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 (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, particulate matter emissions from diesel exhaust (diesel PM) was added to the ARB list of TACs.

After a TAC is identified, ARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions; for example, the ATCM limits truck idling to 5 minutes (Title 13, Section 2485 of the California Code of Regulations).

The Air Toxics Hot Spots Information and Assessment 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.

ARB has adopted control measures for diesel PM and more stringent emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new rule for public-transit bus fleets and emissions standards for new urban buses. These new rules and standards include all the following elements:

- more stringent emission standards for some new urban bus engines, beginning with 2002 model year engines;
- zero-emission bus demonstration and purchase requirements applicable to transit agencies; and
- reporting requirements, under which transit agencies must demonstrate compliance with the public-transit bus fleet rule.

Recent and future milestones include the low-sulfur diesel fuel requirement and tighter emissions standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, replacing 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 ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year-2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

In addition, the *Air Quality and Land Use Handbook: A Community Health Perspective*, published by ARB, provides guidance on land use compatibility with sources of TACs (ARB 2005). The handbook is not a law or

adopted policy but offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

Senate Bill (SB) 352 (California Education Code Section 17213, California Public Resources Code Section 21151.8) expands on previous requirements for the review of TAC sources near school sites. Accordingly, SB 352 requires that any school site located within 500 feet of the edge of the closest travel lane of a freeway or other busy traffic corridor be reviewed for potential health risks.

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SMAQMD Rule 202 (New Source Review), all sources that possess the potential to emit TACs must obtain permits from the district. 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. The district prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by SMAQMD (e.g., health risk assessment) based on their potential to emit toxics. If it is determined that the project will emit toxics in excess of SMAQMD's threshold of significance for TACs (identified below), sources have to implement the BACT for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, the SMAQMD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology for controlling TACs when retrofitting emissions sources. It is important to note that the air quality permitting process applies only to stationary sources; properties that may be exposed to elevated levels of TACs from nonstationary sources (e.g., high traffic-volume roadways, truck yards) and the nonstationary sources themselves are not subject to this process or to any requirements of T-BACT implementation. Rather, emissions controls on nonstationary sources are subject to regulations implemented on the state and Federal level. Local programs of EDCAQMD with respect to TACs in El Dorado County are similar to SMAQMD's programs described above.

State regulations on asbestos are related to demolition and renovations, and waste disposal of asbestos-containing materials. California also has a statewide regulation that addresses NOA. The Asbestos ATCM for Asbestos-Containing Serpentine, adopted in 1990, prohibited the use of serpentine aggregate for surfacing if the asbestos content was 5% or more asbestos (ARB 2009d). The limit on asbestos content was lowered to 0.25% in 2000 and modified to include ultramafic rock.

In July 2001, ARB adopted an ATCM for construction, grading, quarrying, and surface mining operations that regulates grading and excavation activities in areas of serpentine or ultramafic rocks. In addition, the Governor's Office of Planning and Research issued a memorandum providing guidance to lead agencies in analyzing the impacts of NOA through the CEQA review process (OPR 2008).

SMAQMD enforces ARB's Asbestos ATCM to control dust emissions and human exposure to the asbestos fibers found in serpentine and ultramafic rock (and soil derived from those substrates). The ATCM can be summarized as follows (ARB 2008e):

> Large construction projects are required to prepare a dust mitigation plan and receive approval from the district prior to start of the project. The plan must specify measures that will be taken to ensure that no visible dust crosses the property line and must address specific topics. The dust mitigation plan must address control of emissions from: track-out, disturbed surface areas, storage piles, on-site vehicle traffic, off-site transport of material, and earthmoving activities. The plan must also address post construction stabilization and air monitoring (if required by the local air

district [SMAQMD]). Table 1 (not shown here) shows control options for the topics to be addressed in the asbestos dust mitigation plan for large construction projects. Many of these requirements would already be carried out by such projects to minimize nuisance dust complaints and protect water quality.

ODORS

SMAQMD adopted a nuisance rule that addresses odor exposure. Rule 402 states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any such persons, or the public, or that cause to have a natural tendency to cause injury or damage to business or property. The provisions of Rule 402 do not apply to odors emanating from agricultural operations necessary for the growing of crops or raising of fowl or animals.

SMAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odors. In the first situation, SMAQMD recommends operational changes, add-on controls, process changes, or buffer zones where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the plan area is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects being developed near a source of odors where there is no nearby development that may have filed complaints, and for odor sources being developed near existing sensitive receptors, SMAQMD recommends that the determination of potential conflict be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility.

Odors in Sacramento and El Dorado Counties are regulated by SMAQMD and EDCAQMD, respectively. Neither district has specific rules or standards related to odor emissions. Any actions related to odors are based on citizen complaints to local governments and/or to SMAQMD and EDCAQMD.

3A.2.3 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines and guidance from SMAQMD and EDCAQMD. These thresholds also encompass the factors taken into account under NEPA to determine the significance of an action in terms of its context and the intensity of its impacts. The Proposed Project Alternative or alternatives under consideration were determined to result in a significant impact related to air quality if they would do any of the following:

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

- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number or people.

As stated in Appendix G, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations. Thus, in accordance with SMAQMD- and EDCAQMD recommended thresholds for evaluating project-related air quality impacts, implementation of the Proposed Project Alternative or alternatives under consideration would be considered significant if operation of the Proposed Project Alternative or alternatives under consideration would (SMAQMD 2009a; EDCAQMD 2002):

- for project-related construction activity that would occur in Sacramento County, generate construction-related criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended threshold of 85 lb/day for NO_X, or result in or substantially contribute (at a level equal to or greater than 5%) to emissions concentrations (e.g., 50 $\mu g/m^3$ and 2.5 $\mu g/m^3$ for PM_{10}, respectively) that exceed the NAAQS or CAAQS; for project-related construction activity in El Dorado County, generate construction-related criteria air pollutant or precursor emissions that exceed the EDCAQMD-recommended threshold of 82 lb/day for NO_X or 82 lb/day for ROG, or result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS;
- generate long-term regional criteria air pollutant or precursor emissions that exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, or result in or substantially contribute (at a level equal to or greater than 5%) to emissions concentrations (e.g., 50 $\mu g/m^3$ and 2.5 $\mu g/m^3$ for PM_{10}, respectively) that exceed the NAAQS or CAAQS;
- contribute to localized concentrations of air pollutants at nearby receptors that would exceed applicable ambient air quality standards;
- expose sensitive receptors to TAC emissions that exceed an incremental increase of 10 in 1 million for the carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic Hazard Index of 1.0 at the Maximally Exposed Individual (MEI). This threshold of significance applies to projects that would introduce new stationary or area sources of TAC emissions in close proximity to existing or future planned sensitive receptors. ARB and SMAQMD do not have a recommended threshold of significance for evaluating projects that would locate sensitive receptors near existing sources of TAC emissions such as a freeway, high-volume roadway, or rail yard. For the purposes of this analysis, the City will use applicable screening criteria recommended by ARB and SMAQMD as thresholds of significance to evaluate instances in which each action alternative would locate a sensitive receptor in close proximity to a freeway, high-volume roadway, or a TAC-emitting land use such as a gasoline station or a dry-cleaning operation that uses perchloroethylene. (ARB's and SMAQMD's screening criteria are discussed in greater detail under the analysis methodology and Impact 4.2-4 below.); and
- expose sensitive receptors to excessive nuisance odors, as defined under SMAQMD Rule 402 (see "Odors" under "Regional and Local Plans, Policies, Regulations, and Laws" above).

ANALYSIS METHODOLOGY

Short-term construction-generated emissions of criteria air pollutants and ozone precursors were assessed in accordance with methods recommended by SMAQMD and EDCAQMD. Where quantification is required, emissions were modeled using the URBEMIS 2007 Version 9.2.4 computer program (Rimpo and Associates 2008), as recommended by SMAQMD's *Guide to Air Quality Assessment in Sacramento County* (SMAQMD 2009a). URBEMIS was used to determine whether short-term construction-related emissions of criteria air pollutants associated with development of each alternative would exceed applicable thresholds and where mitigation would be required. Modeling was based on project-specific data, when available. However, when

project-specific information (e.g., amount of land to be disturbed/graded per day, types of equipment to be used, number of construction employees) was not available, reasonable assumptions and default settings were used to estimate criteria air pollutant emissions. A detailed list of modeling assumptions is provided in Appendix C1. For linear infrastructure improvements, including the sewer force main connection to the existing off-site pump station north of U.S. 50 and the two roadway connections from Folsom Height into El Dorado Hills (both of which are off-site elements), SMAQMD's Road Construction Emissions Model (SMAQMD 2009c) was used to estimate emissions associated with construction of these facilities. Predicted short-term construction-generated emissions were compared with applicable SMAQMD or EDCAQMD thresholds for determination of significance, depending on the location of the construction activity. Each off-site element was modeled and analyzed separately; however, in the event that construction of one off-site element in SMAQMD's jurisdiction would occur at the same time as construction of another off-site element and/or construction of on-site elements, their combined mass emissions levels are also compared to SMAQMDS's applicable mass emission threshold for NO_X (85 lb/day).

According to SMAQMD, short-term construction-generated ROG emissions should be estimated and disclosed; however, SMAQMD has not established a threshold to determine the significance of such emissions. Thus, in accordance with methodologies recommended by SMAQMD, short-term construction-generated ROG emissions are modeled and presented for informational purposes only. SMAQMD bases this approach on the fact that ROG emissions attributable to construction equipment exhaust are low and those from application of architectural coatings are regulated by Rule 442 (SMAQMD 2009a, page 3-2).

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions, were also quantified using the URBEMIS 2007 Version 9.2.4 computer model (Rimpo and Associates 2008) and assume that full build out of the project would occur in the year 2030. The area-source emissions associated with the Proposed Project Alternative and the other four action alternatives were modeled in separate URBEMIS model runs from mobile-source emissions. Area-source emissions were modeled according to the size and type of land uses proposed under the Proposed Project Alternative and the other four action alternatives. Mass mobile-source emissions were modeled based on the net increase in daily vehicle trips and the net increase in regional VMT that would result from full build out of the Proposed Project Alternative and the four other action alternatives. VMT and trip parameters were available from the traffic data used to prepare Section 3A.15, "Traffic and Transportation – Land" Stankiewicz, pers. comm., 2009a). Predicted long-term operational emissions were compared with applicable SMAQMD thresholds for determination of significance.

An ARB publication, *Air Quality and Land Use Handbook: A Community Health Perspective (Handbook)* (ARB 2005), provides guidance concerning land use compatibility with sources of TAC emissions. The *Handbook* offers recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities. The *Handbook* is advisory and not regulatory, but it offers the recommendations identified below that are pertinent to the project.

- Avoid siting new commercial trucking facilities that accommodate more than 100 trucks per day, or 40 trucks equipped with transportation refrigeration units (TRUs), within 1,000 feet of sensitive receptors (e.g., residences, schools, or parks).

- Avoid siting new sensitive land uses within 300 feet of a large gasoline station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gasoline-dispensing facilities.

- Avoid siting new sensitive land uses within 300 feet of any dry-cleaning operation using perchloroethylene (perc). For operations with two or more machines, provide 500 feet. For operations with three or more machines, consult the local air district. Do not site new sensitive land uses in the same building with dry-cleaning operations that use perc.

- Obtain facility-specific information where there are questions about siting a sensitive land use close to an industrial facility, including the amount of pollutant emitted and its toxicity, distance to nearby receptors, and types of emissions controls in place.

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads carrying 100,000 vehicles per day, or rural roads carrying 50,000 vehicles per day.

The land use compatibility with TAC-generating traffic volumes on area freeways and high-traffic volume roadways is assessed according to guidance provided by ARB's *Handbook* and SMAQMD's *Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways (Protocol)* (SMAQMD 2010). SMAQMD's *Protocol* provides more detailed guidance for assessing risk levels at receptors located closer to a freeway or high-volume roadway than 500 feet. The guidance provided in SMAQMD's *Protocol* accounts for the orientation of the roadway (i.e., north-south or east-west), the orientation of the receptors relative to the roadway, the predominant wind direction, and the traffic volume during the peak traffic hour. The peak-hour traffic volumes used in this analysis are based on the average daily traffic volumes used in the traffic study prepared for this project (DKS Associates 2009). The *Protocol* has been designed to determine whether a receptor closer than 500 feet to a freeway would be subject to levels of cancer risk greater than 296 in a million. If the screening criteria determine that the level of cancer would be lower than 296 in a million, the *Protocol* advises that no further roadway-related air quality evaluation is recommended. If the level of cancer risk at a receptor is estimated to be greater than 296 in a million the *Protocol* recommends the completion of a site-specific health risk assessment.

It is important to note, however, that both ARB's *Handbook* and SMAQMD's *Protocol* are considered screening level guidance and do not contain recommended thresholds of significance. In particular, SMAQMD's *Protocol* clearly states that the evaluation criterion of 296 in a million does not necessarily represent an acceptable level of cancer risk. In the absence of a recommended threshold of significance from ARB or SMAQMD, however, the City and USACE have decided to use their respective screening levels as the threshold of significance for evaluating roadside TAC exposure in this program-level analysis. The City/USACE believe that the decision to use this screening criterion as a program-level threshold of significance is appropriate, in part, due to expected future changes in the inventory of mobile-source TAC emissions in the SVAB. In 2000, the total SVAB-wide average risk from inhalation of TACs of 520 chances in one million, as determined by ARB, accounts for emissions of 10 select TACs that pose the greatest risk in California based primarily on *ambient* air quality data from all sources (e.g., stationary, area, on-road mobile, other mobile, and natural). According to ARB's emissions inventory for 2000, approximately 23% of the total acetaldehyde emissions for that year, 43% of benzene, 39% of 1,3-butadiene, 31% of formaldehyde, and 28% of diesel PM emitted in the SVAB were associated with on-road mobile sources (ARB 2008c). Based on these percentages and the individual health risks as determined by ARB in 2000 for each TAC, approximately 27.5% (143 chances in one million) of the total SVAB estimated inhalation risk of 520 chances in one million was associated with on-road mobile sources, 70% of the risk being attributable to diesel PM alone. According to ARB, implementation of the risk reduction plan to reduce diesel PM is estimated to drop 2010 and 2020 concentrations and associated health risk by 75% and 85%, respectively, from the estimated 2000 level (ARB 2008c).

Nonetheless, the City/USACE do not intend for their use of ARB and SMAQMD's screening criteria as thresholds of significance to establish a precedent for the CEQA/NEPA analyses performed for other projects in the region, in part, because ARB and SMAQMD are expected to continue to develop guidance and rules regarding mobile-source TAC emissions as future studies of roadside concentrations of TACs become available.

All other air quality impacts (i.e., local mobile-source emissions, exposure of sensitive receptors to TAC and odorous emissions) were assessed in accordance with methodologies recommended by SMAQMD and EDCAQMD. The potential for exposure of people to airborne asbestos associated with the demolition of buildings that have asbestos-containing materials is discussed in Section 3A.8, "Hazards and Hazardous Materials – Land".

IMPACT ANALYSIS

Impacts that would occur under each alternative development scenario are identified as follows: NP (No Project), NCP (No USACE Permit), PP (Proposed Project), RIM (Resource Impact Minimization), CD (Centralized Development), and RHD (Reduced Hillside Development). The impacts for each alternative are compared relative to the Proposed Project Alternative at the end of each impact conclusion (i.e., similar, greater, lesser).

Decisions concerning the project's conformity with the Federal Clean Air Act (i.e., the "conformity analysis") will be made in the USACE record of decision.

IMPACT 3A.2-1 Generation of Construction Emissions of NO_X and PM_{10}. *Construction activities associated with the project would generate intermittent emissions of NO_X and PM_{10}. Because of the large size of the project, construction-generated emissions of NO_X, an ozone precursor, and fugitive PM_{10} dust would exceed SMAQMD-recommended thresholds and would substantially contribute to emissions concentrations that exceed the NAAQS and CAAQS. Thus, project-generated, construction-related emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation, expose sensitive receptors to substantial pollutant concentrations, and/or conflict with air quality planning efforts.*

On-Site and Off-Site Elements

NP

Under the No Project Alternative, development of up to 44 rural residences could occur under the existing Sacramento County agricultural zoning classification AG-80. If developed, construction of these residences would generate exhaust emissions of criteria air pollutants and precursors from the operation of off-road construction equipment and fugitive PM_{10} dust emissions from ground disturbance activities. Construction-generated emission levels, however, would not be anticipated to exceed SMAQMD thresholds because construction is not expected to require a high number of diesel-powered construction equipment, involve intense levels of earth movement, occur simultaneously, or occur in close proximity to sensitive receptors for an extended period of time. Also, the number of rural residences that could be developed would be less than the NO_X screening level of 180 single-family homes established by SMAQMD (SMAQMD 2009a) Therefore, construction-generated emissions of criteria air pollutants and precursors would not violate or contribute substantially to an existing or projected air quality violation. No off-site water facilities would be constructed under this alternative, so no construction emissions would be generated by off-site improvements. This **direct** impact would be **less than significant**. **No indirect** impact would occur. ***[Lesser]***

On-Site Elements

NCP, PP, RIM, RHD, CD

Construction emissions are considered short term and temporary in duration, but have the potential to represent a significant impact with respect to air quality. Respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) are among the pollutants of greatest concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM_{10} can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance (e.g., site grading, excavation, cut-and-fill).

Emissions of ozone precursors, ROG and NO_X, are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with delivery of construction materials, the importing and exporting of soil, vendor trips, and worker commute trips; and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. A large portion of construction-related ROG emissions also result from the application of asphalt and architectural coatings and vary depending on the amount of coatings and paving applied each day.

Development of the SPA would occur over a very large area (approximately 3,510 acres), large portions of the SPA would undergo construction at one time, and construction would require substantial amounts of earthwork and grading. However, a detailed schedule describing the timing and location of construction activities under the Proposed Project Alternative and the other four action alternatives is not available at the time of writing this EIR/EIS. Construction of the site is anticipated to commence in 2011 and last until approximately 2030. Given that exhaust emission rates of the construction equipment fleet in the state are expected to decrease over time due to state and SMAQMD-led efforts, maximum daily construction emissions were estimated using the earliest calendar when construction would begin (i.e., 2011) in order to generate conservative estimates. It is anticipated, however, that in later years, advancements in engine technology, retrofits, and turnover in the equipment fleet would result in lower levels of emissions. Accordingly, maximum daily construction emissions for the Proposed Project Alternative and the other four action alternatives were estimated using the URBEMIS 2007 Version 9.2.4 computer program (Rimpo and Associates 2008). URBEMIS is designed to model construction emissions for land use development projects based on building size, land use and type, and disturbed acreage; and allows for the input of project-specific information. Project-generated emissions of criteria air pollutants (e.g., PM_{10}) and precursors (i.e., ROG and NO) were modeled based on general information provided in the project description and default SMAQMD-recommended settings and parameters attributable to the proposed land use types and site location. URBEMIS also divides construction activity into distinct construction phases: site grading, asphalt paving, building construction, and the application of architectural coatings.

Without detailed information about the phasing of construction (see Section 2.3.1 in Chapter 2, "Alternatives," for a discussion of project phasing), it was assumed that the Proposed Project Alternative and the other four action alternatives would be constructed at a consistent, linear rate over a 19-year period (2011–2030). All construction activity phases were assumed to occur simultaneously over the course of a year. Because of the size of the project and the extended period until full build out, it is likely that all four construction phases could occur simultaneously at various locations on the SPA. In other words, site grading, asphalt paving, building construction, and the application of architectural coatings could take place at different areas of the SPA at the same time. Construction emissions levels associated with the Proposed Project Alternative and the other four action alternatives would differ according to the total number of residential units, commercial square footage, office square footage, and school square footage to be developed. Thus, for the Proposed Project Alternative and the other four action alternatives, the subtotal quantities of all land use types were divided by 19 years to calculate the annual average level of construction activity (e.g., residential units, commercial square footage).

Table 3A.2-3 summarizes the modeled worst-case daily emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ associated with construction of the Proposed Project Alternative and the other four action alternatives. Refer to Appendix C1 for a detailed summary of the URBEMIS modeling assumptions, inputs, and outputs.

As shown above in Table 3A.2-3, the maximum daily level of construction-generated NO_X emissions under the Proposed Project Alternative and the other four action alternatives would exceed the SMAQMD-recommended threshold of 85 lb/day. It should be noted that the maximum daily emissions level estimates displayed in Table 3A.2-3 assume that the intensity of construction activity would be the same during the 19 years of construction on the site. It is more likely, however, that some period of construction (and associated emissions) would be more intense than other periods due to changes in market conditions and according to preferences of the City and the project applicants. If, for instance, peak construction activity would be as much as three times as intense as the average level of construction activity during the 19-year build out period, then the maximum daily emission levels would be three times the levels presented in Table 3A.2-3.

Table 3A.2-3
Summary of Modeled Maximum Daily Criteria Air Pollutant and Precursor Emissions Associated with Construction of On-Site Elements

Source	Emissions (lb/day) [1,2]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Proposed Project Alternative				
Unmitigated	120.0	128.1	578.8	126.2
Mitigated [3]	119.2	105.4	147.6	—
Resource Impact Minimization Alternative				
Unmitigated	99.2	123.0	485.8	106.6
Mitigated [3]	98.5	100.7	124.1	—
Centralized Development Alternative				
Unmitigated	105.9	124.6	448.7	98.9
Mitigated [3]	105.1	102.3	114.9	—
Reduced Hillside Development Alternative				
Unmitigated	116.7	129.2	569.0	124.2
Mitigated [3]	115.9	106.5	145.2	—
No USACE Permit Alternative				
Unmitigated	89.7	121.6	478.3	105.0
Mitigated [3]	88.9	99.3	122.1	—
SMAQMD Significance Threshold [4]	—	85	—	—

Notes:

ROG = reactive organic gases

NO_X = oxides of nitrogen

PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less

$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less

SMAQMD = Sacramento Metropolitan Air Quality Management District

lb/day = pounds per day

[1] Maximum daily construction emissions are representative of a construction day in the earliest construction year (2011) assuming that all types of construction activities (i.e., grading, asphalt paving, building construction, and architectural coatings) would take place simultaneously at various locations of the SPA. The detailed breakdown of land use types and other input parameters used in the modeling, as well as detailed modeling output, are included in Appendix C1.

[2] Construction emission estimates do not account for the fact that the intense level of grading that would occur on the eastern side of the SPA (compared to the intensity of grading that would be performed in other areas of the site) under the Proposed Project, Resource Impact Minimization, Reduced Hillside, and No USACE Permit Alternatives, but not the Centralized Development Alternative. This distinction is pertinent because grading is the most emissions-intensive phase of construction activities. However, a more detailed analysis is not provided because grading plans were not available for all action alternatives at the time of the analysis.

[3] The mitigated total reflects a 75% reduction in fugitive PM_{10} dust emissions, a 45% reduction in PM_{10} exhaust emissions from off-road diesel equipment, and a 20% reduction in NO_X emissions from off-road diesel equipment, as required by Mitigation Measure 3A.2-1a, but not the purchase of off-sets for NO_X, as required by Mitigation Measure 3A.2-1b. Reduction levels that would result from other measures listed under Mitigation Measure 3A.2-1a cannot be quantified. A mitigated total is not reported for $PM_{2.5}$ because the reduction that would result from the measures of Mitigation Measure 3A.2-1a cannot be quantified. The purchase of off-sets for NO_X, as required by Mitigation Measure 3A.2-1b, however, would ensure that NO_X would be reduced to 85 lb/day.

[4] SMAQMD has not identified mass emissions thresholds for construction-related emissions of ROG, PM_{10} or $PM_{2.5}$.

Source: Modeling performed by AECOM in 2010

With respect to construction-generated emissions of PM_{10}, SMAQMD typically recommends that project-level analyses determine the maximum concentration of PM_{10} emissions by performing air dispersion modeling with the EPA's AERMOD model if the maximum daily acreage of ground disturbance would exceed 15 acres. Given the overall size of the SPA and the likelihood that substantial portions would undergo construction at one time, it is assumed that more than 15 acres of ground disturbance activity would occur in one day. This is particularly the case for the eastern hillside area of the SPA where extensive cut and fill operations would be performed. Thus, it is concluded that ground-disturbing activities associated with site construction would result in concentrations of PM_{10} that exceed the NAAQS or CAAQS. However, dispersion modeling has not been performed for this program-level analysis because detailed information about grading activities and the locations and occupancy timing of future planned on-site receptors is not known at the time of writing this EIR/EIS. A project-level analysis that incorporates specific details of each phase of the selected alternative would be necessary to perform accurate and meaningful dispersion modeling and properly disclose the air quality impacts associated with PM_{10} emission concentrations. SMAQMD has approved this approach for this analysis because the analysis is being performed at the program-level (Hurley, pers. comm., 2009)

Because mass emissions of NO_X would exceed SMAQMD's recommended threshold of significance and because grading activities are anticipated to be extensive, construction-generated emissions of criteria air pollutants and precursors could violate or contribute substantially to an existing or projected air quality violation. Also, construction emissions of criteria air pollutants and precursors could expose sensitive receptors to substantial pollutant concentrations, particularly when grading and other ground disturbance activities occurs near land uses that have already been developed (and where people are already living or working) on the SPA. In addition, because the SMAQMD's significance thresholds approximately correlate with reductions from heavy-duty vehicles and reduction requirements for land use project emissions in the SIP, construction-generated emissions could also conflict with air quality planning efforts. This would be a **direct significant** impact. **No indirect** impacts would occur. ***[Similar]***

Mitigation Measure 3A.2-1a: Implement Measures to Control Air Pollutant Emissions Generated by Construction of On-Site Elements.

To reduce short-term construction emissions, the project applicant(s) for all project phases shall require their contractors to implement SMAQMD's list of Basic Construction Emission Control Practices, Enhanced Fugitive PM Dust Control Practices, and Enhanced Exhaust Control Practices (list below) or whatever mitigation measures are recommended by SMAQMD at the time individual portions of the site undergo construction. In addition to SMAQMD-recommended measures, construction operations shall comply with all applicable SMAQMD rules and regulations.

Basic Construction Emission Control Practices

- 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.
- Cover or maintain at least two 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 be 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.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). 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 determine to be running in proper condition before it is operated.

Enhanced Fugitive PM Dust Control Practices – Soil Disturbance Areas

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.

- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.

- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.

- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

Enhanced Fugitive PM Dust Control Practices – Unpaved Roads

- Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site.

- Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.

- Post a publicly visible sign with the telephone number and person to contact at the construction site regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of SMAQMD and the City contact person shall also be posted to ensure compliance.

Enhanced Exhaust Control Practices

- The project shall provide a plan, for approval by the City of Folsom Community Development Department and SMAQMD, demonstrating that the heavy-duty (50 horsepower [hp] or more) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NO_X reduction and 45% particulate reduction compared to the most current California Air Resources Board (ARB) fleet average that exists at the time of construction. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The project applicant(s) of each project phase or its representative shall submit to the City of Folsom Community Development Department and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 hp, that would be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. SMAQMD's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction (SMAQMD 2007a). The project shall ensure that

emissions from all off-road diesel powered equipment used on the SPA do not exceed 40% opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and the City and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. SMAQMD staff and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation measure shall supersede other SMAQMD or state rules or regulations.

- If at the time of construction, SMAQMD has adopted a regulation or new guidance applicable to construction emissions, compliance with the regulation or new guidance may completely or partially replace this mitigation if it is equal to or more effective than the mitigation contained herein, and if SMAQMD so permits. Such a determination must be supported by a project-level analysis and be approved by SMAQMD.

Implementation: The project applicant(s) of all project phases.

Timing: Before the approval of all grading plans by the City and throughout project construction, where applicable, for all project phases.

Enforcement: City of Folsom Community Development Department

Mitigation Measure 3A.2-1b: Pay Off-Site Mitigation Fee to SMAQMD to Off-Set NO_X Emissions Generated by Construction of On-Site Elements.

Implementation of the Proposed Project Alternative or the other four other action alternatives would result in construction-generated NO_X emissions that exceed the SMAQMD threshold of significance, even after implementation of the SMAQMD Enhanced Exhaust Control Practices (listed in Mitigation Measure 3A.2-1a). Therefore, the project applicant(s) shall pay SMAQMD an off-site mitigation fee for implementation of any of the five action alternatives for the purpose of reducing NO_X emissions to a less-than-significant level (i.e., less than 85 lb/day). The specific fee amounts shall be calculated when the daily construction emissions can be more accurately determined: that is, if the City/USACE select and certify the EIR/EIS and approves the Proposed Project Alternative or one of the other four other action alternatives, the City and the applicants must establish the phasing by which development would occur, and the applicants must develop a detailed construction schedule. Calculation of fees associated with each project development phase shall be conducted by the project applicant(s) in consultation with SMAQMD staff before the approval of grading plans by the City. The project applicant(s) for all project phases shall pay into SMAQMD's off-site construction mitigation fund to further mitigate construction-generated emissions of NO_X that exceed SMAQMD's daily emission threshold of 85 lb/day. The calculation of daily NO_X emissions shall be based on the cost rate established by SMAQMD at the time the calculation and payment are made. At the time of writing this EIR/EIS the cost rate is $16,000 to reduce 1 ton of NO_X plus a 5% administrative fee (SMAQMD 2008c). The determination of the final mitigation fee shall be conducted in coordination with SMAQMD before any ground disturbance occurs for any project phase. Based on information available at the time of writing this EIR/EIS, and assuming that construction would be performed at a consistent rate over a 19-year period (and averaging of 22 work days per month), it is estimated that the off-site construction mitigation fees would range from $517,410 to $824,149, depending on which alternative is selected. Because the fee is based on the mass quantity of emissions that exceed SMAQMD's *daily* threshold of significance of 85 lb/day, total fees would be substantially greater if construction activity is more intense during some phases and less intense during other phases of the 19-year build out period, and in any event, based on the actual cost rate applied by SMAQMD. (This

fee is used by SMAQMD to purchase off-site emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.)

Implementation: The project applicant(s) of all project phases.

Timing: Before the approval of all grading plans by the City and throughout project construction for all project phases.

Enforcement: The City of Folsom Community Development Department shall not grant any grading permits to the respective project applicant(s) until the respective project applicant(s) have paid the appropriate off-site mitigation fee to SMAQMD.

Mitigation Measure 3A.2-1c: Perform a Project-Level Analysis to Disclose Projected PM_{10} Emission Concentrations at Nearby Sensitive Receptors Resulting from Construction of On-Site Elements.

Prior to construction of each development phase of on-site land uses, the project applicant shall perform a project-level CEQA analysis that includes detailed dispersion modeling of construction-generated PM_{10} to disclose what PM_{10} concentrations would be at nearby sensitive receptors. The dispersion modeling shall be performed in accordance with applicable SMAQMD guidance that is in place at the time the analysis is performed. At the time of writing this EIR/EIS, SMAQMD's most current and most detailed guidance for addressing construction-generated PM_{10} emissions is found in its *Guide to Air Quality Assessment in Sacramento County* (SMAQMD 2009a). The project-level analysis shall incorporate detailed parameters of the construction equipment and activities, including the year during which construction would be performed, as well as the proximity of potentially affected receptors, including receptors proposed by the project that exist at the time the construction activity would occur.

Implementation: All detailed, project-level analysis shall be performed by the project applicant(s) and fully funded by the project applicant of each development phase. All feasible mitigation shall be also be funded by the project applicant(s).

Timing: Before the approval of all grading plans by the City.

Enforcement: City of Folsom Community Development Department

Off-Site Elements

Maximum daily construction emissions associated with the construction of the off-site elements were estimated using the URBEMIS 2007 Version 9.2.4 computer program (Rimpo and Associates 2008) and SMAQMD's Road Construction Emissions Model (SMAQMD 2009c). While URBEMIS is designed to model construction emissions for land use development projects, the Road Construction Emissions Model (SMAQMD 2009c) is designed to estimate emissions from heavy-duty construction equipment, haul trucks, and worker commute trips and fugitive PM dust associated with linear construction projects. For all the elements, it was assumed that the most emissions-intensive phase of construction would consist of grading, excavation, and other earth-moving activities (i.e., the grading phase in the construction module of the URBEMIS model). Because detailed information about the construction of the off-site elements was not available at the time of this analysis, the following assumptions were used in the modeling in order to be conservative:

- the entire off-site area could potentially be graded on a single day, regardless of project size;
- each off-site element could potentially be constructed as early as the year 2011. This is a conservative assumption because equipment exhaust emissions from subsequent years are anticipated to be lower as new regulations and emissions technologies for off-road equipment come into place; and

- Nearby land uses on the SPA could be developed and inhabited or operating at the time construction is taking place.

Emission levels associated with the construction of each of the proposed off-site elements were modeled separately. Model inputs include conservative estimates about size (i.e., dimensions and acreage) of the construction area associated with each off-site element based in Exhibit 2-9 (see Chapter 2, "Alternatives") and default parameters (i.e., equipment types and numbers) from the applicable model. Table 3A.2-4 summarizes the modeled worst-case daily emissions of ROG, NO_X, PM_{10} and $PM_{2.5}$ associated with construction of each off-site element. Refer to Appendix C1 for a detailed summary of the modeling assumptions, inputs, and outputs.

Table 3A.2-4
Summary of Modeled Maximum Daily Criteria Air Pollutant and Precursor Emissions Associated with Construction of Off-Site Elements

Off-Site Element	Area (acres)[2]	Emissions (lb/day) [1]			
		ROG	NO_X	PM_{10}	$PM_{2.5}$
In Sacramento County					
Detention Basin [3]	3.4	4.2	33.6	70.6	16.0
Prairie City Road Interchange [3]	19.3	5.3	40.9	388.0	82.7
Rowberry Drive Overcrossing [3]	18.7	5.3	40.9	377.0	80.4
Oak Avenue Interchange [3]	46.7	10.6	89.8	938.7	199.1
Sewer Force Main Connection [4]	2.4	9.8	75.8	27.4	8.0
SMAQMD Significance Threshold [5]	—	—	85	—	—
In El Dorado County					
Roadway Connections 4[4]	1.4	5.8	46.1	16.0	4.9
EDCAQMD Significance Threshold [6]	—	82	82	—	—

Notes:
ROG = reactive organic gases
NO_X = oxides of nitrogen
PM_{10} = respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$ = respirable particulate matter with an aerodynamic diameter of 2.5 micrometers or less
SMAQMD = Sacramento Metropolitan Air Quality Management District
lb/day = pounds per day

1 The construction area associated with each off-site element is based on Exhibit 2-9 in Chapter 2, "Alternatives."

2 Maximum daily construction emissions are representative of a construction day in the earliest construction year (2011). Detailed input parameters and modeling output are included in Appendix C1. Maximum daily mass emissions of PM_{10} and PM2.5 are shown for disclosure purposes only.

3 Maximum daily emissions were estimated using the construction module and grading phase in URBEMIS 2007 Version 9.2.4 (Rimpo and Associates 2008).

4 Maximum daily emissions on projects linear in nature were estimated using the Roadway Construction Emissions Model SMAQMD 2009c)

5 SMAQMD has not identified mass emissions thresholds for construction-related emissions of ROG, PM_{10} or $PM_{2.5}$.

6 EDCAQMD has not identified mass emissions thresholds for construction-related emissions of PM_{10} or $PM_{2.5}$.

Source: Modeling performed by AECOM in 2009

The analysis of each off-site element is discussed separately below, followed by a discussion of potential impacts to air quality that may result if construction of multiple off-site elements would occur simultaneously.

Detention Basin

The off-site detention basin would be located in Sacramento County and, therefore, in SMAQMD's jurisdiction. Based on Exhibit 2-9 (see Chapter 2, "Alternatives"), construction of the detention basin would involve grading and excavation activity on approximately 3.4 acres of undeveloped land. As shown in Table 3A.2-4, maximum daily emissions of NO_X generated by this activity would be approximately 33.6 lb/day, which is less than SMAQMD's recommended threshold of significance of 85 lb/day. With regard to construction-generated PM_{10} emissions, SMAQMD does not recommend that dispersion modeling be performed to determine whether construction-generated concentrations of PM_{10} would exceed the CAAQS and NAAQS because the maximum daily disturbed area would not exceed SMAQMD's screening level of 15 acres (SMAQMD 2009a, page 3-13, 3-14). Nonetheless, without implementation of SMAQMD's Basic Construction Emission Control Practices, there is a potential that construction-generated concentrations of PM_{10} would exceed or substantially contribute to the CAAQS and NAAQS at nearby sensitive receptors.

Prairie City Road Interchange and Rowberry Drive Crossing

The Prairie City Road Interchange and Rowberry Drive Overcrossing over U.S. Highway 50 (U.S. 50) would be located in Sacramento County and, therefore, in SMAQMD's jurisdiction. Based on Exhibit 2-9 (see Chapter 2, "Alternatives"), construction of these two off-site elements would involve grading and construction activity in areas of approximately 19.3 acres and 18.7 acres, respectively. As shown in Table 3A.2-4, maximum daily emissions of NO_X generated by the grading of each of these areas would be approximately 40.9 lb/day. The emissions level estimated for both elements is the same due to their similarities in size, type of improvement, and the types and number of equipment necessary to construct both elements. Thus, the respective maximum daily emissions of NO_X generated by construction of each of these off-site elements would be less than SMAQMD's recommended threshold of significance of 85 lb/day. With regard to construction-generated PM_{10} emissions, SMAQMD recommends that, if the maximum daily disturbed area exceeds 15 acres, dispersion modeling should be performed to determine whether construction-generated concentrations of PM_{10} would exceed the CAAQS and NAAQS at nearby receptors (SMAQMD 2009a, pages 3-13, 3-14). However, this EIR/EIS contains a program-level analysis; dispersion modeling cannot be performed to support a thorough project-level analysis of these two off-site elements because critical information is not known at the time of writing this EIR/EIS, including detailed parameters about the construction of each off-site element (i.e., equipment types, intensity of earth movement activity, year of construction) and the proximity of future nearby sensitive receptors that may exist at the time the construction is performed, including on-site receptors proposed by the project. Therefore, until a detailed analysis is performed, it is presumed that concentrations of PM_{10} associated with the construction of both of these improvement projects could potentially exceed or contribute substantially to exceedances of the CAAQS and NAAQS at nearby receptors.

Oak Avenue Interchange

The Oak Avenue Interchange would be located in Sacramento County and, therefore, in SMAQMD's jurisdiction. Based on Exhibit 2-9 (see Chapter 2, "Alternatives"), construction of this interchange would involve grading and construction activity in an area that is approximately 46.7 acres in size. As shown in Table 3A.2-4, maximum daily emissions of NO_X generated by the grading of these areas would be approximately 89.8 lb/day, which exceeds SMAQMD's recommended threshold of significance of 85 lb/day.

With regard to construction-generated PM_{10} emissions, SMAQMD recommends that if the maximum daily disturbed area exceeds 15 acres, dispersion modeling should be performed to determine whether construction-generated concentrations of PM_{10} would exceed the CAAQS and NAAQS at nearby receptors (SMAQMD 2009a, pages 3-13, 3-14). However, this EIR/EIS contains a program-level analysis; dispersion modeling cannot currently be performed to support a thorough project-level analysis of the Oak Avenue Interchange element because critical information is not known at the time of writing this EIR/EIS, including detailed parameters about the construction of each off-site element (i.e., equipment types, intensity of earth movement activity, year of

construction) and the proximity of future nearby sensitive receptors that may exist at the time the construction is performed, including on-site receptors proposed by the project. Thus, until such a project-level analysis is performed, it is presumed that concentrations of PM_{10} associated with the construction of the Oak Avenue Interchange could potentially exceed or contribute substantially to exceedances of the CAAQS and NAAQS at nearby receptors.

Therefore, construction-generated NO_X emissions could violate or contribute substantially to an existing or projected air quality violation in the SVAB. Also, construction emissions of criteria air pollutants and precursors could expose sensitive receptors to substantial pollutant concentrations, particularly when grading and other ground disturbance activities occurs near land uses that have already been developed (and where people are already living or working) on the SPA. In addition, because the SMAQMD's significance thresholds approximately correlate with reductions from heavy-duty vehicles and reduction requirements for land use project emissions in the SIP, construction-generated emissions could also conflict with air quality planning efforts.

Sewer Force Main Connection to Existing Off-Site Pump Station

The sewer force main connection to the existing off-site pump station north of U.S. 50 would be located in Sacramento County and, therefore, in SMAQMD's jurisdiction. Based on Exhibit 2-9 (see Chapter 2, "Alternatives"), the sewer force main connection would be approximately 2,100 feet long and, assuming a corridor width of up to 50 feet, as much as 2.4 acres could be subject to involve grading and excavation activity. It is also assumed that some soil would be removed from the site and consistent rock material would be imported to provide a foundation for the conduit. Because this off-site element would be linear in nature, SMAQMD's Road Construction Emissions Model (SMAQMD 2009c) was used to estimate emissions associated with construction of this sewer force main connection. As shown in Table 3A.2-4, maximum daily emissions of NO_X generated by this activity would be approximately 75.8 lb/day, which is less than SMAQMD's recommended threshold of significance of 85 lb/day. With regard to construction-generated PM_{10} emissions, SMAQMD does not recommend that dispersion modeling be performed to determine whether construction-generated concentrations of PM_{10} would exceed the CAAQS and NAAQS because the maximum daily disturbed area would not exceed SMAQMD's screening level of 15 acres (SMAQMD 2009a, pages 3-13, 3-14). Nonetheless, without implementation of SMAQMD's Basic Construction Emission Control Practices, there is a potential that construction-generated concentrations of PM_{10} would exceed the CAAQS and NAAQS at nearby receptors.

Roadway Connections into El Dorado County

Two roadway connections would be constructed from the east side of the SPA into El Dorado County. These roadway connections would be located in EDCAQMD's jurisdiction. Based on Exhibit 2-9 (see Chapter 2, "Alternatives"), the two roadway connections would have a combined length of 1,500 feet and, assuming a corridor width of up 40 feet, as much as 1.4 acres could be subject to grading and excavation activity. It is also assumed that some soil would be removed from the site and some consistent material would be imported to provide a foundation for the roadways. Because this off-site element would be linear in nature, the Road Construction Emissions Model (SMAQMD 2009c) was used to estimate emissions associated with construction of these roadway connections. As shown in Table 3A.2-4, maximum daily emissions of NO_X and ROG generated by this activity would be approximately 46.1 lb/day and 5.8 lb/day, respectively, which are less than EDCAQMD's recommended threshold of significance of 82 lb/day. With regard to construction-generated PM_{10} emissions, dispersion modeling was not performed because the maximum daily disturbed area would not exceed EDCAQMD's screening level of 12 acres. Nonetheless, without implementation of ECAQMD-approved fugitive dust control measures, there is a potential that construction-generated concentrations of PM_{10} would exceed the CAAQS and NAAQS at nearby receptors.

Summary

The timing of construction of each of the off-site elements is unknown at the time of writing this EIR/EIS. If the construction schedules of multiple off-site elements located in SMAQMD's jurisdiction (i.e., Sacramento County) would overlap with each other, and/or with construction of on-site elements, their combined emissions of NO_X would potentially exceed SMAQMD's mass emission threshold of 85 lb/day. The combined effect of NO_X emissions from multiple sources is additive because NO_X is a precursor to ozone, which is a pollutant of regional concern. Even though NO_X emissions associated with construction of the two roadway connections would occur in El Dorado County, their impact would also be additive because the western portion of El Dorado County is part of the SVAB and the SFNA. PM_{10}, however, is a pollutant of localized concern and PM_{10} generated by construction of the various off-site elements would not combine to form higher concentrations of PM_{10} than construction of any single off-site element because the various off-site elements are not located in close proximity to each other. Nonetheless, as discussed above, PM_{10} emissions generated by grading and ground disturbance activity during construction of all of the off-site elements could exceed or substantially contribute to local exceedances of the CAAQS and NAAQS for PM_{10}, especially if adequate dust control measures are not implemented. As a result, because both NO_X and PM_{10} emissions associated with the construction of the off-site elements could exceed applicable thresholds this would be considered a **direct, significant** impact. **No indirect** impacts would occur.

Mitigation Measure 3A.2-1d: Implement SMAQMD's Basic Construction Emission Control Practices during Construction of all Off-Site Elements located in Sacramento County.

The applicants responsible for the construction of each off-site element in Sacramento County shall require its contractors to implement SMAQMD's Basic Construction Emission Control Practices during construction. A list of SMAQMD's Basic Construction Emission Control Practices is provided under Mitigation Measure 3A.2-1a.

Mitigation for the off-site elements outside of the City of Folsom's jurisdictional boundaries must be coordinated by the project applicant(s) of each applicable project phase with the affected oversight agency(ies) (i.e., Sacramento County or Caltrans).

Implementation: The project applicant(s) responsible for construction of each off-site element in Sacramento County.

Timing: Before the approval of all grading plans from SMAQMD.

Enforcement:
1. For all off-site improvements within Sacramento County: Sacramento County Planning and Community Development Department.
2. For the U.S. 50 interchange improvements: Caltrans.

Mitigation Measure 3A.2-1e: Implement EDCAQMD-Recommended Measures for Controlling Fugitive PM_{10} dust During Construction of the Two Roadway Connections in El Dorado County.

Prior to construction of each roadway extension in El Dorado County, the applicants or its contractors shall develop a fugitive dust control plan that is approved by EDCAQMD and the applicants shall require their contractors to implement the dust control measures identified in the EDCAQMD-approved fugitive dust control plan. The fugitive dust control plan shall contain measures that are recommended by EDCAQMD at the time the plan is developed, which may include, but is not limited to, the current list of EDCAQMD-recommended dust control measures provided in Table 3A.2-5 below.

Table 3A.2-5 EDCAQMD-Recommend Fugitive Dust Control Measures	
Source	Mitigation Measure
Soil Piles	Enclose, cover, or water twice daily all soil piles
	Automatic sprinkler system installed on soil piles
Exposed Surface/Grading	Water all exposed soil twice daily
	Water exposed soil with adequate frequency to keep soil moist at all times
Truck Hauling Road	Water all haul roads twice daily
	Pave all haul roads
Truck Hauling Load	Maintain at least two feet of freeboard
	Cover load of all haul/dump trucks securely
Source: Table 4.12 of EDCAQMD's *Guide to Air Quality Assessment* (EDCAQMD 2002).	

Mitigation for the off-site elements outside of the City of Folsom's jurisdictional boundaries must be coordinated by the project applicant(s) of each applicable project phase with the affected oversight agency(ies) (i.e., El Dorado County).

Implementation: The project applicant(s) responsible for constructing the roadway connections in El Dorado County.

Timing: Before the approval of grading plans by EDCAQMD.

Enforcement: El Dorado County Development Services Department.

Mitigation Measure 3A.2-1f: Implement SMAQMD's Enhanced Exhaust Control Practices during Construction of all Off-Site Elements.

Implement SMAQMD's Enhanced Exhaust Control Practices, which are listed in Mitigation Measure 3A.2-1a, in order to control NO_X emissions generated by construction of all off-site elements (in Sacramento and El Dorado Counties, or Caltrans right-of-way).

Implementation: The project applicant(s) responsible for construction of each off-site element in Sacramento and El Dorado counties.

Timing: Before the approval of all grading plans from the respective air district (i.e., SMAQMD or EDCAQMD).

Enforcement:

1. For the two roadway connections in El Dorado Hills: El Dorado County Development Services Department.
2. For the detention basin west of Prairie City Road: Sacramento County Planning and Community Development Department.
3. For the U.S. 50 interchange improvements: Caltrans.

Mitigation Measure 3A.2-1g: Pay Off-Site Mitigation Fee to SMAQMD to Off-Set NO_X Emissions Generated by Construction of Off-Site Elements.

The off-site elements could result in construction-generated NO_X emissions that exceed the SMAQMD threshold of significance, even after implementation of the SMAQMD Enhanced Exhaust Control Practices (listed in Mitigation Measure 3A.2-1a). Therefore, the responsible project applicant(s) for each off-site element in Sacramento County shall pay SMAQMD an off-site mitigation fee for implementation of each off-site element in Sacramento County for the purpose of reducing NO_X emissions to a less-than-significant level (i.e., less than 85 lb/day). The specific fee amounts shall be calculated when the daily construction emissions can be more accurately determined. This calculation shall occur if the City/USACE certify the EIR/EIS and select and approves the Proposed Project Alternative or one of the other four other action alternatives, the City, Sacramento County, and the applicants establish the phasing by which construction of the off-site elements would occur, and the applicants develop a detailed construction schedule. Calculation of fees associated with each off-site element shall be conducted by the project applicant(s) in consultation with SMAQMD staff before 'the approval of respective grading plans by Sacramento County. The project applicant(s) responsible for each off-site element in Sacramento County shall pay into SMAQMD's off-site construction mitigation fund to further mitigate construction-generated emissions of NO_X that exceed SMAQMD's daily emission threshold of 85 lb/day. The calculation of daily NO_X emissions shall be based on the cost rate established by SMAQMD at the time the calculation and payment are made. At the time of writing this EIR/EIS the cost rate is $16,000 to reduce 1 ton of NO_X plus a 5% administrative fee (SMAQMD 2008c). The determination of the final mitigation fee shall be conducted in coordination with SMAQMD before any ground disturbance occurs for any project phase. Because the fee is based on the mass quantity of emissions that exceed SMAQMD's *daily* threshold of significance of 85 lb/day, total fees for construction of the off-site elements would vary according to the timing and potential overlap of construction schedules for off-site elements. This measure applies only to those off-site elements located in SMAQMD's jurisdiction (i.e., in Sacramento County) because EDCAQMD does not offer a similar off-set fee program for construction-generated NO_X emissions in its jurisdiction. (This fee is used by SMAQMD to purchase off-site emissions reductions. Such purchases are made through SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.)

Mitigation for the off-site elements outside of the City of Folsom's jurisdictional boundaries must be coordinated by the project applicant(s) of each applicable project phase with the affected oversight agency(ies) (i.e., Sacramento County or Caltrans).

Implementation: The project applicant(s) of all off-site elements in Sacramento County.

Timing: Before the approval of each grading plan for the off-site elements in Sacramento County.

Enforcement:

1. For all off-site improvements within Sacramento County: Sacramento County Planning and Community Development Department shall not grant any grading permits to the respective project applicant(s) until the respective project applicant(s) have paid the appropriate off-site mitigation fee to SMAQMD.

2. For the U.S. 50 interchange improvements: Caltrans shall not grant any grading permits to the respective project applicant(s) until the respective project applicant(s) have paid the appropriate off-site mitigation fee to SMAQMD.

Mitigation Measure 3A.2-1h: Perform a Project-Level Analysis to Disclose Projected PM_{10} Emission Concentrations at Nearby Sensitive Receptors Resulting from Construction of Off-Site Elements.

Prior to construction of each off-site element located in Sacramento County that would involve site grading or earth disturbance activity that would exceed 15 acres in one day, the responsible agency or its selected consultant shall require that detailed dispersion modeling is conducted of construction-generated PM_{10} emissions pursuant to SMAQMD guidance that is in place at the time the analysis is performed. At the time of writing this EIR/EIS, SMAQMD's most current and most detailed guidance for addressing construction-generated PM_{10} emissions is found in its *Guide to Air Quality Assessment in Sacramento County* SMAQMD 2009a). SMAQMD emphasizes that PM_{10} emission concentrations at nearby sensitive receptors be disclosed in project-level CEQA analysis. Each project-level analysis shall incorporate detailed parameters of the construction equipment and activities, including the year during which construction would be performed, as well as the proximity of potentially affected receptors, including receptors proposed by the project that exist at the time the construction activity would occur. If the modeling analysis determines that construction activity would result in an exceedance or substantial contribution to the CAAQS and NAAQS at a nearby receptor, then the project applicant(s) shall require their respective contractors to implement additional measures for controlling construction-generated PM_{10} exhaust emission and fugitive PM_{10} dust emissions in accordance with SMAQMD guidance, requirements, and/or rules that apply at the time the project-level analysis is performed. It is likely that these measures would be the same or similar to those listed as Enhanced Fugitive PM Dust Control Practices for Soil Disturbance Areas and Unpaved Roads and Enhanced Exhaust Control Practices included in Mitigation Measure 3A.2-1a. Dispersion modeling is not required for the two El Dorado County roadway connections because the total amount of disturbed acreage is expected to be less than the EDCAQMD screening level of 12 acres.

Mitigation for the off-site elements outside of the City of Folsom's jurisdictional boundaries must be coordinated by the project applicant(s) of each applicable project phase with the affected oversight agency(ies) (i.e., Sacramento County or Caltrans).

Implementation: All detailed, project-level analysis shall be performed by the responsible lead agency or its selected consultant and funded by the project applicant(s). Implementation of the project-level modeling analysis and any necessary additional mitigation shall be fully funded by the project applicant(s) responsible for each off-site improvement.

Timing:

1. For all off-site improvements within unincorporated Sacramento County: Before the approval of the respective grading plans from the Sacramento County Planning and Community Development Department
2. For the U.S. 50 interchange improvements: Before the approval of construction plans from Caltrans.

Enforcement:

1. For all off-site improvements within Sacramento County: Sacramento County Planning and Community Development Department.
2. For the U.S. 50 interchange improvements: Caltrans.

With regard to NO_X emissions associated with construction of on-site elements, implementation of SMAQMD's Basic Construction Emission Control Practices and Enhanced Exhaust Control Practices, as required by Mitigation Measure 3A.2-1a, and payment of an off-site mitigation fee to off-set construction-generated NO_X emissions, as required by Mitigation Measure 3A.2-1b, would reduce emissions of NO_X associated with construction of the on-site elements to levels that do not exceed SMAQMD's threshold of significance of 85 lb/day.

With regard to NO_X emissions associated with construction of off-site elements, implementation of SMAQMD's Basic Construction Emission Control Practices and Enhanced Exhaust Control Practices, as required by Mitigation Measure 3A.2-1d and Mitigation Measure 3A.2-1f, respectively, and payment of an off-site mitigation fee to off-set construction-generated NO_X emissions, as required by Mitigation Measure 3A.2-1g, would reduce emissions of NO_X associated with construction of the off-site elements in Sacramento County to levels that do not exceed SMAQMD's threshold of significance of 85 lb/day. Consequently, emissions of NO_X associated with the construction of both on-site and off-site elements would be reduced to a **less-than-significant** level.

With regard to PM_{10} emission concentrations resulting from construction of on-site elements implementation of SMAQMD's Basic Construction Emission Control Practices, Enhanced Fugitive PM Dust Control Practices for Soil Disturbance Areas, and Enhanced Fugitive PM Dust Control Practices for Unpaved Roads, as required by Mitigation Measure 3A.2-1a, would reduce PM_{10} concentrations generated during the construction of the on-site elements. Nonetheless, resultant PM_{10} concentrations could potentially exceed or substantially contribute to the CAAQS and NAAQS because the intensity of construction activity and the acreage of ground disturbance that could occur at any one point in time could be substantially high and/or take place in close proximity to existing or future planned sensitive receptors (e.g., residents, schools). Therefore, PM_{10} emissions associated with construction of the on-site elements would be **significant and unavoidable** unless the results of a detailed project-level analysis, as required by Mitigation Measure 3A.2-1c, support another impact conclusion. Mitigation Measure 3A.2-1c requires a detailed project-level analysis after project phasing has been determined and tentative maps and improvement plans have been prepared, because at the time this DEIR/DEIS was prepared, site-specific information that would allow detailed dispersion modeling of construction-generated PM_{10} from construction of the on-site elements in relation to nearby sensitive receptors was not available (please refer to Section 2.3.1 in Chapter 2, "Alternatives," for a discussion of project phasing).

With regard to PM_{10} emission concentrations resulting from construction of off-site elements, implementation of SMAQMD's Basic Construction Emission Control Practices, as required by Mitigation Measure 3A.2-1d, as well as implementation of EDCAQMD-recommended fugitive PM_{10} dust control measures, would reduce PM_{10} concentrations generated during the construction of the off-site elements. Nonetheless, resultant PM_{10} concentrations could potentially exceed or substantially contribute to the CAAQS and NAAQS because the intensity of construction activity and the acreage of ground disturbance that could occur at any one point in time could be substantially high and/or take place in close proximity to existing or future planned sensitive receptors (e.g., residents, schools). Therefore, PM_{10} emissions associated with construction of the off-site elements would be **significant and unavoidable** unless the results of a detailed project-level analysis, as required by Mitigation Measure 3A.2-1h, support another impact conclusion. Mitigation Measure 3A.2-1h requires a detailed project-level analysis after project phasing has been determined and tentative maps and improvement plans have been prepared, because at the time this DEIR/DEIS was prepared, site-specific information that would allow detailed dispersion modeling of construction-generated PM_{10} from construction of the off-site elements in relation to nearby sensitive receptors was not available.

Additionally, some of the off-site elements fall under the jurisdiction of El Dorado and Sacramento Counties and/or Caltrans; therefore, the City would not have control over their timing or implementation. Therefore, the impacts related to those off-site facilities are considered potentially significant and unavoidable. These impacts would be reduced to a **less-than-significant** level if El Dorado County and/or Caltrans cooperate in their implementation.

IMPACT 3A.2-2 Generation of Long-Term Operational (Regional) Emissions of ROG, and NO_X. *Operational area- and mobile-source emissions from project implementation would exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, and would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS for ozone. In addition, because of the large increase in emissions associated with project build out and the fact that the project is not within an already approved plan (which means that increased emissions would not already be accounted for in applicable air quality plans), project implementation could conflict with air quality planning efforts in the SVAB.*

On-Site and Off-Site Elements

NP

Under the No Project Alternative, development of up to 44 rural residences could occur under the existing Sacramento County agricultural zoning classification AG-80. This amount of development is less than SMAQMD's operational screening level of 375 single family dwelling units (SMAQMD 2009a). Thus, if developed, these residences would not be anticipated to generate operational emissions that exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X. Also, it is not anticipated that operation of these rural residents would generate concentrations of PM_{10} and $PM_{2.5}$ emissions that would exceed or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS for these pollutants. In addition, no stationary sources of CAPs would be developed on the site or as part of the off-site water facilities. Thus, the **direct** impact of long-term operational emissions of criteria air pollutants and precursors would be **less than significant**. **No indirect** impacts would occur. ***[Lesser]***

On-Site Elements

NCP

Operation of the No USACE Permit Alternative would also result in long-term regional emissions of ROG, NO_X, and PM_{10} associated with area sources, such as natural gas emissions, landscaping, applications of architectural coatings, in addition to operational vehicle-exhaust emissions. According to the traffic data used to prepare Section 3A.15, "Traffic and Transportation – Land," full build out of the No USACE Permit Alternative would result in approximately 196,000 additional vehicle trips per day and a regional net increase of 511,300 VMT per day (Stankiewicz, pers. comm., 2009a). Operational emissions were also modeled in URBEMIS and estimated operational emissions for the No USACE Permit Alternative are presented in Table 3A.2-6.

Table 3A.2-6
Summary of Modeled Long-Term Operational Emissions Under the No USACE Permit Alternative

Source	Emissions (lb/day) [1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Operational Sources [1]				
Mobile-Source Emissions	418	264	882	171
Area-Source Emissions	974	257	859	826
Total Unmitigated Operational Emissions	1,393	521	1,741	997
SMAQMD Significance Threshold	65	65	— [2]	— [2]

Notes: CAAQS = California ambient air quality standards; lb/day = pounds per day; $\mu g/m^3$ = micrograms per cubic meter; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District
See Appendix C1 for modeling assumptions and results.

Table 3A.2-6
Summary of Modeled Long-Term Operational Emissions Under the No USACE Permit Alternative

Source	Emissions (lb/day) [1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$

[1] Operational emissions shown represent the maximum daily emissions during the summertime or wintertime in year 2030. Totals may not add exactly due to rounding.

[2] SMAQMD has not identified mass emissions thresholds for operational emissions of PM_{10} or $PM_{2.5}$. Emission levels are shown for informational purposes only.

Source: Modeling performed by AECOM in 2009

Based on the modeling conducted, and as summarized in Table 3A.2-6, operation of the No USACE Permit Alternative would result in a net increase in unmitigated long-term regional emissions of approximately 1,393 lb/day of ROG, 521 lb/day of NO_X, 1,741 lb/day of PM_{10}, and 997 lb/day of $PM_{2.5}$. Operational area- and mobile-source emissions of NO_X from implementation of the No USACE Permit Alternative would exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, and would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. In addition, because development of the SPA is not included in an already-approved general plan, and operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with land use development on the site would not already be accounted for in applicable air quality plans, implementation of the No USACE Permit Alternative could conflict with air quality planning efforts in the SVAB. As a result, this long-term **direct** impact is considered **significant**. **No indirect** impacts would occur. ***[Lesser]***

Mitigation Measure 3A.2-2: Implement All Measures Prescribed by the Air Quality Mitigation Plan to Reduce Operational Air Pollutant Emissions.

To reduce operational emissions, the project applicant(s) for all project phases shall implement all measures prescribed in the SMAQMD-approved *Folsom Plan Area Specific Plan Air Quality Mitigation Plan* (AQMP) (Torrence Planning 2008), a copy of which is included in Appendix C2. The AQMP is intended to improve mobility, reduce vehicle miles traveled, and improve air quality as required by AB 32 and SB 375. The AQMP includes, among others, measures designed to provide bicycle parking at commercial land uses, an integrated pedestrian/bicycle path network, transit stops with shelters, a prohibition against the use the wood-burning fireplaces, Energy Star roofing materials, electric lawnmowers provided to homeowners at no charge, and on-site transportation alternatives to passenger vehicles (including light rail) that provide connectivity with other local and regional alternative transportation networks.

Implementation: The project applicant(s) of all project phases.

Timing: Before issuance of subdivision maps or improvement plans.

Enforcement: City of Folsom Community Development Department.

PP

Operation of the Proposed Project Alternative would result in long-term regional emissions of ROG, NO_X, and PM_{10} associated with area sources, such as natural gas emissions, landscaping, applications of architectural coatings, in addition to operational vehicle-exhaust emissions. According to the traffic data used to prepare Section 3A.15, "Traffic and Transportation – Land," full build out of the Proposed Project Alternative would

result in approximately 247,000 additional vehicle trips per day and a regional net increase of 612,800 VMT per day (Stankiewicz, pers. comm., 2009a).

Operational emissions were modeled using the URBEMIS 2007 Version 9.2.4 computer program (Rimpo and Associates 2008), as recommended by SMAQMD. Model defaults were adjusted to reflect project-specific data where available including the sizes and types of proposed land uses. Modeled operational emissions for the Proposed Project Alternative are presented in Table 3A.2-7. Refer to Appendix C1 for a detailed summary of the URBEMIS modeling assumptions, inputs, and outputs.

Table 3A.2-7
Summary of Modeled Long-Term Operational Emissions Under the Proposed Project Alternative

Source	Emissions (lb/day) [1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Operational Sources [1]				
Mobile-Source Emissions	522	323	1,058	205
Area-Source Emissions	1,539	386	1,375	1,324
Total Unmitigated Operational Emissions	2,061	709	2,433	1,529
SMAQMD Significance Threshold	65	65	— [2]	— [2]

Notes: CAAQS = California ambient air quality standards; lb/day = pounds per day; $\mu g/m^3$ = micrograms per cubic meter; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District

See Appendix C1 for modeling assumptions and results.

[1] Operational emissions shown represent the maximum daily emissions during the summertime or wintertime in year 2030. Totals may not add exactly due to rounding.

[2] SMAQMD has not identified mass emissions thresholds for operational emissions of PM_{10} or $PM_{2.5}$. Emission levels are shown for informational purposes only.

Source: Modeling performed by AECOM in 2010

Based on the modeling conducted, and as summarized in Table 3A.2-7, operation of the Proposed Project Alternative would result in a net increase in unmitigated long-term regional emissions of approximately 2,061 lb/day of ROG, 709 lb/day of NO_X, 2,433 lb/day of PM_{10}, and 1,529 lb/day of $PM_{2.5}$. Operational area- and mobile-source emissions of NO_X from implementation of the Proposed Project Alternative would exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, and would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. In addition, because development of the SPA is not included in an existing approved general plan, and operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with land use development on the site would not already be accounted for in applicable air quality plans, implementation of the Proposed Project Alternative could conflict with air quality planning efforts in the SVAB. As a result, this long-term **direct** impact is considered **significant**. **No indirect** impacts would occur.

Mitigation Measure: Implement Mitigation Measure 3A.2-2.

RIM

Operation of the Resource Impact Minimization Alternative would also result in long-term regional emissions of ROG, NO_X, and PM_{10} associated with area sources, such as natural gas emissions, landscaping, applications of architectural coatings, in addition to operational vehicle-exhaust emissions. According to the traffic data used to prepare Section 3A.15, "Traffic and Transportation – Land," full build out of the Resource Impact Minimization Alternative would result in approximately 192,000 additional vehicle trips per day and a regional net increase of

474,800 VMT per day (Stankiewicz, pers. comm., 2009a). Operational emissions were also modeled in URBEMIS and estimated operational emissions for the Resource Impact Minimization Alternative are presented in Table 3A.2-8.

Table 3A.2-8
Summary of Modeled Long-Term Operational Emissions Under the Resource Impact Minimization Alternative

Source	Emissions (lb/day) [1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Operational Sources [1]				
Mobile-Source Emissions	407	250	821	159
Area-Source Emissions	1,205	305	1,073	1,033
Total Unmitigated Operational Emissions	1,612	556	1,894	1,192
SMAQMD Significance Threshold	65	65	— [2]	— [2]

Notes: CAAQS = California ambient air quality standards; lb/day = pounds per day; $\mu g/m^3$ = micrograms per cubic meter; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District

See Appendix C1 for modeling assumptions and results.

[1] Operational emissions shown represent the maximum daily emissions during the summertime or wintertime in year 2030. Totals may not add exactly due to rounding.

[2] SMAQMD has not identified mass emissions thresholds for operational emissions of PM_{10} or $PM_{2.5}$. Emission levels are shown for informational purposes only.

Source: Modeling performed by AECOM in 2009

Based on the modeling conducted, and as summarized in Table 3A.2-8, operation of the Resource Impact Minimization Alternative would result in a net increase in unmitigated long-term regional emissions of approximately 1,612 lb/day of ROG, 556 lb/day of NO_X, 1,894 lb/day of PM_{10}, and 1,192 lb/day of $PM_{2.5}$. Operational area- and mobile-source emissions of NO_X from implementation of the Resource Impact Minimization Alternative would exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, and would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. In addition, because development of the SPA is not included in an already-approved general plan, and operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with land use development on the site are not already accounted for in the applicable SMAQMD regional air quality plans, implementation of the Resource Impact Minimization Alternative could conflict with air quality planning efforts in the SVAB. As a result, this long-term **direct** impact is considered **significant**. **No indirect** impacts would occur. ***[Lesser]***

Mitigation Measure: Implement Mitigation Measure 3A.2-2.

RHD

Operation of the Reduced Hillside Development Alternative would also result in long-term regional emissions of ROG, NO_X, and PM_{10} associated with area sources, such as natural gas emissions, landscaping, applications of architectural coatings, in addition to operational vehicle-exhaust emissions. According to the traffic data used to prepare Section 3A.15, "Traffic and Transportation – Land," full build out of the Reduced Hillside Development Alternative would result in approximately 268,000 additional vehicle trips per day and a regional net increase of 634,300 VMT per day (Stankiewicz, pers. comm., 2009a). Operational emissions were also modeled in URBEMIS and estimated operational emissions for the Reduced Hillside Development Alternative are presented in Table 3A.2-9.

Table 3A.2-9
Summary of Modeled Long-Term Operational Emissions Under the Reduced Hillside Development Alternative

Source	Emissions (lb/day) [1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Operational Sources [1]				
Mobile-Source Emissions	517	323	1,069	207
Area-Source Emissions	1,718	411	1,556	1,497
Total Unmitigated Operational Emissions	2,235	734	2,625	1,705
SMAQMD Significance Threshold	65	65	— [2]	— [2]

Notes: CAAQS = California ambient air quality standards; lb/day = pounds per day; $\mu g/m^3$ = micrograms per cubic meter; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District

See Appendix C1 for modeling assumptions and results.

[1] Operational emissions shown represent the maximum daily emissions during the summertime or wintertime in year 2030. Totals may not add exactly due to rounding.

[2] SMAQMD has not identified mass emissions thresholds for operational emissions of PM_{10} or $PM_{2.5}$. Emission levels are shown for informational purposes only.

Source: Modeling performed by AECOM in 2010

Based on the modeling conducted, and as summarized in Table 3A.2-9, operation of the Reduced Hillside Development Alternative would result in a net increase in unmitigated long-term regional emissions of approximately 2,235 lb/day of ROG, 734 lb/day of NO_X, 2,625 lb/day of PM_{10}, and 1,705 lb/day of $PM_{2.5}$. Operational area- and mobile-source emissions of NO_X from implementation of the Reduced Hillside Development Alternative would exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, and would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. In addition, because development of the SPA is not included in an already-approved general plan, and operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with land use development on the site are not already accounted for in applicable SMAQMD regional air quality plans, implementation of the Reduced Hillside Development Alternative could conflict with air quality planning efforts in the SVAB. As a result, this long-term **direct** impact is considered **significant**. **No indirect** impacts would occur. ***[Greater]***

Mitigation Measure: Implement Mitigation Measure 3A.2-2.

CD

Operation of the Centralized Development Alternative would also result in long-term regional emissions of ROG, NO_X, and PM_{10} associated with area sources, such as natural gas emissions, landscaping, applications of architectural coatings, in addition to operational vehicle-exhaust emissions. According to the traffic data used to prepare Section 3A.15, "Traffic and Transportation – Land," full build out of the Centralized Development Alternative would result in approximately 230,000 additional vehicle trips per day and a regional net increase of 601,700 VMT per day (Stankiewicz, pers. comm., 2009a). Operational emissions were also modeled in URBEMIS and estimated operational emissions for the Centralized Development Alternative are presented in Table 3A.2-10.

Table 3A.2-10
Summary of Modeled Long-Term Operational Emissions Under the Centralized Development Alternative

Source	Emissions (lb/day) [1]			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Operational Sources [1]				
Mobile-Source Emissions	497	312	1,040	201
Area-Source Emissions	1,358	340	1,215	1,170
Total Unmitigated Operational Emissions	1,855	652	2,255	1,371
SMAQMD Significance Threshold	65	65	— [2]	— [2]

Notes: CAAQS = California ambient air quality standards; lb/day = pounds per day; $\mu g/m^3$ = micrograms per cubic meter; ROG = reactive organic gases; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SMAQMD = Sacramento Metropolitan Air Quality Management District

See Appendix C1 for modeling assumptions and results.

[1] Operational emissions shown represent the maximum daily emissions during the summertime or wintertime in year 2030. Totals may not add exactly due to rounding.

[2] SMAQMD has not identified mass emissions thresholds for operational emissions of PM_{10} or $PM_{2.5}$. Emission levels are shown for informational purposes only.

Source: Modeling performed by AECOM in 2010

Based on the modeling conducted, and as summarized in Table 3A.2-10, operation of the Centralized Development Alternative would result in a net increase in unmitigated long-term regional emissions of approximately 1,855 lb/day of ROG, 652 lb/day of NO_X, 2,255 lb/day of PM_{10}, and 1,371 lb/day of $PM_{2.5}$. Operational area- and mobile-source emissions of NO_X from implementation of the Centralized Development Alternative would exceed the SMAQMD-recommended threshold of 65 lb/day for ROG and NO_X, and would result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. In addition, because development of the SPA is not included in an already-approved general plan, and operational emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$ associated with land use development on the site would not already be accounted for in applicable air quality plans, implementation of the Centralized Development Alternative could conflict with air quality planning efforts in the SVAB. As a result, this long-term **direct** impact is considered **significant**. **No indirect** impacts would occur. ***[Lesser]***

Mitigation Measure: Implement Mitigation Measure 3A.2-2.

Off-Site Elements

The off-site elements would not be anticipated to result in increased operational emissions of criteria air pollutants beyond those associated with the on-site project development. While the road improvement-related elements would accommodate local vehicle traffic, they would not be expected to result in a substantial increase in vehicle trips and associated mobile-source emissions. (A substantial portion of vehicle trips using the proposed roadway infrastructure elements would be generated by the land uses developed on the SPA and associated mobile-source emissions are discussed in the analysis of on-site elements above.) Some of the roadway infrastructure improvements may actually reduce VMT by enabling more direct travel routes between area destinations. Also, it is not anticipated that the detention basin would generate a substantial number of vehicle trips other than the nominal amount of trips associated with routine maintenance of the facility. As a result, this **direct** impact would be **less than significant**. **No indirect** impacts would occur.

Mitigation Measure: No mitigation measures are required.

Implementation of all air pollutant reduction measures contained in the SMAQMD-approved *Folsom Plan Area Specific Plan Air Quality Mitigation Plan*, as required by Mitigation Measure 3A.2-2, would reduce ROG and NO_X emissions associated with operation of the project. However, for reasons described in more detail below, the exact reduction achieved by implementation of Mitigation Measure 3A.2-2 cannot be determined for the Proposed Project and the other four other action alternatives. While the AQMP was developed to achieve a 35% reduction in operational NO_X emissions from baseline levels, the baseline levels are not represented by the URBEMIS modeling output summarized in Tables 3A.2-6 through 3A.2-10 (above). For the purposes of developing an AQMP pursuant to SMAQMD's *Guidance for Land Use Emission Reductions* (SMAQMD 2007b) a baseline emissions level is presumed that is based on standard default trip generation rates established by the Institution of Transportation Engineers (ITE). The traffic modeling performed to support the analysis in Section 3A.15, "Traffic and Transportation – Land," and the associated modeling of operational emissions summarized in Tables 3A.2-6 through 3A.2-10 of this section, did not utilize standard ITE trip generation rates. Instead, the traffic analysis was based on a modified version of the 2008 SACMET regional travel demand forecasting model (Stankiewicz, pers. comm., 2009b). As explained in Section 3A.15, "Traffic and Transportation – Land," a traffic demand forecasting model is a tool that assigns trips generated by the various land uses to the surrounding roadway network based on the locations of trip attractions and productions. The traffic demand forecast model incorporates several types of data, including detailed land use; trip generation characteristics of specific land use types; mode choice propensity based upon user and trip characteristics; roadway, pedestrian, and transit networks; and census information. By incorporating more parameters that are unique to the region and the SPA, the model estimates more precise (and lower) estimates of VMT than using standard default ITE trip generation rates, which in turn results in more precise (and lower) estimates of operational air pollutant emissions. In other words, the traffic modeling already accounts for some of the unique attributes of the proposed land use plans (such as the proximity of residential and commercial land uses to activity centers and to transit service), for which an emissions reduction is also included in the AQMP. Therefore, one would overestimate the reduction achieved by the AQMP by reducing the levels of operational NO_X emissions reported in Tables 3A.2-6 through 3A.2-10 by 35%. The actual emission reduction benefit of the AQMP would be some amount less than 35%. Nonetheless, even if operational emissions of ROG and NO_X were 35% lower than the levels reported in Tables 3A.2-6 through 3A.2-10, they would still exceed SMAQMD's significance threshold of 65 lb/day. As a result, this impact would be **significant and unavoidable**.

IMPACT 3A.2-3 Generation of Local Mobile-Source CO Emissions. *Project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm.*

On-Site and Off-Site Elements

NP

Under the No Project Alternative, development of up to 44 rural residences could occur under the existing Sacramento County agricultural zoning classification AG-80. Vehicle trip generated by this amount of rural residences would not be expected to result in a substantial increase in congestion at any area intersections and thus would not result in high concentrations of localized CO. No off-site water facilities would be constructed under this alternative. Thus, this **direct** impact would be **less than significant**. **No indirect** impacts would occur. ***[Lesser]***

On-Site Elements

NCP, PP, RIM, CD, RHD

The primary mobile-source pollutant of localized concern is CO. 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 specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities. Thus, high local CO concentrations are considered to have a direct influence on the receptors they affect. Modeling of CO concentrations is typically recommended for areas located near signalized roadway intersections that are projected to operate at an unacceptable level of service (LOS) (i.e., LOS E or F) during peak traffic hours (Garza, Graney, and Sperling 1997).

Intersections controlled by stop signs do not experience high enough traffic volumes and associated congestion to be the site of violations of the AAQS; therefore, CO modeling is not recommended for unsignalized intersections (Garza, Graney, and Sperling 1997). Because the intersections controlled by stop signs would accommodate fewer vehicles than signalized intersections, it is reasonable to conclude that congestion at the intersections controlled by stop signs would not result in CO concentrations that exceed the AAQS.

SMAQMD recently released new screening criteria in its *Guide to Air Quality Assessment in Sacramento County* that provide lead agencies with a conservative indication of whether project-generated vehicle trips would result in the generation of CO emissions that exceed or contribute to an exceedance of the CAAQS for CO (SMAQMD 2009a). The screening criteria have been developed to help lead agencies analyze potential CO impacts and identify when site-specific CO dispersion modeling is not necessary. SMADQMD's recommended screening criteria are divided into the following two tiers.

First Tier

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; or
- The project would not contribute additional traffic to an intersection that already operates at LOS of E or F.

Second Tier

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

- 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 URBEMIS models).

Based on the traffic analysis prepared for the Proposed Project and the other four action alternatives (Tables 3A.15-16 through 3A.15-24), some signalized intersections in the vicinity of the SPA are predicted to operate at an unacceptable LOS under build out conditions (DKS Associates 2009). However, because none of the intersections would be anticipated to accommodate volumes of traffic that would exceed 31,600 vehicles per hour (Stankiewicz, pers. comm., 2009b), all affected roadways would be at-grade, and the mix of vehicles traveling on these roadways is not anticipated to be substantially different from the County average, the project would not result in concentrations of CO that would exceed or contribute to an exceedance of the CAAQS. Furthermore, due to stricter vehicle emissions standards in newer cars, new technology, and increased fuel economy, future CO emission factors under future build out conditions (year 2030) would be substantially lower than those under

existing conditions. Thus, even though there would be more vehicle trips under the Proposed Project and the other four action alternatives at build out than under existing conditions, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm. As a result, this **direct** impact would be **less than significant**. **No indirect** impacts would occur. ***[Similar]***

Mitigation Measures: No mitigation measures are required.

Off-Site Elements

The off-site elements would not involve construction of new housing or development of new businesses that would generate vehicle trips or associated emissions of CO. Therefore, the off-site elements would not result in CO emissions that would exceed or substantially contribute to concentrations that exceed the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm. This **direct** impact would be **less than significant**. **No indirect** impacts would occur.

Mitigation Measures: No mitigation measures are required.

IMPACT 3A.2-4 Exposure of Sensitive Receptors to Short- and Long-Term Emissions of Toxic Air Contaminants. *Project implementation would result in exposure of receptors to short- and long-term emissions of TACs from on-site stationary and mobile sources and from off-site mobile sources.*

On-Site Elements

NP

Under the No Project Alternative, development of up to 44 rural residences could occur under the existing Sacramento County agricultural zoning classification AG-80. Construction of these residences would not be anticipated to require a high number of diesel-powered construction equipment or occur in close proximity to sensitive receptors for an extended period of time. In addition, no stationary sources of TACs would be developed on the site and no land uses would be developed that would harbor activity by area sources of TACs (e.g., loading dock activity by diesel trucks). There would be no off-site water facilities constructed under this alternative. Thus, **no direct** or **indirect** impacts would occur. ***[Lesser]***

NCP, RIM

Under the No USACE Permit and Resource Impact Minimization Alternatives, the TAC impacts associated with the temporary and short-term emissions from construction equipment, stationary-source emissions, emissions from on-site operational mobile sources, TAC exposure from remediation activity, exposure of on-site receptors to diesel PM generated at the off-site corporation yard, and land use compatibility with U.S. 50 would be the same as for the Proposed Project Alternative. However, the analysis of the project's land use compatibility with high-volume arterial roadways would be different, as described in detail in Section 4.1, "Cumulative Impacts".

No indirect impacts would occur. ***[Lesser for exposure of existing residents in El Dorado Hills to construction-generated emissions of TACs. Similar for all other TAC impacts.]***

Mitigation Measure 3A.2-4a: Develop and Implement a Plan to Reduce Exposure of Sensitive Receptors to Construction-Generated Toxic Air Contaminant Emissions.

The project applicant(s) for all project phases shall develop a plan to reduce the exposure of sensitive receptors to TACs generated by project construction activity associated with buildout of the selected

alternative. Each plan shall be developed by the project applicant(s) in consultation with SMAQMD. The plan shall be submitted to the City for review and approval before the approval of any grading plans.

The plan may include such measures as scheduling activities when the residences are the least likely to be occupied, requiring equipment to be shut off when not in use, and prohibiting heavy trucks from idling. Applicable measures shall be included in all project plans and specifications for all project phases.

The implementation and enforcement of all measures identified in each plan shall be funded by the project applicant(s) for the respective phase of development.

Implementation: The project applicant(s) of all project phases.

Timing: Before the approval of all grading plans by the City and throughout project construction, where applicable, for all project phases.

Enforcement: City of Folsom Community Development Department.

Mitigation Measure 3A.2-4b: Implement Measures to Reduce Exposure of Sensitive Receptors to Operational Emissions of Toxic Air Contaminants.

The following measures shall be implemented to reduce exposure of sensitive receptors to Toxic Air Contaminants.

- Proposed commercial and industrial land uses that have the potential to emit TACs or host TAC-generating activity (e.g., loading docks) shall be located away from existing and proposed on-site sensitive receptors such that they do not expose sensitive receptors to TAC emissions that exceed an incremental increase of 10 in 1 million for the cancer risk and/or a noncarcinogenic Hazard Index of 1.0.

- The multi-family residences planned across from the off-site corporation yard near the southwest corner of the SPA shall be set back as far as possible from the boundary of the corporation yard and/or relocated to another area.

- Where necessary to reduce exposure of sensitive receptors to an incremental increase of 10 in 1 million for the cancer risk and/or a noncarcinogenic Hazard Index of 1.0, proposed commercial and industrial land uses that would host diesel trucks shall incorporate idle reduction strategies that reduce the main propulsion engine idling time through alternative technologies such as, IdleAire, electrification of truck parking, and alternative energy sources for TRUs, to allow diesel engines to be completely turned off.

- Signs shall be posted in at all loading docks and 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 in order to reduce idling emissions. This measure is consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which was approved by the California Office of Administrative Law in January 2005.

- Implement the following additional guidelines, which are recommended in *ARB's Land Use Handbook: A Community Health Perspective* (ARB 2005) and are considered to be advisory and not regulatory:

    - Sensitive receptors, such as residential units and daycare centers, shall not be located in the same building as dry-cleaning operations that use perchloroethylene. Dry-cleaning operations that use

perchloroethylene shall not be located within 300 feet of any sensitive receptor. A setback of 500 feet shall be provided for operations with two or more machines.

- Large gasoline stations (defined as facilities with a throughput of 3.6 million gallons per year or greater) and sensitive land uses shall not be sited within 300 feet of each other. Small gasoline-dispensing facilities (less than 3.6 million gallons of throughput per year) and sensitive land uses shall not be sited within 50 feet of each other.

Implementation: The project applicant(s) of all project phases.

Timing: Before the approval of all grading plans by the SMAQMD and throughout project construction, where applicable, for all project phases.

Enforcement: City of Folsom Community Development Department.

PP

The exposure of sensitive receptors (e.g., proposed residential units, schools) to TAC emissions from construction activities and from existing and stationary, area, and mobile sources under the Proposed Project Alternative is discussed separately below.

Temporary, Short-Term Emissions from Construction Equipment

Construction of the Proposed Project Alternative would result in short-term emissions of diesel exhaust from on-site heavy-duty equipment. Emissions of particulate exhaust from diesel-fueled engines (diesel PM) were identified as a TAC by ARB in 1998. Construction of the project would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. According to ARB, the potential cancer risk from the inhalation of diesel PM, which is discussed below, outweighs the potential noncancer health impacts (ARB 2003).

The dose to which the receptors are exposed (a function of concentration and duration of the exposure period) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (Salinas, pers. comm., 2004). The use of mobilized equipment in each area of the SPA would be temporary. In addition, some new residents would occupy the site concurrently with on-site construction activities. Thus, diesel PM from construction activities could also expose on-site residents and schools to levels that exceed applicable standards as some phases of the development plan are built out while construction of other phases continues. Particularly, some residents may be exposed to diesel PM generated by construction activity in all directions (at varying times). Even with the dispersive properties of diesel PM (Zhu et al. 2002), construction activities could expose sensitive receptors to levels of health risk that exceed applicable standards. Therefore, this **direct** impact is considered **potentially significant**. **No indirect** impacts would occur.

Stationary-Source Emissions

No stationary sources of TAC emissions are located on or immediately adjacent to the SPA.

Long-term operation of industrial and commercial uses developed under the Proposed Project Alternative would likely include the installation of stationary sources of TACs, such as dry cleaning establishments, gasoline-dispensing facilities, diesel-fueled backup generators, medical incinerators, and/or restaurants using charbroilers. These and other types of stationary sources may also be developed at off-site locations near the SPA in future years. All stationary sources that may emit TACs would be subject to SMAQMD permitting regulations and T-

BACT requirements. Pursuant to SMAQMD Regulation 2 (Permit Requirements) and Rule 904 (Air Toxic Control Measures) SMAQMD would analyze such sources (e.g., in a health risk assessment) based on their potential to emit TACs. If it is determined that the sources would emit TACs in excess of SMAQMD's applicable threshold of significance, T-BACT would be implemented to reduce emissions. If the implementation of T-BACT would not reduce the risk below the applicable threshold, then SMAQMD would deny the required permit. Furthermore, no commercial or industrial land uses would be located along the eastern edge of the SPA, just across from the existing residential neighborhood (Stonebrier) in El Dorado Hills. As a result, operation of any stationary sources would not result in the exposure of sensitive receptors to TACs at levels exceeding SMAQMD's significance threshold. Therefore, this **direct** impact is considered **less than significant. No indirect** impact would occur.

Emissions from On-Site Operational Mobile Sources

The Proposed Project Alternative would include proposed residences, schools, and parks. Because of the sensitivity of such uses, assessment of compatibility of surrounding land uses with respect to sources of TAC emissions is required.

On-site mobile sources of TACs would primarily be associated with the operation of school buses transporting students to and from the proposed schools, as well as diesel-powered delivery trucks associated with proposed on-site commercial and industrial activities.

Emissions from school buses can vary, depending on various factors, including bus type, age, maintenance, and amount of time spent idling. Health impacts from exhaust exposure include eye and respiratory irritation, enhanced respiratory allergic reactions, asthma exacerbation, increased cancer risk, and immune system degradation. Generally, children are more vulnerable to air pollutants because of higher inhalation rates, narrower airways, and less mature immune systems.

In response to the above issue, the ARB adopted an ATCM as part of the Particulate Matter Risk Reduction Plan to specifically deal with diesel emissions from school buses. This ATCM became effective July 16, 2003. The school bus idling ATCM includes the following requirements:

(a) The driver of a school bus or vehicle, transit bus, or heavy-duty vehicle (other than a bus) shall manually turn off the bus or vehicle upon arriving at a school and restart no more than 30 seconds before departing. A driver of a school bus or vehicle shall be subject to the same requirement when operating within 100 feet of a school and shall be prohibited from idling more than 5 minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or heavy-duty vehicle (other than a bus) shall be prohibited from idling more than 5 minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns shall be exempt from these restrictions.

(b) The motor carrier of the affected bus or vehicle shall ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep track of driver education and tracking activities.

According to ARB, implementation of the above requirements would eliminate unnecessary idling for school buses and other heavy-duty vehicles, protecting children from unhealthful exhaust emissions and thus reducing localized exposure to TACs and other harmful air pollution emissions at and near schools.

On-site operational mobile sources of TAC emissions would also be associated with the operation of diesel-powered delivery trucks at the loading docks and delivery areas of commercial and industrial land uses. Some sensitive land uses within the SPA would be located within 100 feet of commercial or industrial uses (e.g., community commercial, general commercial, regional commercial, industrial/office park, and mixed-use land use types). Operational activities that require the use of diesel-fueled vehicles for extended periods, such as commercial trucking facilities, delivery/distribution areas, or loading docks, could expose nearby sensitive

receptors to diesel PM emissions. The diesel PM emissions generated by these uses would be produced primarily at discrete locations on a regular basis. Idling trucks at these locations, including TRUs, could result in the exposure of nearby residents to increased diesel PM levels on a reoccurring basis.

As referenced above, the ARB's *Handbook* recommends avoiding the siting of new commercial trucking facilities that accommodate more than 100 trucks per day, or 40 trucks equipped with transportation refrigeration units (TRUs), within 1,000 feet of sensitive receptors (e.g., residences or schools) (ARB 2005). The number of trucks that would visit the facilities on any given day is not known at this time; however, based on data from similar projects, the types of commercial uses proposed for the SPA would not involve large-scale trucking operations. For the purposes of the Proposed Project Alternative, it is not anticipated that the combination of industrial land uses proposed in the SPA would exceed these screening limits.

In addition to the school bus idling ATCM, ARB also adopted an idling restriction ATCM for large commercial diesel-powered vehicles, which became effective February 1, 2005. In accordance with this measure, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. ARB is also evaluating additional ATCMs intended to further reduce TACs associated with commercial operations, including a similar requirement to limit idling of smaller diesel-powered commercial vehicles.

Nonetheless, given that proposed on-site commercial and industrial land uses have not yet been identified and could potentially involve substantial volumes of truck activity occurring in close proximity to nearby sensitive receptors, exposure of nearby on-site receptors to mobile-source TACs associated with commercial and industrial activities is considered a **direct** and **potentially significant** impact. **No indirect** impact would occur.

Further, as stated previously, the ARB guidance document is not regulatory, and the SMAQMD has not established any guidelines for the assessment of such impacts or any applicable thresholds for these types of emissions.

TAC Exposure from Remediation Activity

Remediation activity is currently underway on the Aerojet General Corporation parcel along the western property boundary, which has been classified as a Superfund site (see Section 3A.8 "Hazards and Hazardous Materials – Land," for additional information). Area 40 refers to a portion of the Superfund site that is located just west of the SPA and extends into an area on the SPA that would be designated as Open Space. A report prepared by ARCADIS (2007) entitled *Draft Ambient Air Evaluation of Aerojet Area 40* examines potential health risks to future adult and child recreators on this open space associated with VOCs potentially migrating from ground water into the ambient air. The report analyzes groundwater analytical data for the VOC plume located in the northern portion of Area 40. The primary chemicals of potential concern in the VOC plume include trichloroethene (TCE) and tetrachloroethene (PCE). Exposure and risk to adult and child recreators were estimated using standard EPA and California risk assessment practices. The analysis determined that the hazard indices (a.k.a., hazard quotients) used for determining levels of non-cancer risk would be 0.010 and 0.000025 from TCE and PCE exposure, respectively. It also determined that cancer risk levels would be 0.8 in one million from TCE exposure and 0.01 in one million from PCE exposure. Because all of the estimated risk levels would be below the SMAQMD's recommended thresholds of significance for health risk, airborne exposure of recreators on the SPA to off-gassing VOC emissions from the contaminated groundwater plume would be considered a **direct**, **less-than-significant** impact. **No indirect** impact would occur.

Land Use Compatibility with Off-Site Corporation Yard

The City plans to develop a new corporation yard south of White Rock Road near the southwestern corner of the SPA. The corporation yard would be used to stage, store, and maintain equipment used by the City, including diesel-powered trucks and heavy-duty equipment (e.g., mowers). The location of on-site receptors, particularly residences within the SPA that would be zoned for multi-family medium density development near the southwestern corner of the SPA could be exposed to diesel PM emissions generated at the corporation yard.

Moreover, because the predominant wind direction in the area and from the south-southwest at approximately 10 mph (ARB 1994), these receptors would located downwind of the corporation yard. The types of equipment that would be operated at the corporation yard and the frequency and intensity of their operation have not yet been identified. Given that activities at the corporation yard could potentially generate substantial levels of diesel PM exhaust, as well as the close proximity of nearby sensitive receptors, the potential for these on-site receptors to be exposed to high concentration of diesel PM emissions from the corporation yard is a **direct** and **potentially significant** impact. **No indirect** impact would occur.

Land Use Compatibility with U.S. 50

The Proposed Project Alternative would involve development of lands on the south side of U.S. 50, which accommodates high volumes of traffic and associated mobile-source TAC emissions. As explained in the regulatory setting above, ARB published a guidance document entitled *Air Quality and Land Use Handbook: A Community Health Perspective* that includes the recommendation to avoid siting new sensitive land uses (e.g., residences, schools) within 500 feet of freeways. In addition, SB 352 (Education Code Section 17213, Public Resources Code Section 21151.8) expands on previous requirements for the review of TAC sources near school sites. Accordingly, SB 352 requires that any school site located within 500 feet of the edge of the closest travel lane of a freeway or other busy traffic corridor be reviewed for potential health risks. No residential land uses, schools, or other sensitive land uses would be developed within 500 feet of U.S. 50. Therefore, the impact associated with off-site mobile-source TAC emissions at the SPA would be **direct** and **less than significant**. **No indirect** impact would occur. ***[Similar]***

See Section 4.1, "Cumulative Impacts" for a detailed discussion of impacts on Land Use Compatibility with High-Volume Arterial Roadways. This impact analysis is contained in the Cumulative Impacts chapter due to the fact that the condition under which analysis was performed is cumulative in nature (i.e., the result of past, present, and future projects).

Mitigation Measure: Implement Mitigation Measures 3A.24a-4b.

CD

Under the Centralized Development Alternative, the analysis of the TAC impacts associated with the stationary-source emissions, emissions from on-site operational mobile sources, TAC exposure from remediation activity, exposure of on-site receptors to diesel PM generated at the off-site corporation yard, the project's land use compatibility with U.S. 50 would be the same as for the Proposed Project Alternative.

The analysis of short-term TAC emissions from construction equipment would be different, however, in that the existing receptors in the Stonebrier development in El Dorado Hills east of the SPA would not likely be exposed to high levels of health risk because intense levels of grading and earth disturbance would not occur in the hills on the east side of the SPA, as indicated by the land use plan in Exhibit 2-15 (see Chapter 2, "Alternatives"). Nonetheless, as with the Proposed Project Alternative, diesel PM from construction activities could expose on-site residents and schools to levels that exceed applicable standards as some phases of the development plan are built out while construction of other phases continues. Particularly, some residents may be exposed to diesel PM generated by construction activity in all directions (at varying times). Even with the dispersive properties of diesel PM (Zhu et al. 2002), construction activities could expose sensitive receptors to levels of health risk that exceed applicable standards. Therefore, this **direct** impact is considered **potentially significant**. **No indirect impacts** would occur.

In addition, the analysis of the project's land use compatibility with high-volume arterial roadways would be different, as described in detail in Section 4.1 "Cumulative Impacts".

No indirect impacts would occur under the Resource Impact Minimization Alternative. ***[Lesser for exposure of existing residents in El Dorado Hills to construction-generated emissions of TACs. Similar for all other TAC impacts.]***

Mitigation Measure: Implement Mitigation Measures 3A.2-4a-4b.

RHD

Under the Reduced Hillside Development Alternative, the TAC impacts associated with the short-term emissions from construction equipment, stationary-source emissions, emissions from on-site operational mobile sources, TAC exposure from remediation activity, exposure of on-site receptors to diesel PM generated at the off-site corporation yard, and land use compatibility with U.S. 50 would be the same as for the Proposed Project Alternative. However, the analysis of the project's land use compatibility with high-volume arterial roadways would be different, as described in detail in Section 4.1 "Cumulative Impacts".

No indirect impacts would occur under the Reduced Hillside Development Alternative. ***[Lesser for exposure of residential receptors that would be located along the east side of Scott Road North between Easton Valley Parkway and Road "A." Similar for all other TAC impacts.]***

Mitigation Measure: Implement Mitigation Measures 3A.2-4a-4b.

Off-Site Elements

The exposure of sensitive receptors (e.g., residential units, schools) to TAC emissions associated with construction and operation of the proposed off-site elements are discussed separately below.

Temporary, Short-Term Emissions from Construction Equipment

Construction of the off-site elements would result in short-term emissions of diesel PM from on-site heavy-duty equipment. Most of the activity associated with construction of the freeway interchange at Prairie City Road would be on the south side of U.S. 50 and, therefore, more than 1,000 feet from the nearest sensitive receptor, Folsom High School, which is on the north side of U.S. 50. The sewer force main, the freeway interchange at Oak Avenue, and the Rowberry Drive Overcrossing would be constructed on the north side of U.S. 50 and this activity would occur relatively close to the residential neighborhoods north of Iron Point Road. Construction of the two roadway connections into El Dorado Hills would also occur in close proximity to existing neighborhoods in El Dorado County. Even with the dispersive properties of diesel PM (Zhu et al. 2002), short-term construction activities could expose sensitive receptors to levels that exceed applicable standards because of its close proximity to nearby Folsom High School and existing nearby residential land uses. Therefore, this **direct** impact is considered **potentially significant**. **No indirect** impacts would occur.

Mitigation Measure: Implement Mitigation Measures 3A.2-1a and 3A.2-1b for the off-site improvements in Sacramento County; and Mitigation Measure 3A.2-1f for the off-site improvements in El Dorado County.

Operational TAC Emissions

The off-site element would not host sources of TAC emissions (e.g., backup diesel generators) or attract sources of TAC emissions (e.g., diesel trucks). Therefore, operation of these off-site facilities would not result in elevated risk levels at nearby receptors. This **direct** impact would be **less than significant**. **No indirect** impacts would occur.

Mitigation Measure: No mitigation measures are required.

Implementation of Mitigation Measure 3A.2-4a would lessen health-related risks associated with the use of off-road diesel powered equipment during construction activity under all action alternatives. However, given that construction activity would occur on the SPA during the 19-year buildout of the project, exposure to construction-generated TAC emissions would not necessarily be reduced to less-than-significant levels. Therefore, the potential exposure of receptors to construction-generated TAC emissions is considered to be **significant and unavoidable**.

Implementation of Mitigation Measure 3A.2-4b would lessen health-related risks associated with mobile-source TACs under the Proposed Project Alternative and the other four action alternatives; however, TAC exposure levels at sensitive receptors located within 500 feet of a freeway or high-traffic volume roadway would not necessarily be reduced to less-than-significant levels. Exposure of receptors to mobile-source TAC emissions therefore is considered to be **significant and unavoidable**.

Implementation of Mitigation Measure 3A.2-1a, 3A.2-1b, and 3A.2-1f would lessen health-related risks associated with the use of off-road diesel powered equipment during construction activity in El Dorado County. However, given that construction activity would occur on the SPA during the 19-year buildout of the project, exposure to construction-generated TAC emissions would not necessarily be reduced to less-than-significant levels. Therefore, the potential exposure of receptors to construction-generated TAC emissions is considered to be **significant and unavoidable**.

Similarly, increasing the set back distance between on-site residents and the off-site, future planned corporation yard would not necessarily reduce the levels of TAC exposure at these residents to a less-than-significant level. Therefore, the potential exposure of on-site residents to TAC emissions from the corporation yard would be considered **significant and unavoidable**.

Additionally, some of the off-site elements fall under the jurisdiction of El Dorado and Sacramento Counties and/or Caltrans; therefore, neither the City nor the project applicant(s) would have control over their timing or implementation. Therefore, the impacts related to those off-site facilities are considered potentially significant and unavoidable.

These conclusions have been reached due to the uncertainty about the potential TAC emissions sources associated with on-site commercial and industrial land use activities and the proximity of sensitive receptors to such uses. In addition, there is also uncertainty about the feasibility and effectiveness of extending the setback distances between roadways and receptors and the effectiveness and feasibility of tiered planting of fine-needle tree species. Therefore, this conclusion may change as more detailed information regarding proposed on-site commercial uses becomes available and analyses of individual phases are performed at the project level as part of future CEQA documents prior to approval of subdivision maps or improvement plans.

IMPACT 3A.2-5 Exposure of Sensitive Receptors to Construction-Generated Emissions of Naturally Occurring Asbestos. *Asbestos is a toxic air contaminant. Residents and other receptors located close to construction activity could be exposed to dust from asbestos rock and soils during earth disturbance activities.*

On-Site and Off-Site Elements

NP

Under the No Project Alternative, "normal agricultural activities" would continue on the SPA; based on the soil types at the SPA, those activities would consist of dryland farming (i.e., livestock grazing) and, therefore, would not involve substantial amounts of grading or other types of ground disturbance. There would be no off-site water facilities constructed under this alternative. Under the No Project Alternative, development of up to 44 rural residences could occur under the existing Sacramento County agricultural zoning classification AG-80. If

additional residences are built in areas that have the potential to contain NOA, however, it is not anticipated that construction of these residences would involve an extensive amount of earth disturbance or rock blasting and it is unlikely that construction activity would occur in close proximity to other sensitive receptors. Thus, it is not anticipated that sensitive receptors would be exposed to airborne asbestos generated during construction or operational activity. This **direct** impact would be **less than significant**. **No indirect** impacts would occur. ***[Lesser]***

On-Site Elements

NCP, PP, RIM, RHD

Grading, blasting, and other forms of ground disturbance during construction would result in fugitive PM_{10} dust emissions. As stated in the setting above, some areas of the SPA may contain serpentine or ultramafic rock that is common to the Sierra Nevada foothills. These types of rock contain thin veins of asbestos that can become airborne when disturbed by grading or blasting. According to a report prepared by the California Geological Survey, more than half of the SPA is located in "areas moderately likely to contain NOA" (Higgins and Clinkenbeard 2006). Although geologic conditions are more likely for asbestos formation in particular areas identified by the map, the presence thereof is not certain.

Detailed construction plans for the project have not been developed. During site grading and rock blasting activities, the serpentine soils may be disturbed, potentially exposing residents of the nearby residential neighborhoods in El Dorado County to asbestos during project construction. Also, the site would be developed in phases, so construction activity would be spread out over many years. Construction activities for later phases could adversely affect residential land uses and other receptors that have already been developed in earlier phases of development. Without appropriate controls, sensitive receptors near construction sites could be exposed to localized high levels of re-entrained fugitive PM_{10} dust, potentially including NOA. As a result, this **direct** impact would be considered **potentially significant**. **No indirect** impacts would occur. ***[Similar]***

> Mitigation Measure 3A.2-5: Implement a Site Investigation to Determine the Presence of NOA and, if necessary, Prepare and Implement an Asbestos Dust Control Plan.
>
> A site investigation shall be performed to determine whether and where NOA is present in the soil and rock on the SPA. The site investigation shall include the collection of soil and rock samples by a qualified geologist. If the site investigation determines that NOA is present on the SPA then the project applicant shall prepare an Asbestos Dust Control Plan for approval by SMAQMD as required in Section 93105 of the California Health and Safety Code, "Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations." The Asbestos Dust Control Plan shall specify measures, such as periodic watering to reduce airborne dust and ceasing construction during high winds, that shall be taken to ensure that no visible dust crosses the property line. Measures in the Asbestos Dust Control Plan may include but shall not be limited to dust control measures required by Mitigation Measure 3A.2-1a. The project applicant shall submit the plan to the Folsom Community Development Department for review and SMAQMD for review and approval before construction of the first project phase. SMAQMD approval of the plan must be received before any asbestos-containing rock (serpentinite) can be disturbed. Upon approval of the Asbestos Dust Control Plan by SMAQMD, the applicant shall ensure that construction contractors implement the terms of the plan throughout the construction period.
>
> **Implementation:** The project applicant(s) of all project phases.
>
> **Timing:** Before the approval of all grading plans by the City and throughout project construction, where applicable, for all project phases.

Enforcement: City of Folsom Community Development Department.

CD

Under the Centralized Development Alternative, the analysis of NOA impacts would be the same as under the Proposed Project Alternative except that existing receptors in the El Dorado Hills neighborhood east of the SPA would not likely be exposed to high levels of health risk because substantial grading, blasting, and other earth disturbance would not occur in the hills on the east side of the SPA, as indicated by the land use plan in Exhibit 2-15 (see Chapter 2, "Alternatives"). Nonetheless, as with the Proposed Project Alternative, NOA that becomes airborne during construction activities for later phases of development could adversely affect residential land uses and other receptors that have already been developed in earlier phases of development. Without appropriate controls, sensitive receptors near construction sites could be exposed to localized high levels of re-entrained fugitive PM_{10} dust, potentially including NOA. As a result, this **direct** impact would be considered **potentially significant**. **No indirect** impacts would occur. ***[Lesser for exposure of existing residents in El Dorado Hills to construction-generated emissions of NOA. Similar for all other TAC impacts.]***

Mitigation Measure: Implement Mitigation Measure 3A.2-5.

Off-Site Elements

Construction of some of the off-site elements would occur in "areas moderately likely to contain NOA" according to a report prepared by the California Geological Survey about NOA areas in eastern Sacramento County (Higgins and Clinkenbeard 2006), including the Oak Avenue interchange and the Rowberry Drive Overcrossing. The Prairie City road interchange, sewer force main, and off-site detention basin would not be located in "areas moderately likely to contain NOA." The proposed road extensions into El Dorado County would be located in "areas that probably do not contain asbestos," according to a report prepared by the California Geological Survey about NOA areas in western El Dorado County (Churchill, Higgins, and Hill 2000).

As with construction of the on-site elements, sensitive receptors near construction sites in "areas moderately likely to contain NOA" could be exposed to localized high levels of re-entrained fugitive PM_{10} dust, potentially including NOA, without appropriate controls. As a result, this **direct** impact would be considered **potentially significant**. **No indirect** impacts would occur.

Mitigation Measure: Implement Mitigation Measure 3A.2-5. (However, for construction of the two roadway extensions into El Dorado County that occurs in El Dorado County, approval of the grading plans must be received from EDCAQMD.)

Implementation of Mitigation Measure 3A.2-5 would reduce impacts associated with generation of fugitive dust that potentially contains NOA. If the site investigation determines that NOA is present on the SPA, then implementation of a dust control plan that is approved by the applicable air district (i.e., SMAQMD or EDCAQMD) would reduce impacts related to construction in serpentinite soils. Implementation of these measures would reduce the potentially significant impact associated with exposure to NOA during construction to a **less-than-significant** level.

IMPACT 3A.2-6 Possible Exposure of Sensitive Receptors to Odorous Emissions. *Temporary, short-term construction and long-term operation of the project could result in the frequent exposure of sensitive receptors to substantial objectionable odor emissions.*

On-Site and Off-Site Elements

NP

Under the No Project Alternative, existing land uses at the SPA would continue, including up to 44 rural residences permitted under the existing Sacramento County General Plan AG-80 designation and zoning. Residential land uses are not typically regarded as sources of objectionable odors. Occasional operation of off-road agricultural equipment could result in diesel exhaust with odorous emissions; however, such activities would be short-term and intermittent and would not involve a substantial number of equipment operating at one time. There would be no off-site water facilities constructed under this alternative. Because the SPA would continue with dryland farming activities under the No Project Alternative and no new sources of odor emissions would be encountered, **no direct** or **indirect** impacts would occur. ***[Lesser]***

On-Site Elements

NCP, PP, RIM, CD, RHD

The exposure of sensitive receptors (e.g., existing and proposed residential units, schools, and parks) to odorous emissions from construction and operation of the project is discussed under separate headings below.

Short-Term Use of Construction Equipment for On-Site Land Uses and Off-Site Elements

Project construction activities associated with the development of on-site land uses could result in odorous emissions from diesel exhaust generated by construction equipment. During some periods of the 19-year buildout of the project intense levels of construction activity could potentially occur in close proximity to existing or future-planned sensitive receptors or construction activity could potentially occur near sensitive receptors for an extended period of time. In particular, a substantial number of people in the existing residential neighborhood that located just east of the SPA in El Dorado Hills could be exposed to odorous diesel exhaust emissions generated by on-site construction activity. The potential for this to occur would be particularly high under the No USACE Permit, Proposed Project, Resource Impact Minimization Alternative, Centralized Development, and Reduced Hillside Development Alternative because the level of grading in the hilly, eastern end of the SPA would involve a substantial number of construction equipment operating at heavy loads. Because this activity could result in objectionable odors that affect a substantial number of people, this would be considered a **direct, significant** impact.

Long-Term Operation of On-Site Land Uses

No common sources of nuisance odors, such as wastewater treatment facilities, waste-disposal facilities, or agricultural operations, are proposed as part of the project. While there would be approximately 3–4 wastewater pumping stations located on the SPA, these facilities would have controls that would prevent the release of objectionable odors. In addition, the detention basins that would be located throughout the site would not typically hold storm water long enough for odor-generating anaerobic activity to occur. With regular maintenance and proper design, residential land uses are typically not considered a major source of odors. However, truck deliveries to commercial uses and sewer lift stations could intermittently and temporarily emit diesel odors. Additionally, commercial uses could provide development of convenience uses that may include sources of odorous emissions (e.g., fast-food restaurants) that would be perceived as offensive to some individuals. The operation of such sources could expose a substantial number of proposed on-site receptors to objectionable odorous emissions. As a result, this **direct** impact would be considered **potentially significant**. **No indirect** impacts would occur. ***[Similar]***

Land Use Compatibility with Off-Site Corporation Yard

The City plans to develop a corporation yard south of White Rock Road near the southwestern corner of the SPA. The corporation yard would be used to stage, store, and maintain equipment used by the City, including diesel-powered trucks and heavy-duty equipment (e.g., mowers). The location of on-site receptors, in particular residences within the SPA that would be zoned for multi-family medium density development near the southwestern corner of the SPA could be exposed to odorous exhaust emissions generated by equipment at the corporation yard. Moreover, because the predominant wind direction in the area and from the south-southwest at approximately 10 mph (ARB 1994), these receptors would located downwind of the corporation yard. The types of equipment that would be operated at the corporation yard and the frequency and intensity of their operation have not yet been identified. Given that equipment at the corporation yard could potentially generate substantial levels of diesel exhaust, as well as the close proximity of nearby sensitive receptors, the potential for these on-site receptors to be frequently exposed high levels of odorous exhaust emissions from the corporation yard is a **direct** and **potentially significant** impact. **No indirect** impact would occur.

Land Use Compatibility with Off-Site Agricultural Land Uses

Land uses developed on the southern side of the SPA could be exposed to odors generated by neighboring agricultural land uses, which are used for livestock grazing. This could occur when some portions of the site are developed and occupied while others portions continue to be used for livestock grazing. Also, receptors developed along the southern portion of the SPA could be exposed to odors generated by agricultural activities that take place just south of White Rock Road. SMAQMD does not have a recommended screening distance for livestock grazing. SMAQMD recommends a screening distance of 1 mile for most odor-generating land uses, including feed lots and dairies (SMAQMD 2009a). Because the project could result in the development of receptors located in close proximity to land in the immediate vicinity that support livestock grazing, this would be a **direct** and **potentially significant** impact. **No indirect** impacts would occur. ***[Similar]***

Mitigation Measure: Implement Mitigation Measure 3A.2-1a and Mitigation Measure 3A.2-1f to Control Exposure of Sensitive Receptors to Construction-Related Odorous Emissions.

Mitigation Measure 3A.2-6: Implement Measures to Control Exposure of Sensitive Receptors to Operational Odorous Emissions.

The project applicant(s) for all project phases shall implement the following measures:

- The odor-producing potential of land uses shall be considered when the exact type of facility that would occupy areas zoned for commercial, industrial, or mixed-use land uses is determined. Facilities that have the potential to emit objectionable odors shall be located as far away as feasible from existing and proposed sensitive receptors.

- The multi-family residences planned across from the off-site corporation yard near the southwest corner of the SPA shall be set back as far as possible from the boundary of the corporation yard and/or relocated to another area. (This measure is also required by Mitigation Measure 3A.2-4b to limit exposure to TAC emissions.)

- Before the approval of building permits, odor control devices shall be identified to mitigate the exposure of receptors to objectionable odors if a potential odor-producing source is to occupy an area zoned for commercial, industrial, or mixed-use land uses. The identified odor control devices shall be installed before the issuance of certificates of occupancy for the potentially odor-producing use. The odor-producing potential of a source and control devices shall be determined in coordination with SMAQMD and based on the number of complaints associated with existing sources of the same nature.

- The deeds to all properties located within the SPA that are within one mile of an on- or off-site area zoned or used for agricultural use (including livestock grazing) shall be accompanied by a written disclosure from the transferor, in a form approved by the City of Folsom, advising any transferee of the potential adverse odor impacts from surrounding agricultural operations, which disclosure shall direct the transferee to contact the County of Sacramento concerning any such property within the County zoned for agricultural uses within one mile of the subject property being transferred.

- Truck loading docks and delivery areas shall be located as far away as feasible from existing and proposed sensitive receptors.

- Signs shall be posted at all loading docks and 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 in order to reduce idling emissions. This measure is consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, which was approved by California's Office of Administrative Law in January 2005. (This measure is also required by Mitigation Measure 3A.2-4b to limit TAC emissions.)

- Proposed commercial and industrial land uses that have the potential to host diesel trucks shall incorporate idle reduction strategies that reduce the main propulsion engine idling time through alternative technologies such as, IdleAire, electrification of truck parking, and alternative energy sources for TRUs, to allow diesel engines to be completely turned off. (This measure is also required by Mitigation Measure 3A.2-4b to limit TAC emissions.)

Implementation: The project applicant(s) of all project phases.

Timing: Before the approval of building permits by the City and throughout project construction, where applicable, for all project phases.

Enforcement: City of Folsom Community Development Department.

Off-Site Elements

Construction activities associated with the building of the off-site elements could result in odorous emissions from diesel exhaust generated by construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, residents and other receptors on and off the SPA would not likely be affected by diesel exhaust odors associated with construction. Operation of the off-site elements would not be considered sources of odors. Motor vehicles using the improved freeway interchanges and overcrossing would not result in a noticeable increase in odorous emissions. Similar to the on-site storm water detention basins discussed above, the off-site detention basin that would be located just west of the SPA would not typically hold storm water long enough for odor-generating anaerobic activity to occur. Further, no odors would be associated with the wastewater force main that would connect to the existing sewer pump station because it would be enclosed. As a result, the **direct** impact associated with construction and operation of the off-site elements would be considered **less than significant**. **No indirect** impacts would occur.

Mitigation Measure: No mitigation measures are required.

Implementation of Mitigation Measure 3A.2-1a and Mitigation Measure 3A.2-1f would reduce the mass levels of odorous diesel exhaust during construction of the on-site elements. However, given that construction activity would occur on the SPA during the 19-year buildout of the project, generation of construction-generated diesel exhaust, particularly during periods of intense grading on the eastern, hilly side of the SPA, could expose a substantial number of people to odorous emissions and, therefore, this impact would not be reduced to a less-than-significant level. Therefore, the potential exposure of a substantial number of people to these objectionable odors is considered to be **significant and unavoidable**.

By requiring odor control devices on potential odor-producing sources and by requiring consideration of the odor-producing potential of on-site land uses and their proximity to receptors, implementation of Mitigation Measure 3A.2-6 would reduce the possible exposure of sensitive receptors to odorous emissions associated with operation of on-site land uses to a **less-than-significant** level.

Increasing the set back distance between on-site residents and the off-site, future planned corporation yard would not necessarily reduce the intensity or frequency of these residents' exposure to odorous exhaust emissions generated at the corporation yard to a less-than-significant level. Therefore, the potential exposure of on-site residents to odorous exhaust emissions from the corporation yard would be considered **significant and unavoidable**.

3A.2.4 RESIDUAL SIGNIFICANT IMPACTS

Implementation of mitigation measures contained in this section would reduce impacts associated with temporary, short-term construction-related emissions of criteria air pollutants and precursors; long-term operation-related (regional) emissions of criteria air pollutants and precursors; exposure to TACs; and exposure to odorous emissions from construction activity; and exposure to odorous emissions from operation of the proposed corporation yard, but not to a less-than-significant level, because emissions and exposure levels would (or could potentially) still exceed applicable thresholds and, therefore, residual significant impacts would occur. All other air quality impacts would be less than significant.

Additionally, some of the off-site elements fall under the jurisdiction of El Dorado and Sacramento Counties and/or Caltrans; therefore, neither the City nor AECOM the project applicant(s) would have control over their timing or implementation. Therefore, the impacts related to those off-site facilities that are under the jurisdiction of El Dorado County, Sacramento County, or Caltrans, are considered potentially significant and unavoidable.

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