5.11 AIR QUALITY

This section summarizes applicable regulations and existing air quality conditions, and analyzes potential short-term and long-term air quality impacts associated with development under the County General Plan. The method of analysis for short-term construction, long-term operational (regional), local mobile source, toxic air, and odorous emissions is consistent with the recommendations of the County Air Quality Management District (AQMD), formerly known as the Air Pollution Control District (APCD), as presented in the *Guide to Air Quality Assessment: Determining Significance of Air Quality Impacts under the California Environmental Quality Act* (El Dorado County AQMD 2002). The tables and exhibits for the air quality analysis are included at the end of this section. Technical modeling output is available for review at El Dorado County at the address shown on the title page of this EIR.

5.11.1 EXISTING CONDITIONS

PHYSICAL ENVIRONMENT

Air quality conditions in an area are determined by such natural factors as topography, meteorology, and climate, coupled with atmospheric stability conditions and the presence of inversions. El Dorado County has two distinct air quality environments, which have been recognized formally by division of the county into two separate air basins, the Mountain Counties Air Basin (MCAB) and the Lake Tahoe Air Basin (LTAB), as shown in Exhibit 5.11-1.

Mountain Counties Air Basin

The factors affecting the dispersion of air pollution with respect to the MCAB are discussed below.

Topography

The MCAB, an area of approximately 11,000 square miles, consists of Plumas, Sierra, Nevada, Amador, Calaveras, Tuolumne, and Mariposa counties, in addition to the west slope of El Dorado County and the central portion of Placer County. The majority of the MCAB is located in the northern Sierra Nevada area with the western boundary of the basin extending into the Sacramento Valley. The topography in the MCAB is quite variable because of mountain peaks and valleys that differ substantially in elevation from approximately 100 to 10,000 feet.

Meteorology

The annual temperature, humidity, precipitation, and wind patterns reflect the topography of the MCAB and the strength and location of a semipermanent, subtropical high-pressure cell. During the summer, in the western portion of the MCAB, temperatures that often exceed 100°F coupled with clear sky conditions are favorable for ozone formation. The majority of the precipitation in the Sacramento Valley occurs during the winter. Winds and unstable atmospheric conditions associated with the passage of winter storms result in periods of low air pollution and excellent visibility. However, between winter storms high pressure and light winds lead to the creation of low-level temperature inversions and stable atmospheric conditions, resulting in high concentrations of carbon monoxide and particulate matter.

Local meteorological conditions are recorded at the Placerville Station. The annual normal precipitation, which occurs primarily from November through March, is approximately 36.74 inches. January temperatures range from a normal minimum of 31.4°F to a maximum of 53.2°F. July temperatures range from a normal minimum of 55.9°F to a normal maximum of 91.2°F (NOAA 1992).

Lake Tahoe Air Basin

The factors affecting the dispersion of air pollution with respect to the LTAB are discussed below.

Topography

The LTAB consists of the eastern portion of El Dorado County, the eastern portion of Placer County, and Lake Tahoe. Lake Tahoe lies in a depression between the crests of the Sierra Nevada and Carson ranges on the California-Nevada border at a surface elevation of 6,260 feet above sea level. The LTAB is defined by the area within the 7,000-foot contour, which is continuous around the lake, and Tahoe City. The mountains surrounding the lake average approximately 8,000 to 9,000 feet in height.

Meteorology

The constant 39/F (4/C) water temperature of Lake Tahoe at depths below 600 feet, coupled with the location of the lake within a basin surrounded by mountains with dramatic vertical relief, defines the first meteorological regime. A regime is a meteorological pattern that occurs regularly, such as seasonal rainfall. In the absence of a weather system such as a high- or low-pressure area, this regime develops shallow subsidence and radiation inversions throughout

the year. In addition, radiation (nocturnal) inversions, which are defined as increases in temperature with height resulting from the cooling of the earth's surface at night, regularly cause gentle downslope winds from the mountain ridges down to the shore and then fan across the lake (Cliff and Cahill 2000).

The second meteorological regime is defined by the transportation from the Sacramento Valley and San Francisco Bay area into the Lake Tahoe Basin by mountain upslope winds that result from the topographic location of Lake Tahoe directly east of the Sierra Nevada crest. This pattern develops when the western slopes of the Sierra Nevada are heated, causing the air to rise in a chimney effect and move upslope to the Sierra crest and over into the LTAB. The strength of this pattern depends on the amount of heating, and thus is strongest in summer, beginning in April and essentially ceasing in late October (Cliff and Cahill 2000).

Other regimes in the LTAB are defined by strong weather patterns that overcome the dominant terrain-defined meteorology regimes discussed above. The most important is the winter storm regime, which is responsible for precipitation primarily in the form of snow (Cliff and Cahill 2000).

Each of the meteorological regimes has the potential to influence pollution concentrations within the LTAB. Pollution concentrations typically increase during local inversions, which trap emissions within the LTAB and allow for the transportation of pollution from the western slopes of the Sierra Nevada, the Sacramento Valley, and the San Francisco Bay area. On the other hand, low pollution concentrations are associated with winter storms and high winds. Winter storms dilute the local and upwind pollution with strong vertical mixing and the incorporation of clean North Pacific air (Cliff and Cahill 2000).

Local meteorological conditions are recorded at the Tahoe City Station. The annual normal precipitation, which occurs primarily from November through March, is approximately 32.2 inches. January temperatures range from a normal minimum of 19.5/F to a normal maximum of 40.0/F. August temperatures range from a normal minimum of 44.6/F to a normal maximum of 76.6/F (NOAA 1992). The annual predominant wind direction and mean speed are from the west-southwest at 14.2 mph (CARB 1994).

Further discussion of Lake Tahoe is presented in Section 5.14, Lake Tahoe Basin.

Criteria Air Pollutants

The California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) currently focus on the following air pollutants as indicators of air quality: ozone, carbon

monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, 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." The criteria air pollutants, including their adverse health effects and formation processes, are described briefly below.

Ozone

Ozone (O_3) is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and is the primary component of smog. Ozone is not directly emitted into the air, but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_x) in the presence of sunlight. ROG are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_x is a group of gaseous compounds of nitrogen and oxygen that results from the combustion of fuels.

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. Because sunlight and heat serve as catalysts for the reactions between ozone precursors, peak O_3 concentrations typically occur during the summer in the Northern Hemisphere (EPA 2002). In general, O_3 concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport meteorology, and atmospheric chemistry (Godish 1991).

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 as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 part per million (ppm) for 1 to 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, shortness of breath, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increase in responsiveness of the respiratory system to bronchoconstrictive challenges, and the interference or inhibition of the immune system's ability to defend against infection (Godish 1991).

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources of pollution. In fact, 77% of the nationwide CO emissions are from mobile sources. The other 23% consists of CO emissions from wood-burning stoves, incinerators, and industrial sources. Peak CO levels are localized near areas with high concentrations of mobile (transportation) sources and occur typically during winter months when calm conditions are common.

Carbon monoxide 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, slow reflexes, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2002).

Nitrogen Dioxide

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 primarily emit nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2002). The combined emissions of NO and NO_2 are referred to as oxides of nitrogen (NO_x), which are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (O_3), 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 nitrogen dioxide. 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, including coughing, difficulty with breathing, vomiting, headache, and eye irritation during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, hemoptysis, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment with such symptoms as chronic bronchitis and decreased lung functions.

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, pulp and paper mills, and from nonferrous smelters. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. Sulfur dioxide is a respiratory irritant with bronchoconstriction occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, sulfur dioxide produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high concentrations of sulfur dioxide 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 directly emitted 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 sulfur dioxide and reactive organic gases (EPA 2002). $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less (CARB 2002a).

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, and other toxic substances adsorbed onto fine particulate matter, which is referred to as the piggybacking effect, or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated PM_{10} concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2002). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health.

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 motor vehicles (such as cars and trucks) and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metals processing is the major source of lead emissions to the air today. 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, cars and trucks were the major contributors of lead emissions to 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 2002).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector have dramatically declined (95% between 1980 and 1999), and levels of lead in the air decreased by 94% between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13% of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in people's 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 2002).

People, animals, and fish are exposed to lead mainly by breathing and ingesting it in food, water, soil, or dust. Lead accumulates in the blood, bones, muscles, and fat. Infants and young children are especially sensitive to even low levels of lead. The health and environmental impacts of lead are shown below:

- **Damages organs—**Lead causes damage to the kidneys, liver, brain and nerves, and other organs. Exposure to lead may also lead to osteoporosis (brittle bone disease) and reproductive disorders.
- **Affects the brain and nerves—**Excessive exposure to lead causes seizures, mental retardation, behavioral disorders, memory problems, and mood changes. Low levels of lead damage the brain and nerves in fetuses and young children, resulting in learning deficits and lowered IQ.
- **Affects the heart and blood—**Lead exposure causes high blood pressure and increases heart disease, especially in men. Lead exposure may also lead to anemia, or weak blood.
- **Affects animals and plants—**Wild and domestic animals can ingest lead while grazing. They experience the same kind of effects as people who are exposed to lead. Low concentrations of lead can slow down vegetation growth near industrial facilities.

< **Affects fish—**Lead can enter water systems through runoff and from sewage and industrial waste streams. Elevated levels of lead in the water can cause reproductive damage in some aquatic life and cause blood and neurological changes in fish and other animals that live there.

Odors

The sensory perception of odorants has four major dimensions: detectability, intensity, character, and hedonic (relative pleasure) tone. Odor detectability consists of a detection threshold and a recognition threshold. The detection threshold is the lowest concentration of an odorant that will elicit a sensory response in 50% of the population. There is an awareness of the presence of an added substance, but not necessarily an odor sensation. The detection thresholds are determined using human subjects and sophisticated dilution equipment. Detection thresholds are published for more than 900 chemicals. The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality by a segment of the population. Odor intensity refers to the perceived strength of the odor sensation, and odorant character is what the substance smells like (e.g., fishy, rancid, hay, sewer, turpentine, ammonia, etc.). Hedonic tone is a category judgment of the relative pleasantness or unpleasantness of the odor, and is influenced by factors such as subjective experience and frequency of occurrence. For example, roses have been demonstrated to possess an odor with pleasant hedonic tone. Garbage has been demonstrated to possess an odor with an unpleasant hedonic tone.

Toxic Air Contaminants

Toxic air contaminants (TACs) include those air pollutants that are believed to result in an increase in mortality or serious illness, or which may pose a present or potential hazard to human health. Health effects commonly associated with TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. TACs can be separated into carcinogens and noncarcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts will not occur. Noncarcinogenic TACs differ in that there is generally assumed a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are hundreds of different types of TACs, with varying degrees of toxicity. Sources of TACs are most commonly associated with industrial processes, such as petroleum refining or

chrome plating operations, commercial operations, such as gasoline stations and dry cleaning establishments, and motor vehicle exhaust.

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by EPA. Asbestos is of special concern in El Dorado County because it occurs naturally in surface deposits of several types of ultramatic minerals. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining (AQMD 2002). The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma (CARB 2002a).

The AQMD is responsible for implementing and enforcing Title 17, §93106 of the California Code of Regulations, Asbestos Airborne Toxic Control Measure—Asbestos-Containing Serpentine. The County, along with other state and federal agencies, are taking measures to define the locations of asbestos-bearing serpentine rock, the potential for public exposure, and procedures to minimize the impacts of naturally occurring asbestos (AQMD 2003). Please refer to Section 5.8.4, Human Health and Safety, for a discussion of this impact.

REGULATORY/PLANNING ENVIRONMENT

Air quality in El Dorado County is regulated by various local, state, and federal government agencies. At the local level, the County AQMD adopts and enforces regulations to control stationary source emissions. The County AQMD also takes action to address its part of the regional ozone problem in conjunction with the Sacramento Metropolitan AQMD, Feather River AQMD, Placer County APCD, and the Yolo-Solano AQMD. At the state level, CARB sets emission standards for motor vehicles and oversees the actions of all the districts in the state in regard to the control of stationary-source emissions. Together, the air districts and CARB have the responsibility for attaining and maintaining the California ambient air quality standards (CAAQS) and national ambient air quality standards (NAAQS). The air districts and CARB work jointly with EPA on the federal level to develop and implement the State Implementation Plan (SIP), which is designed to achieve and maintain the NAAQS. EPA has the authority under federal law to step in if the state authorities do not meet their obligation in this regard. Other agencies including the Sacramento Council of Governments (SACOG) and the County Department of Transportation (DOT) also join in efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs. These are discussed in more detail below.

Federal

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 signed into law in 1970. Congress substantially amended the CAA in 1977 and 1990.

The CAA required EPA to establish primary and secondary NAAQS. The primary standards protect public health and the secondary standards protect the public welfare. As mentioned above, EPA has adopted NAAQS for criteria air pollutants. The CAA also required states exceeding NAAQS to prepare SIPs showing how the standards would be met by December 1987. The CAA Amendments of 1977 (1977 CAAA) and 1990 (1990 CAAA) made major changes in deadlines for compliance with the NAAQS and required revisions to the SIPs. Sanctions were imposed for the failure of a state to submit and implement an acceptable plan, consisting of denial of federal highway funding and more stringent requirements for major stationary sources.

Title III of the CAA requires EPA to promulgate National Emissions Standards for Hazardous Air Pollutants (NESHAP) for certain categories of sources that emit one or more air pollutants identified as hazardous. Emission standards may be different between "major sources" and "area sources" of TACs. (Major sources are defined as stationary sources with potential to emit over 10 tpy of any TAC or over 25 TPY of any combination of TACs; all other sources are considered area sources.) The emission standards are to be promulgated in two phases. In the first phase (1992 - 2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring Maximum Achievable Control Technology (MACT). For area sources, the standards may be different, based on generally available control technology. In the second phase (2001 through 2008), EPA is required to promulgate health risk-based emissions standards where such standards are deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The 1990 CAAA requires that designated agencies in any area that does not meet the NAAQS to prepare a plan (SIP update) demonstrating the steps that will be taken to bring the area into compliance. These SIP requirements vary depending on the degree of severity for which an area is in nonattainment. The 1990 CAAA also revised the federal statute for achieving attainment of NAAQS and a new set of guidelines and planning processes for carrying out the requirements of the amendments. Provisions of §182, which relates to ozone nonattainment areas, and §187, which relates to carbon monoxide nonattainment areas, emphasize strategies for reducing vehicle miles traveled (VMT). Section 182 requires submission of a plan revision that "identifies and adopts specific enforceable transportation control measures to offset any

growth in emissions from growth in vehicle miles traveled or number of vehicle trips in such an area to meet statutory requirements for demonstrating periodic emission reduction requirements."

The conformity provisions of the CAA require that federal agencies contribute to, instead of jeopardizing efforts to achieve the NAAQS. EPA required that transportation-related federal discretionary actions in 1993 and transportation projects receiving federal funds in 1997 demonstrate conformity to the approved SIP. For the MCAB portion of El Dorado County, SACOG is responsible for making conformity findings. The SIP represents a series of attainment plans by air basin that are periodically updated by air districts in consultation with regional transportation planning agencies.

State

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs and for implementing the California Clean Air Act of 1988 (California CAA), including adoption of the SIP.

The California CAA requires that all air districts in the state endeavor to achieve and maintain CAAQS by the earliest practical date. The California CAA mandates that districts focus particular attention on reducing emissions from transportation and areawide emission sources; the act provides districts with new authority to regulate indirect sources. Each district plan is to achieve a 5% annual reduction, averaged over consecutive 3-year periods, in districtwide emissions of each nonattainment pollutant or its precursors. Air districts in violation of the CAAQS are required to prepare an Air Quality Attainment Plan that includes measures for attaining the California CAA mandates.

The California legislature has also adopted several state bills to control emissions of TACs. Implementation of state-adopted legislation pertaining to the control of TACs is the responsibility of CARB and local air pollution control districts. The most significant legislation that address TACs is summarized below:

Waters Bill (AB 3205): Assembly Bill (AB) 3205 (Health and Safety Code Section, 42301.6 through 42301.9) addresses sources of hazardous air pollutants near schools. It requires new or modified sources of hazardous air emissions located within 1,000 feet from the outer boundary of a school to give public notice to the parents or guardians of children enrolled in any school located within one-quarter mile of the source and to each address within a 1,000-foot radius.

The Tanner Toxic Act (AB 1807): The Tanner Toxics Act established the California toxic air contaminant control program (AB 1807, Health and Safety Code Section 39666, et seq.) to identify and control TACs. Under the Tanner Act, the California ARB is required to identify a substance as a TAC based on the review of the scientific data and the recommendations by both the Office of Environmental and Health Hazard Assessment (OEHHA) and the Scientific Review Panel (SRP). After designation, the California ARB investigates appropriate measures to limit emissions of the TACs. These measures may include emission limitations, control technologies, operation and maintenance requirements, closed system engineering, cost, or substitution of compounds. The California ARB then prepares a report on the appropriate degree of regulation and adopts Air Toxics Control Measures (ATCMs). These control measures are the minimum regulations that must be imposed by each of the local air districts in the form of regulations. Districts must adopt rules that are at least as stringent as the state's.

Air Toxics "Hot Spots" Information and Assessment Act (AB 2588): The Air Toxics "Hot Spots" Information and Assessment Act is a state law enacted in 1987. The Act addresses public concerns that emissions from individual facilities might cause local concentration of air toxics "Hot Spots" at a level where individuals may be exposed to an excess risk of adverse health effects. The program requires facilities to notify all exposed persons if it is determined that there is a significant health risk. The law requires certain facilities to submit information regarding emissions of more than 550 TACs to their local air pollution control districts. AB 2588 was amended in 1993 by SB 1731, Facility Toxic Air Contaminant Risk Reduction Audit and Plan. In accordance with SB 1731, local air districts are required to establish a program to reduce risks from existing facilities that are deemed to pose a significant health risk.

Local

The County AQMD is the agency primarily responsible for compliance with NAAQS and CAAQS and for ensuring that air quality conditions are maintained in El Dorado 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 the El Dorado County AQMD 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, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the federal and California CAAs.

Odors

Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or federal air quality regulations, the AQMD does not currently have any rules or regulations that place quantifiable limitations on emissions of odorous substances. However, odorous emissions would be subject to AQMD Rule 205, which addresses discharges of emissions that cause injury, detriment, nuisance or annoyance to any considerable number of persons. The provisions of this rule do not apply to odors emanating from agriculture operations necessary for the growing of crops or raising of fowl or animals (AQMD 2003).

Air Quality Attainment Plans

The County AQMD in coordination with the air quality management districts and air pollution control districts of Sacramento, Yolo, Solano, Placer, and Sutter counties prepared and submitted the 1991 Air Quality Attainment Plan in compliance with the requirements set forth in the California CAA, which specifically addressed the nonattainment status for ozone and PM_{10}. In addition, the California CAA 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 California CAA requirement for a first triennial progress report and revisions of the 1991 Air Quality Attainment Plan was first fulfilled with the preparation and adoption of the 1994 Sacramento Area Regional Ozone Attainment Plan, which was incorporated as part of the SIP to meet the requirements of the federal CAA and which amended the 1991 Air Quality Attainment Plan. Triennial reports were also prepared for 1997 and 2000 in compliance with the California CAA. In addition, milestone reports required under the federal CAA were prepared for 1996, 1999, and 2002. The air quality attainment plans and reports present comprehensive strategies to reduce NO_X, ROG, and PM_{10} emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program; adoption of local air quality plans; and stationary-, mobile-, and indirect-source control measures.

A regional update to the 1994 regional SIP was recently agreed upon by the local air districts in an effort to avoid the lapse in the region's transportation conformity. In accordance with the requirements of the CAA, the region's transportation plan must conform or demonstrate that it does not harm the region's chances of reaching the ozone standard. The Metropolitan Transportation Plan for 2025 and the 2003/05 Metropolitan Transportation Improvement

Program are the current regional transportation plans. Regions with a SIP have a motor vehicle emissions budget tied to the SIP. Transportation planners must analyze the emissions anticipated from transportation plans and improvement programs and ensure that they remain within the SIP's emissions budget. If the SIP is not updated for the region, conformity will lapse and transportation funding can be withheld from all but exempt projects (SMAQMD 2003).

As a result of recent litigation, the Federal Highway Administration (FHWA) has become more sensitive to the issue of applying the most current vehicle fleet information to a region's transportation conformity analysis. The current SIP's fleet information is approximately 10 years old. SACOG is the agency responsible for demonstrating transportation conformity in the region. SACOG estimates that applying the most recent fleet data to the existing models would result in a conformity lapse (SMAQMD 2003).

CARB, SACOG, EPA, and FHWA negotiated approval to use the 1994 vehicle fleet data through December 31, 2002. As of now, conformity findings can be made only if the new fleet data are used. This means that the transportation plans and improvement programs now in place for the region cannot be changed for capacity-increasing projects until the SIP has been updated. The current SIP is being updated for reasons described above, and the population and VMT projections in the current SIP only extend to 2005. Further, the inputs to the SIP are not parallel with the projections in the General Plan. CARB updates the SIP with input from local air districts and from SACOG. SACOG develops regional population and employment data from a combination of sources. SACOG reviews the adopted general plans for each jurisdiction in the six-county SACOG region and seeks inputs from local planning departments on the level of development expected over the next 5, 10, and 20 years. SACOG also reviews California Department of Finance (DOF) population projections over the same time period. The DOF projections are considered by SACOG as a total cap on the development projections for the SACOG region. Thus, local planning department input and general plans are used, but are not the only data upon which SACOG projections are based. (Garry, pers. comm., 2003)

For the 2025 Metropolitan Transportation Plan, the process described above was used, because this plan is required to be in conformance with the SIP. For El Dorado County, SACOG assumed that the Writ would have short-term effects on the timing and level of growth in El Dorado County, but that a new general plan would be adopted and that it would be based on the 1996 General Plan (SACOG 2001). The alternatives considered in this EIR assign the highest level of growth to the 1996 General Plan Alternative. Consequently, none of the alternatives being considered by the County would be inconsistent with SACOG's basis for

its projections in the Metropolitan Transportation Plan and in the SIP (Garry, pers. comm., 2003).

El Dorado County AQMD Rules and Guidelines

In February 2002, the County AQMD published the *Guide to Air Quality Assessment: Determining Significance of Air Quality Impacts under the California Environmental Quality Act*. This guide outlines quantitative and qualitative significance criteria, methodologies for the estimation of construction and operational emissions, and mitigation measures to reduce such impacts. The quantitative and qualitative significance criteria are similar to the criteria for and developed in coordination with the surrounding air quality management and air pollution control districts. To reduce NO_x emissions and visible emissions from off-road diesel construction equipment, the following mitigation measures are recommended by the County AQMD:

< All mass grading operations shall provide a plan for approval by the County AQMD demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a projectwide fleet-average 20% NO_X reduction and 45% particulate reduction compared to the most recent CARB fleet average at the time of construction; and the project representative shall submit a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. 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 operations occur. At least 48 hours before the use of subject heavy-duty off-road equipment, the project representative shall provide the County AQMD with the anticipated construction time line including start date, and name and phone number of the project manager and onsite foreman. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, particulate matter traps, engine retrofit technology, after-treatment products, and/or other options as become available.

< All mass grading operations shall ensure that emissions from off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than 3 minutes in any one hour. Any equipment found to exceed 40% opacity (or Ringlemann 2.0) shall be repaired immediately, and the County AQMD shall be notified within 48 hours of identification of noncompliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of 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 operations occur. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The County AQMD and/or officials may conduct periodic site inspections to determine compliance. The above recommendations shall not supersede other County AQMD or state rules and regulations.

< The primary contractor shall be responsible for ensuring that all heavy-duty equipment is properly tuned and maintained, in accordance with manufacturers' specifications.

In addition to the recommended mitigation measures identified in the guide, the County AQMD has promulgated mandatory rules, some of which are applicable to construction operators. These include Rule 223 regarding fugitive dust, Rule 215 regarding the application of architectural coatings, and Rule 224 regarding cutback and emulsified asphalt paving materials. Rule 215 is applicable to any person who supplies, sells, offers for sale, applies, or solicits the application of any architectural coating, or who manufacturers any architectural coating for use within the County AQMD. Rule 223 states that no person may cause, suffer, allow, or permit any fine material to be handled, transported, or stored without taking precautions determined by the County AQMD, and that no person responsible for the ownership or maintenance of a road or thoroughfare may cause, suffer, allow, or permit a nuisance to develop as a result of any use, construction, alteration, or repair of that road or thoroughfare. The responsible person shall take precautions determined by the County AQMD to be necessary to prevent such a nuisance. Rule 224 states that a person shall not manufacture for sale nor use for paving, road construction, or road maintenance certain types of cutback and emulsified asphalt.

However, unlike other districts in the region including the Shasta County AQMD, San Joaquin Valley APCD, Amador County AQMD, and Bay Area AQMD, the County AQMD has not adopted any rules or regulations to reduce emissions from wood-burning open masonry fireplaces. In addition, even though all wood stoves manufactured on or after July 1, 1988, or sold at retail on or after July 1, 1990, are required to be EPA-certified, a wood-stove replacement program, similar to Placer County's rebate program, to encourage homeowners to replace high-pollution non-EPA-certified wood stoves with newer cleaner-burning stoves has not been developed.

Ambient Air Quality Standards

EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_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 the public welfare. In addition to the NAAQS, CARB has established CAAQS for the criteria air pollutants, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particulate matter. In most cases the CAAQS are more stringent than the NAAQS. The NAAQS and CAAQS as discussed above are listed in Table 5.11-1.

Ambient Air Quality

Ambient air quality has been monitored at several locations in El Dorado County over the past 20 years. Currently, ambient air quality and meteorological measurements, as shown in Table 5.11-2, are conducted at the Cool–State Route (SR) 193, Placerville–Gold Nugget Way, South Lake Tahoe–Sandy Way, and Echo Summit air quality monitoring stations. Exhibit 5.11-1 displays the location of each air quality monitoring station in El Dorado County.

Table 5.11-3 summarizes the air quality data from 1992 to 2001 for the applicable monitoring stations. The state (1-hour) and federal (8-hour) ozone standards were both exceeded at the air quality monitoring stations in the past 10 years. The national standard for suspended respirable particulate matter (PM_{10}) (24-hour average, 150 micrograms per cubic meter [$\mu g/m^3$]) was not exceeded; however, the state standard (24-hour average, 50 $\mu g/m^3$) was exceeded a total of 33 times from 1992 to 2001 at the Placerville and South Lake Tahoe stations. With respect to CO and nitrogen dioxide, neither the state nor the national standards were exceeded from 1992 to 2001.

Attainment Status

Both CARB and EPA use monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of the 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. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California (state) designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment.

The state and national attainment status designations for the El Dorado County portion of the MCAB are presented in Table 5.11-4. The county is currently designated as a nonattainment area with respect to the state 1-hour ozone and PM_{10} standards, and is either in attainment or

unclassified for the remaining state standards. With respect to the national standards, the county is designated as a severe nonattainment area for the 1-hour ozone standard and nonattainment for the 8-hour ozone standard. The county is either in attainment, unclassified, or unclassified/attainment for the remaining national standards. Based on current attainment status, lead, sulfates, hydrogen sulfide, and visibility reducing particulate matter are not a primary concern in El Dorado County in comparison to ozone, PM_{10}, CO, and NO_2. Concentrations of sulfates, lead, and hydrogen sulfide are, consequently, not monitored by the ambient air quality monitoring stations in El Dorado County. CARB does not yet have a measuring method with enough accuracy or precision to designate areas in the state as either "attainment" or "nonattainment." The entire state is considered "unclassified" for visibility-reducing particulate matter (AQMD 2003, CARB 2003). Projected growth would not result in nonattainment conditions under current rules, regulations, and advances in technology that ensure proper control of such emissions; therefore, they are not discussed under Environmental Impacts and Mitigation Measures below. El Dorado County is in unclassified or unclassified/attainment for the state and national CO standards on a regional level. However, localized exceedances or CO "hot spots" can occur. Localized CO concentrations that exceed the applicable ambient air quality standards likely exist today because of the unacceptable level of service at which intersections currently operate in the county.

Table 5.11-5 presents a summary of the 2001 emissions inventory for the El Dorado County portion of the MCAB. According to the emissions inventory, stationary sources account for approximately 7.7% of total ROG emissions, 5.7% of CO, 4.3% of NO_x, 7.7% of oxides of sulfur (SO_x), and 3.6% of PM_{10}. Area sources account for approximately 26.9% of total ROG emissions, 26.5% of CO, 5.8% of NO_x, 38.5% of SO_x, and 91.9% of PM_{10}. Mobile sources account for approximately 64.8% of total ROG emissions, 65.7% of CO, 88.9% of NO_x, 53.8% of SO_x, and 2.0% of PM_{10}. Mobile sources (both on-road and other) are the primary contributors to NO_x, ROG, and CO in the county. Natural sources account for <1% of total ROG emissions, 2.1% of CO, 1.0% of NO_x, <1% of SO_x, and 2.6% of PM_{10}.

Table 5.11-6 presents a summary of the emissions trends and forecasts from CARB 2002 Emissions and Air Quality Almanac, which are based on an analysis of past emission levels. The emission levels and forecasts for the future in El Dorado County are trending downward from 1980 to 2010 for NO_x and ROG, and downward from 1975 to 2010 for CO. The decreases in NO_x, ROG, and CO are largely the result of motor vehicle controls and reductions in evaporative emissions. PM_{10} emissions levels and forecasts for the future are trending upward from 1975 to 2010 as a result of growth in emissions from areawide sources, primarily fugitive dust from vehicle travel on unpaved roads and construction operations, and particulate matter from residential fuel combustion.

5.11.2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The General Plan would result in a significant impact if development would:

- conflict with or obstruct implementation of the applicable air quality plan,
- cause a violation of 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 air pollutant for which the county is nonattainment under applicable NAAQS or CAAQS,
- expose sensitive receptors to substantial pollutant concentrations or elevated levels of toxic air contaminants,
- create objectionable odors affecting a substantial number of people, or
- conflict with the County AQMD standards.

Impact **5.11-1**

Construction Emissions of ROG, NO_x, and PM_{10}. Development under the General Plan would result in construction emissions of ROG, NO_x, and $PM_{10.}$ El Dorado County is currently designated as a nonattainment area with respect to the state and national ozone (1-hour) standards, the national ozone (8-hour) standard, and the state PM_{10} standard. Thus, daily construction emissions would potentially result in or contribute to a violation of applicable NAAQS or CAAQS. This impact is considered **significant**. The severity of this impact would be greatest under the 1996 General Plan Alternative, followed by the Environmentally Constrained, Roadway Constrained 6-Lane "Plus," and No Project Alternatives. Impact significance before and after mitigation is shown in the table below.

Impact	Significance Before Mitigation*							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-1: Construction Emissions of ROG, NO_x, and PM_{10}	S_4	S_4	S_3	S_3	S_2	S_2	S_1	S_1

Mitigation	Significance After Mitigation*							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-1: Use Updated Recommendations to Analyze and Mitigate Potential Air Quality Impacts	SU_4	SU_4	SU_3	SU_3	SU_2	SU_2	SU_1	SU_1

* Notes: LS = Less than Significant; N/A= Not Applicable; S = Significant; SU = Significant and Unavoidable. Significant impacts are ranked against each other by alternative for the 2025 scenario and the buildout scenario, from 1 (Worst Impact) to 4 (Least Impact). Where the impact under two different alternatives during the same time frame would be roughly equal in severity, the numerical ranking is the same.

No Project Alternative (Alternative #1)

Relevant Goals/Policies—No Project Alternative

The relevant policy included in the 1996 General Plan that is applicable to the No Project Alternative is Policy 6.7.7.1.

No Project Alternative (2025)—Impact Discussion

Construction emissions are described as short term or temporary in duration and have the potential to represent a significant impact with respect to air quality, especially fugitive dust emissions (PM_{10}) and ozone-forming gases, for which the MCAB is in nonattainment. Fugitive dust emissions are associated primarily with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and vehicle miles traveled onsite and offsite. ROG and NO_x emissions break down to form ozone and are associated primarily with gas and diesel equipment exhaust and the application of architectural coatings.

The construction of 21,434 new dwelling units, nonresidential development (to support 36,188 new jobs), and other supporting infrastructure would generate emissions of ROG, NO_X, and PM_{10}. Such emissions would be caused by site grading and excavation, paving, application of architectural coatings (e.g., paint, stucco), motor vehicle exhaust associated with construction equipment and construction employee commute trips, material transport (especially on unpaved surfaces), demolition, and other construction operations. Construction of nonresidential development and other supporting infrastructure would result in some new ROG, NO_X, and PM_{10} emissions, but residential construction, which would occur at a rate of

about 1,000 units per year, would account for the majority of construction and this would contribute the majority of construction-related emissions. Emissions from any single project would be short term, although this impact would occur on various construction sites throughout the life of the General Plan. Construction emissions associated with development under the General Plan cannot be quantified because of the variability of construction projects, their location, timing, etc. However, based on experience in the county and on several subdivision projects, it is expected that any project involving mass grading operations would result in significant air quality impacts during construction. Given that several construction projects could be under way at any one time, substantial construction emissions may result.

The relevant policy, which requires the County (through the AQMD) to establish standards to reduce construction-related emissions, would partially mitigate short-term construction emissions by reducing exhaust emissions, mobile sources, fugitive dust, and reactive organic emissions; however, some of the standards developed by the County AQMD are recommended measures and not mandatory like the County AQMD rules. Therefore, the total daily construction emissions of ROG, NO_X, and PM_{10} resulting from implementation of the No Project Alternative would result in a significant air quality impact without the incorporation of the applicable mitigation measures. El Dorado County is currently designated as a nonattainment area with respect to the state and national ozone (1-hour) standards, the national ozone (8-hour) standard, and the state PM_{10} standard. Thus, the total daily construction emissions could result in or contribute to a violation of applicable NAAQS or CAAQS. As a result, this impact is considered significant.

No Project Alternative (Buildout)—Impact Discussion

At buildout the No Project Alternative could accommodate the construction of 29,520 new dwelling units, a net increase of 8,086 dwelling units over 2025, as well as an increase in nonresidential construction (to support an additional 48,172 jobs) and other supporting infrastructure. Thus, the No Project Alternative could result in up to approximately 27% more in total construction emissions at buildout than at 2025. If development in the county were to occur at a greater rate than projected, some of this additional development capacity could be constructed before 2025, which would result in more construction projects occurring at the same time and thus greater temporary emissions impacts from construction. As mentioned above, El Dorado County is currently designated as a nonattainment area with respect to the state and national ozone (1-hour) standards, the national ozone (8-hour) standard, and the state PM_{10} standard. Thus, the total daily construction emissions would result in or contribute to a violation of applicable NAAQS or CAAQS. As a result, this impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Alternative #2)

Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative

The relevant policy that is applicable to the Roadway Constrained 6-Lane "Plus" Alternative is Policy HS-10c.

Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion

Construction of 25,839 new building units, commercial/industrial development that would support 34,455 jobs, and other supporting infrastructure under this alternative could generate construction emissions of ROG, NO_X, and PM_{10}. Such emissions would be caused by site grading and excavation, paving, application of architectural coatings (e.g., paint, stucco), motor vehicle exhaust associated with construction equipment and construction employee commute trips, material transport (especially on unpaved surfaces), demolition, and other construction operations. Construction of nonresidential development and other supporting infrastructure would result in some new ROG, NO_X, and PM_{10} emissions, but residential construction, which would occur at a rate of about 1,000 units per year, would account for the majority of construction and this would contribute the majority of construction-related emissions. Emissions from any single project would be short term, although this impact would occur on various construction sites throughout the life of the General Plan. Construction emissions associated with development under the General Plan cannot be quantified because of the variability of construction projects, their location, timing, etc. However, based on experience in the county and on several subdivision projects, it is expected that any project involving mass grading operations would result in significant air quality impacts during construction. Given that several construction projects could be under way at any one time, substantial construction emissions may result.

The relevant policy ensures the incorporation of mitigation measures for construction emissions in accordance with the recommendations in the 2002 edition of the El Dorado County AQMD Guide to Air Quality Assessment. This would result in a substantial reduction in ROG, NO_x, and PM_{10} emissions, but the level of resulting emissions cannot be determined because of variation in potential construction operations. El Dorado County is designated as a nonattainment area with respect to the state and national ozone (1-hour) standards, the national ozone (8-hour) standard, and the state PM_{10} standard. Thus, even with the incorporation of applicable mitigation measures, daily construction emissions could result in or contribute to a violation of applicable NAAQS or CAAQS, especially during simultaneous construction operations at various locations. In addition, the policy as written would not include the incorporation of the most current recommendations in 2025 because of the direct

reference to the 2002 edition of the guidelines. As a result, this impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Buildout)—Impact Discussion

At buildout the Roadway Constrained 6-Lane "Plus" Alternative could accommodate the construction of 41,652 new dwelling units, 15,813 more than in 2025, as well as an increase in nonresidential construction (52,233 jobs) and other supporting infrastructure. Although the nature of the impact would be the same as in 2025, the amount of construction, and thus the degree of the impact, would be considerably greater under buildout. Thus, the Roadway Constrained 6-Lane "Plus" Alternative would result in approximately 38% more in total construction emissions at buildout than in 2025. This impact is considered significant.

Environmentally Constrained Alternative (Alternative #3)

Relevant Goals/Policies—Environmentally Constrained Alternative

For the relevant policies of the Environmentally Constrained Alternative, please refer to the policy listed above under Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative.

Environmentally Constrained Alternative (2025)—Impact Discussion

Construction of 32,290 new dwelling units, nonresidential development (42,711 jobs), and other supporting infrastructure under this alternative would generate construction emissions of ROG, NO_X, and PM_{10}. The nature of this impact would be the same as described under the Roadway Constrained 6-Lane "Plus" Alternative (2025), but total emissions would be worse based on the amount of residential units. As a result, this impact is considered significant.

Environmentally Constrained Alternative (Buildout)—Impact Discussion

At buildout the Environmentally Constrained Alternative could accommodate the construction of 55,078 new dwelling units, 22,788 more than in 2025, as well as an increase in nonresidential construction (24,998 new jobs) and other supporting infrastructure. Although the nature of the impact would be the same as in 2025, the amount of construction, and thus the degree of the impact, would be considerably greater under buildout. Thus, the Environmentally Constrained Alternative would result in approximately 41% more in total construction emissions at buildout than in 2025. This impact is considered significant.

1996 General Plan Alternative (Alternative #4)

Relevant Goals/Policies—1996 General Plan Alternative

For the relevant policy of the 1996 General Plan Alternative, please refer to the policy listed above under Relevant Goals/Policies—No Project Alternative.

1996 General Plan Alternative (2025)—Impact Discussion

Construction of 32,491 new dwelling units, nonresidential development (42,196 new jobs), and other supporting infrastructure would generate emissions of ROG, NO_X, and PM_{10}. More emissions would be generated than under the other alternatives (because there would be more development), but the total emissions cannot be reasonably calculated. The total daily construction emissions would result in or contribute to a violation of applicable NAAQS or CAAQS. This impact is considered significant.

1996 General Plan Alternative (Buildout)—Impact Discussion

At buildout, the 1996 General Plan Alternative could accommodate the construction of 78,692 new dwelling units, a net increase of 46,201 over 2025 conditions, as well as an increase in nonresidential construction (44,492 new jobs) and other supporting infrastructure. Although the nature of the impact would be the same in 2025, the amount of construction, and thus the degree of the impact, would be considerably greater under buildout. Thus, the 1996 General Plan Alternative would result in approximately 59% more total construction emissions at buildout than in 2025. A substantially higher amount of total construction emissions would be generated than under the other alternatives (because there would be more development). This impact is considered significant.

Mitigation Measure 5.11-1: Use Updated Recommendations to Analyze and Mitigate Potential Air Quality Impacts

Mitigation Measure—No Project Alternative

The following revised policy would reduce this impact, but not to a less-than-significant level:

> **Revised Policy 6.7.7.1:** The County~~, through the El Dorado County Air Pollution Control District,~~ shall use the recommendations in the most recent version of the El Dorado County 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 such impacts. The County shall also consider any new information or technology that becomes available prior to periodic updates of the Guide. ~~establish standards to reduce construction related exhaust emissions, mobile sources, fugitive dust, and volatile organic emissions.~~

Implementation of this mitigation measure would significantly reduce short-term construction equipment emissions and minimize dust beyond the project property line. However, construction-related emissions would not be eliminated. As mentioned above, El Dorado County is currently designated as a nonattainment area with respect to the state and national ozone (1-hour) standards, the national ozone (8-hour) standard, and the state PM_{10} standard. Thus, the incremental addition of daily construction emissions even with the incorporation of applicable mitigation measures would contribute to a potential violation of applicable NAAQS or CAAQS, especially during the simultaneous occurrence of construction operations for several projects. With implementation of this mitigation measure, impacts would remain significant and unavoidable.

Mitigation Measure—Roadway Constrained 6-Lane "Plus" Alternative

The following revised policy would reduce this impact, but not to a less-than-significant level:

> **Revised Policy HS-10c:** The County shall use the recommendations in the most recent version of the El Dorado County AQMD *Guide to Air Quality Assessment: Determining Significance of Air Quality Impacts Under the California Environmental Quality Act* ~~(El Dorado County Air Quality Management District 2002)~~, to analyze potential air quality impacts (e.g., ~~exhaust emissions, mobile sources, fugitive dust and volatile organic emissions~~ short-term or long-term operations, toxic and odor-related emissions) and to require ~~apply mitigation requirements associated with such impacts.~~ feasible mitigation requirements to reduce such impacts. The County shall also consider any new information or technology that becomes available prior to periodic updates of the Guide.

As discussed for the No Project Alternative, implementation of this mitigation measure would reduce but not eliminate construction-related emissions. This alternative would involve a greater amount of construction than the No Project Alternative, and thus the incremental emissions added after mitigation would be greater. Thus, impacts would remain significant and unavoidable.

Mitigation Measure—Environmentally Constrained Alternative

Please refer to the proposed mitigation measure for the Roadway Constrained 6-Lane "Plus" Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. Thus, impacts would remain significant and unavoidable.

Mitigation Measure—1996 General Plan Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. Thus, impacts would remain significant and avoidable.

Impact **5.11-2**

Long-Term Operational (Regional) Emissions of ROG, NO_x, and PM_{10}. Development under the General Plan would result in regional emissions of ROG, NO_X, CO, and PM_{10} that exceed the applicable AQMD thresholds as a result of an increase in vehicle trips, use of natural gas, burning, and use of maintenance equipment and consumer products, contributing to a violation of applicable NAAQS or CAAQS. In addition, the increase in population and employment growth, which consequently leads to an increase in VMT and mobile-source emissions, would potentially conflict with the attainment plan. This impact is considered **significant**. The severity of this impact in 2025 would be greatest under the 1996 General Plan and Environmentally Constrained Alternatives, followed by the Roadway Constrained 6-Lane "Plus" Alternative and then the No Project Alternative. At buildout the impact would be greatest under the 1996 General Plan Alternative, followed by the Environmentally Constrained, Roadway Constrained 6-Lane "Plus," and No Project Alternatives. Impact significance before and after mitigation is shown in the table below.

Impact	Significance Before Mitigation*							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-2: Long-Term Operational (Regional) Emissions of ROG, NO_x, and PM_{10}	S_3	S_4	S_2	S_3	S_1	S_2	S_1	S_1

Mitigation	Significance After Mitigation*							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-2(a), Implement Mitigation Measure 5.11-1; 5.11-2(b), Encourage Use of Alternative-Fuel Vehicles; 5.11-2(c), Investigate Replacement of Fleet Vehicles with More Fuel-Efficient or Alternative-Fuel Vehicles; 5.11-2(d), Prohibit Wood-Burning Open-Masonry Fireplaces in New Development; and 5.11-2(e), Develop Incentive Program to Encourage Use of Newer Cleaner-Burning EPA-Certified Wood Stoves	SU_3	SU_4	—	—	—	—	SU_1	SU_1
5.11-2(a), Implement Mitigation Measure 5.11-1; 5.11-2(b), Prohibit Wood-Burning Open-Masonry Fireplaces in New Development; 5.11-2(c), Synchronize Signalized Intersections; and 5.11-2(d), Include Pedestrian/Bike Paths Connecting to Adjacent Development	—	—	SU_2	SU_3	SU_1	SU_2	—	—

* Notes: LS = Less than Significant; N/A= Not Applicable; S = Significant; SU = Significant and Unavoidable. Significant impacts are ranked against each other by alternative for the 2025 scenario and the buildout scenario, from 1 (Worst Impact) to 4 (Least Impact). Where the impact under two different alternatives during the same time frame would be roughly equal in severity, the numerical ranking is the same.

Regional stationary-source emissions of ROG, NO_X, CO, and PM_{10} were estimated using CARB-approved URBEMIS 2001 Version 6.2.2 computer program, which is designed to model emissions for land use development (CARB 2001a). URBEMIS examines land use type and location and accounts for area emissions from the usage of natural gas, wood stoves, fireplaces, landscape maintenance equipment, and consumer products.

Regional mobile-vehicle source emissions of ROG, NO_X, CO, and PM_{10} were estimated using CARB-approved Direct Traffic Impact Model (DTIM) Version 4.02 computer program (California Department of Transportation 1989). DTIM is designed to model emissions for on-road mobile sources based on detailed information and hourly data regarding each traffic segment, such as traffic volume, vehicle fleet characteristics, and meteorological conditions. This more detailed approach provides emissions estimates and forecasts that are more accurate than those based only on areawide measures of traffic operations.

The methodology and information used for the estimation of regional-area and mobile-source emissions was based on the El Dorado County AQMD Guide to Air Quality Assessment (El Dorado County AQMD 2002); *DTIM User's Guide* (California Department of Transportation 2001), *URBEMIS for Windows Computer Program User's Guide* (Jones & Stokes 2000); DTIM traffic input from Fehr and Peers for the link, terminal volume, and interzonal files; and close coordination with Wayne Luney, a research manager at the California Department of Transportation (Luney, pers. comm., 2002 and 2003). Model output is available for review at El Dorado County at the address shown on the title page of this EIR.

No Project Alternative (Alternative #1)

Relevant Goals/Policies—No Project Alternative

The relevant policies included in the 1996 General Plan that are applicable to the No Project Alternative are Policies 6.7.2.1 through 6.7.2.4, 6.7.3.1, and 6.7.4.1 through 6.7.4.5.

No Project Alternative (2025)—Impact Discussion

With respect to stationary-source emissions, the operation of commercial and industrial infrastructure, in addition to agricultural burning, would result in the generation of area source emissions; however, the primary source of area source emissions would result from the use of the new dwelling units. Under the No Project Alternative at 2025, 21,434 new dwelling units would be constructed, of which, 14,565 are within the DAs. The remaining 6,869 of these dwelling units would be constructed on existing parcels spread out in various areas of the county. These would be approved through ministerial review and therefore would not be

subject to General Plan consistency review. Such development would generate regional emissions of ROG, NO_X, CO, and PM_{10} from use of natural gas, wood stoves, fireplaces, landscape maintenance equipment, and consumer products. In addition, mobile-source emissions of ROG, NO_X, CO, and PM_{10} are generated by vehicle trips. Based on traffic input information, DTIM predicts that the No Project Alternative at 2025 would generate approximately 5,712,600 total daily VMT and 553,070 total daily trips.

This alternative would result in long-term regional emissions of 4.76 tons/day of ROG, 1.66 tons/day of NO_X, 20.11 tons/day of CO, and 1.63 tons/day of PM_{10}, as summarized in Table 5.11-7. Emissions from wood stoves and fireplaces constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions.

The relevant policies could partially mitigate long-term regional emissions by encouraging efforts to reduce peak-hour vehicle trips (e.g., flexible work hours, telecommuting, car pooling); the development of and use of a local and interstate rail system; reduction of automobile dependency; and development and use of pedestrian/bike paths. However, these measures are not likely to meaningfully reduce air emissions given the low density of development that would occur under this alternative. The low-density land use pattern would discourage vehicle mode choices other than the single-occupant vehicle. Although the No Project Alternative has the least overall amount of development, the land use pattern that results from the implementation of the Writ would further encourage a low-density dispersed pattern, to a greater extent than the other alternatives. Establishment of a development pattern of one single family unit on existing parcels would tend to preclude the future ability of the county to effect a more transit-supportive higher density development pattern.

This low-density land use development pattern, in comparison with the other alternatives, would promote development of and travel on unpaved roads. This occurs because the development pattern of a single family unit on existing parcels would encourage individual access roads which due to expense would most likely be unpaved. This development pattern would contribute to more PM_{10} emissions.

Therefore, the adoption of the No Project Alternative would result in regional emissions of ROG, NO_X, CO, and PM_{10} due to vehicle trips, use of natural gas, burning, and use of maintenance equipment and consumer products that exceed the applicable thresholds and thus would contribute to a violation of applicable NAAQS or CAAQS. In addition, this land use pattern may be in conflict with the attainment plan because of the increase in population and employment growth, which consequently would lead to an increase in VMT and mobile-source emissions. As a result, this impact is considered significant.

No Project Alternative (Buildout)—Impact Discussion

Buildout conditions would allow for an additional 8,086 new dwelling units and commercial/ industrial development beyond what is projected for 2025. These units would be constructed on legal parcels, subject only to ministerial review as existing commitments are assumed to be built out before 2025. Based on traffic input information, DTIM predicts that the No Project Alternative would generate approximately 9,031,180 total daily VMT and 794,730 total daily trips at buildout, net increases of 3,027,200 and 283,822, respectively, over 2025.

This alternative would result in total (2025 plus buildout) long-term regional emissions of 7.01 tons/day of ROG, 2.66 tons/day of NO_X, 32.27 tons/day of CO, and 2.49 tons/day of PM_{10}, as summarized in Table 5.11-7. At buildout the No Project Alternative would result in a net increase over 2025 in regional emissions of 2.25 tons/day of ROG, 1.00 tons/day of NO_X, 12.16 tons/day of CO, and 0.86 ton/day of PM_{10}. Wood stove and fireplace source emissions constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions, comprising roughly 70% of the total. The relevant policies could partially mitigate long-term regional emissions; however, the low density land use pattern would discourage implementation of these policies (please refer to the discussion of this issue under No Project Alternative (2025)—Impact Discussion above). This impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Alternative #2)

Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative

The relevant policies that are applicable to the Roadway Constrained 6-Lane "Plus" Alternative are Policies HS-8a through HS-8f and HS-9a.

Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion

Based on traffic input information, this alternative would generate approximately 5,820,060 total daily VMT and 574,160 total daily trips. Approximately 20% more dwelling units would be built than under the No Project Alternative (2025).

Based on the modeling conducted, the Roadway Constrained 6-Lane "Plus" Alternative (2025) would result in long-term regional emissions of 5.55 tons/day of ROG, 1.72 tons/day of NO_X, 22.49 tons/day of CO, and 1.98 tons/day of PM_{10}, as summarized in Table 5.11-7. Emissions from wood stoves and fireplaces constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions.

The relevant policies could partially mitigate long-term regional emissions through education; encouragement of efforts to reduce peak-hour vehicle trips (e.g., flexible work hours, telecommuting, carpooling) and to develop a local and interstate rail system; and promotion of the use of fuel-efficient or alternative-fuel vehicles. Similar to the No Project Alternative, the Roadway Constrained 6-Lane "Plus" Alternative would discourage successful implementation of policies intended to encourage vehicle mode choices other than single occupant vehicle. Although the Roadway Constrained 6-Lane "Plus" Alternative would result in the second smallest amount of development of the four equal-weight alternatives, this alternative permits legal parcels to be split into a maximum of four new parcels, and allows one unit to be constructed on each new parcel, further encouraging low density dispersal of dwelling units. Establishment of this land use development pattern parcels would also tend to preclude the future ability of the county to effect a more transit-friendly higher density development pattern. In addition, similar to the No Project Alternative, this kind of low-density development could result in more travel on unpaved roads, thus leading to high PM_{10} emissions.

Therefore, the adoption of the Roadway Constrained 6-Lane "Plus" Alternative (2025) would result in regional emissions of ROG, NO_X, CO, and PM_{10} due to vehicle trips, use of natural gas, burning, use of maintenance equipment and consumer products that exceed the applicable thresholds and thus would contribute to a violation of applicable NAAQS or CAAQS. In addition, the attainment plan would potentially not be achieved because of the increase in population and employment growth, which consequently leads to an increase in VMT and mobile-source emissions. As a result, this impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Buildout)—Impact Discussion

At buildout under this alternative there would be an increase of 15,813 units and additional nonresidential development over 2025. Based on traffic input information, DTIM predicts that the Roadway Constrained 6-Lane "Plus" Alternative would generate approximately 9,167,190 total daily VMT and 829,010 total daily trips at buildout, net increases of 3,123,700 and 320,763, respectively, over 2025.

This alternative would result in total (2025 plus buildout) long-term regional emissions of approximately 9.41 tons/day of ROG, 3.11 tons/day of NO_X, 39.56 tons/day of CO, and 3.29 tons/day of PM_{10}, as summarized in Table 5.11-7. At buildout the Roadway Constrained 6-Lane "Plus" Alternative would result in a net increase over 2025 in regional emissions of approximately 3.86 tons/day of ROG, 1.39 tons/day of NO_X, 17.07 tons/day of CO, and 1.31 tons/day of PM_{10}. Wood stove and fireplace source emissions constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions. The relevant policies

could partially mitigate long-term regional emissions; however, the low-density land use pattern would discourage implementation of these policies (please refer to the discussion of this issue under Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion above). Adoption of this alternative would result in regional emissions of ROG, NO_X, CO, and PM_{10} that exceed the applicable thresholds and thus would contribute to a violation of applicable NAAQS or CAAQS. In addition, the attainment plan may not be achieved because of the increase in population and employment growth, which consequently leads to an increase in VMT and mobile-source emissions. As a result, this impact is considered significant.

Environmentally Constrained Alternative (Alternative #3)

Relevant Goals/Policies—Environmentally Constrained Alternative

For the relevant policies of the Environmentally Constrained Alternative, please refer to the policies listed above under Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative.

Environmentally Constrained Alternative (2025)—Impact Discussion

Based on traffic input information, this alternative would generate approximately 6,408,690 total daily VMT and 632,750 total daily trips. Development under the Environmentally Constrained Alterative would be more focused in subdivisions subject to discretionary approval, so General Plan policies would more broadly apply. As such, most development would be required to comply with the relevant policies.

Based on the modeling conducted, the Environmentally Constrained Alternative at 2025 would result in long-term regional emissions of 6.82 tons/day of ROG, 2.00 tons/day of NO_X, 26.12 tons/day of CO, and 2.35 tons/day of PM_{10}, as summarized in Table 5.11-7. Wood stove and fireplace source emissions constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions.

The relevant policies could partially mitigate long-term regional emissions through education; encouragement of efforts to reduce peak-hour vehicle trips (e.g. flexible work hours, telecommuting, and car pooling) and develop a local and interstate rail system; and promote the use of fuel-efficient or alternative-fuel vehicles. The higher density land use pattern that results from the Environmentally Constrained Alternative could theoretically encourage successful implementation of policies intended to encourage vehicle mode choices other than the single-occupant vehicle (e.g. light-rail system). However, as discussed in Section 5.4, land

use densities for all alternatives are not sufficient to support substantial use of alternative transportation.

Further, although the Environmentally Constrained Alternative has the second highest overall amount of development, the land use pattern that would result from implementation of this alternative would discourage low density sprawl more than the other alternatives. This results from encouraging higher densities in the Community Regions and Rural Centers. Establishment of a high density development pattern will tend to support the future ability of the county to develop a more transit-friendly development pattern.

In addition, this high density land use pattern in comparison with the other alternatives, would reduce the future development of and travel on unpaved roads, thus leading to less PM_{10} emissions.

The adoption of this alternative would result in regional emissions of ROG, NO_X, CO, and PM_{10} due to vehicle trips, use of natural gas, burning, use of maintenance equipment and consumer products that exceed the applicable thresholds and thus would contribute to a violation of applicable NAAQS or CAAQS. In addition, increase in population and employment growth, which consequently leads to an increase in VMT and mobile-source emissions could result in a conflict with the attainment plan. As a result, this impact is considered significant.

Environmentally Constrained Alternative (Buildout)—Impact Discussion

At buildout under this alternative there would be an increase of 22,788 units over 2025. Based on traffic input information, DTIM predicts that the Environmentally Constrained Alternative would generate approximately 7,809,750 total daily VMT and 778,610 total daily trips, net increases of 1,451,800 and 217,450, respectively, over 2025. This alternative would result in approximately 87% more dwelling units at buildout than the No Project Alternative. However, based on the transportation analysis, traffic patterns would shift; there would be 2.1% fewer trips and 15.6% fewer VMT than under the No Project Alternative. This is caused by focusing development in Community Centers and Rural Centers which results in lower VMT and trips per capita (see Table 5.4-5 in Section 5.4, Traffic and Circulation). It is important to note that even though this alternative would have more growth at buildout than the No Project and Roadway Constrained 6-Lane "Plus" Alternatives, it would result in the smallest amount of long-term regional mobile-source emissions because the land-use development pattern would encourage trip reduction.

The Environmentally Constrained Alternative would result in long-term regional emissions of approximately 11.44 tons/day of ROG, 2.98 tons/day of NO_X, 41.94 tons/day of CO, and 3.97 tons/day of PM_{10}, as summarized in Table 5.11-7. Emissions from wood stoves and fireplaces constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions. The relevant policies could partially mitigate long-term regional emissions and are better supported by the land use pattern (please refer to the discussion of this issue under Environmentally Constrained Alterative (2025)—Impact Discussion above). Adoption of the Environmentally Constrained Alternative would result in regional emissions of ROG, NO_X, CO, and PM_{10} that exceed the applicable thresholds and thus would contribute to a violation of applicable NAAQS or CAAQS. In addition, the attainment plan would potentially be conflicted with due to the increase in population and employment growth, which consequently leads to an increase in VMT and mobile-source emissions. As a result, this impact is considered significant.

1996 General Plan Alternative (Alternative #4)

Relevant Goals/Policies—1996 General Plan Alternative

For the relevant policies of the 1996 General Plan Alternative, please refer to the policies listed above under Relevant Goals/Policies—No Project Alternative.

1996 General Plan Alternative (2025)—Impact Discussion

Based on traffic input information, this alternative would generate approximately 6,399,300 total daily VMT and 631,470 total daily trips.

Based on the modeling conducted, this alternative would result in long-term regional emissions of 6.85 tons/day of ROG, 1.90 tons/day of NO_X, 25.90 tons/day of CO, and 2.37 tons/day of PM_{10}, as summarized in Table 5.11-7. Wood stove and fireplace source emissions constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions.

The relevant policies could partially mitigate long-term regional emissions through education; encouragement of efforts to reduce peak-hour vehicle trips (e.g. flexible work hours, telecommuting, and car pooling); develop a local and interstate rail system; reduce automobile dependency; and promote development of and use pedestrian/bike paths. Even though this alterative results in the highest intensity land use pattern, unlike the Environmentally Constrained Alterative, the growth is dispersed throughout the County's Community Regions and Rural Centers. However, as discussed in Section 5.4, land use densities for all alternatives

are not sufficient to support substantial use of alternative transportation. Thus, this higher density land use pattern could theoretically encourage successful implementation of policies intended to encourage vehicle mode choices other than the single-occupant vehicle, but not to the same extent as the Environmentally Constrained Alternative. In a similar manner, this alternative would discourage low density sprawl and support the ability of the county to develop a more transit-friendly development pattern, but once again not to the same extent as the Environmentally Constrained Alternative.

In addition, this high density land use pattern in comparison with the other alternatives, would reduce the future development of and travel on unpaved roads, thus leading to less PM_{10} emissions.

The adoption of this alternative would result in regional emissions of ROG, NO_X, CO, and PM_{10} due to vehicle trips, use of natural gas, burning, use of maintenance equipment and consumer products that exceed the applicable thresholds and thus would contribute to a violation of applicable NAAQS or CAAQS. In addition, the attainment plan would potentially be conflicted with due to the increase in population and employment growth, which consequently leads to an increase in VMT and mobile-source emissions. As a result, this impact is considered significant.

1996 General Plan Alternative (Buildout)—Impact Discussion

At buildout under this alternative, there would be an increase of 46,201 units over 2025. Based on traffic input information, DTIM predicts that the 1996 General Plan Alternative would generate approximately 9,636,910 total daily VMT and 939,700 total daily trips, net increases of 3,237,610 and 308,230, respectively, over 2025.

The 1996 General Plan Alternative would result in long-term regional emissions of approximately 16.28 tons/day of ROG, 4.06 tons/day of NO_X, 57.67 tons/day of CO, and 5.52 tons/day of PM_{10}, as summarized in Table 5.11-7. At buildout this alternative would result in a net increase in regional emissions over 2025 of approximately 9.43 tons/day of ROG, 2.6 tons/day of NO_X, 31.77 tons/day of CO, and 3.15 tons/day of PM_{10}. Wood stove and fireplace source emissions constitute a large portion of the total ROG and PM_{10} emissions in comparison to mobile-source emissions. The relevant policies could partially mitigate long-term regional emissions and are better supported by the land use pattern, but not to the same extent as the Environmentally Constrained Alternative (please refer to the discussion of this issue under 1996 Alterative (2025)—Impact Discussion above). Adoption of the 1996 General Plan Alternative would result in regional emissions of ROG, NO_X, CO, and PM_{10} that exceed the applicable thresholds and thus would contribute to a violation of applicable NAAQS or

CAAQS. In addition, the increase in population and employment growth, which consequently leads to an increase in VMT and mobile-source emissions could thwart achievement of the attainment plan. As a result, this impact is considered significant.

Mitigation Measure 5.11-2—No Project Alternative

The County shall implement all of the following measures:

- Mitigation Measure 5.11-2(a): Implement Mitigation Measure 5.11-1
- Mitigation Measure 5.11-2(b): Encourage Use of Alternative-Fuel Vehicles
- Mitigation Measure 5.11-2(c): Investigate Replacement of Fleet Vehicles with More Fuel-Efficient or Alternative-Fuel Vehicles
- Mitigation Measure 5.11-2(d): Prohibit Wood-Burning Open-Masonry Fireplaces in New Development
- Mitigation Measure 5.11-2(e): Develop incentive program to Encourage Use of Newer Cleaner-Burning EPA-Certified Wood Stoves

These potential mitigation measures are described below. With implementation of these mitigation measures, impacts would be reduced, but not to a less-than-significant level. Because of uncertainties, specific emissions reductions cannot be calculated. Because of the high emissions expected from this alternative, impacts would remain significant and unavoidable.

Mitigation Measure 5.11-2(a): Implement Mitigation Measure 5.11-1

The County shall implement Mitigation Measure 5.11-1 described above.

Mitigation Measure 5.11-2(b): Encourage Use of Alternative-Fuel Vehicles

The County shall implement the following new policy:

> **New Policy:** Upon reviewing projects, the County shall support and encourage the use of, and facilities for, alternative-fuel vehicles to the extent feasible.

Mitigation Measure 5.11-2(c): Investigate Replacement of Fleet Vehicles with More Fuel-Efficient or Alternative-Fuel Vehicles

The County shall implement the following new policy:

> **New Policy:** The County shall investigate the replacement of its fleet vehicles with more fuel-efficient or alternative fuel vehicles (e.g., liquid natural gas, fuel cell vehicles).

Mitigation Measure 5.11-2(d): Prohibit Wood-Burning Open-Masonry Fireplaces in New Development

The County shall implement the following new policy:

> **New Policy:** The County shall prohibit wood-burning open masonry fireplaces in all new development. Fireplaces with EPA-approved inserts, EPA-approved stoves, and fireplaces burning natural gas are allowed.

Mitigation Measure 5.11-2(e): Develop Incentive Program to Encourage Use of Newer Cleaner-Burning EPA-Certified Wood Stoves

The County shall implement the following new policy:

> **New Policy:** The County shall develop an incentive program to encourage homeowners to replace high-pollution emitting non-EPA-certified wood stoves that were installed before the effective date of the applicable EPA regulation with newer cleaner-burning EPA-certified wood stoves.

Mitigation Measure 5.11-2—Roadway Constrained 6-Lane "Plus" Alternative

The County shall implement all of the following measures:

- Mitigation Measure 5.11-2(a): Implement Mitigation Measure 5.11-1
- Mitigation Measure 5.11-2(b): Prohibit Wood-Burning Open-Masonry Fireplaces in New Development
- Mitigation Measure 5.11-2(f): Synchronize Signalized Intersections
- Mitigation Measure 5.11-2(g): Include Pedestrian/Bike Paths Connecting to Adjacent Development

These potential mitigation measures are described below. For the same reasons as described under the No Project Alternative above, impacts would remain significant and unavoidable.

Mitigation Measure 5.11-2(a): Implement Mitigation Measure 5.11-1

The County shall implement Mitigation Measure 5.11-1 described above.

Mitigation Measure 5.11-2(b): Prohibit Wood-Burning Open-Masonry Fireplaces in New Development

Please refer to the proposed Mitigation Measure 5.11-2(d) for the No Project Alternative above.

Mitigation Measure 5.11-2(f): Synchronize Signalized Intersections

The County shall implement the following new policy:

> **New Policy:** Signalized intersections shall be synchronized where possible as a means to reduce congestion, conserve energy, and improve air quality.

Mitigation Measure 5.11-2(g): Include Pedestrian/Bike Paths Connecting to Adjacent Development

> **New Policy:** Within Community Regions and Rural Centers, all development shall include pedestrian/bike paths connecting to adjacent development and to common facilities. In Rural Regions, pedestrian/bike paths shall be considered as appropriate.

Mitigation Measure 5.11-2—Environmentally Constrained Alternative

Please refer to the proposed mitigation measures for the Roadway Constrained 6-Lane "Plus" Alternative above. With implementation of these mitigation measures, impacts would be reduced, but not to a less-than-significant level.

Mitigation Measure 5.11-2—1996 General Plan Alternative

Please refer to the proposed mitigation measures for the No Project Alternative above. With implementation of these mitigation measures, impacts would be reduced, but not to a less-than-significant level.

Impact **5.11-3**

Toxic Air Emissions. Development under the General Plan would result in the exposure of sensitive receptors to toxic air emissions that exceed the standards. This impact is considered **significant**. The severity of this impact would be roughly equal for all four equal-weight alternatives. Impact significance before and after mitigation is shown in the table below.

Impact	Significance Before Mitigation*							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")"""		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-3: Toxic Air Emissions	S_4	S_4	S_3	S_3	S_2	S_2	S_1	S_1
Mitigation	**Significance After Mitigation***							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")"""		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-3(a), Implement Mitigation Measure 5.1-3(a); 5.11-3(b), Implement Mitigation Measure 5.1-3(b); 5.11-3(c), Implement Mitigation Measure 5.11-1; and 5.11-3(d), Adopt New Policy for Facilities Housing Sensitive Receptors	SU_4	SU_4	SU_3	SU_3	SU_2 (5.11-3(a), 5.11-3(b), and 5.11-3(c) only)	SU_2 (5.11-3(a), 5.11-3(b), and 5.11-3(c) only)	SU_1	SU_1

* Notes: LS = Less than Significant; N/A= Not Applicable; S = Significant; SU = Significant and Unavoidable. Significant impacts are ranked against each other by alternative for the 2025 scenario and the buildout scenario, from 1 (Worst Impact) to 4 (Least Impact). Where the impact under two different alternatives during the same time frame would be roughly equal in severity, the numerical ranking is the same.

No Project Alternative (Alternative #1)

Relevant Goals/Policies—No Project Alternative

The relevant policy included in the 1996 General Plan that is applicable to the No Project Alternative is Policy 6.7.6.1.

No Project Alternative (2025)—Impact Discussion

The development that would result from implementation of the No Project Alternative would include land uses that are potential sources of toxic air emissions. The type and level of toxic air emissions would depend upon the nature of the land use, in particular the individual facility, and on the methods and operations that involve toxic air emissions. Table 5.11-8 is a list of toxic air emissions associated with common land use activities. Most recently, diesel-exhaust particulate was added to the CARB list of TACs. Activities involving the long-term use of diesel-powered equipment and heavy duty trucks, such as gravel mining and landfilling activities are, therefore, of particular concern. Typically, potential toxic impacts occur in the following situations: (1) sources of toxic air emissions are located near existing sensitive receptors (e.g., schools, residential dwellings, hospitals), and (2) sensitive receptors are located near existing sources of toxic air emissions. Policy 6.7.6.1 specifically addresses the exposure of sensitive receptors to existing sources of toxic air emissions and states that new facilities in which sensitive receptors are located shall be sited away from toxic sources. However, this policy does not address the issue of siting new sources of toxic air emissions near sensitive receptors. Toxic air emissions from mobile sources (diesel trucks) would also potentially result in the exposure of sensitive receptors to toxic air emissions that exceed the standards in the County AQMD Guidelines. In addition, Policy 6.7.6.1 would ensure the protection of public health on a project-level basis; however, exposure of sensitive receptors to toxic air emissions that exceed the standards from multiple sources (including mobile sources) may still occur. As a result, this impact is considered significant.

No Project Alternative (Buildout)—Impact Discussion

Please refer to No Project Alternative (2025)—Impact Discussion above. This impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Alternative #2)

Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative

The relevant policies that are applicable to the Roadway Constrained 6-Lane "Plus" Alternative are Policies HS-10a and HS-10b.

Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion

Policies HS-10a and HS-10b specifically address the exposure of sensitive receptors to toxic air emissions and state that such sensitive receptors shall be separated from toxic sources. Please

refer to No Project Alternative (2025)—Impact Discussion above. This impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Buildout)—Impact Discussion

Please refer to Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion above. This impact is considered significant.

Environmentally Constrained Alternative (Alternative #3)

Relevant Goals/Policies—Environmentally Constrained Alternative

For the relevant policies of the Environmentally Constrained Alternative, please refer to the policies listed above under Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative.

Environmentally Constrained Alternative (2025)—Impact Discussion

Please refer to Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion above. This impact is considered significant.

Environmentally Constrained Alternative (Buildout)—Impact Discussion

Please refer to Roadway Constrained 6-Lane "Plus" Alternative (Buildout)—Impact Discussion above. This impact is considered significant.

1996 General Plan Alternative (Alternative #4)

Relevant Goals/Policies—1996 General Plan Alternative

For the relevant policies of the 1996 General Plan Alternative, please refer to the policy listed above under Relevant Goals/Policies—No Project Alternative.

1996 General Plan Alternative (2025)—Impact Discussion

Please refer to No Project Alternative (2025)—Impact Discussion above. This impact is considered significant.

1996 General Plan Alternative (Buildout)—Impact Discussion

Please refer to No Project Alternative (Buildout)—Impact Discussion above. This impact is considered significant.

Mitigation Measure 5.11-3—No Project Alternative

The County shall implement all of the following measures:

- Mitigation Measure 5.11-3(a): Implement Mitigation Measure 5.1-3(a)
- Mitigation Measure 5.11-3(b): Implement Mitigation Measure 5.1-3(b)
- Mitigation Measure 5.11-3(c): Implement Mitigation Measure 5.11-1
- Mitigation Measure 5.11-3(d): Adopt New Policy for Facilities Housing Sensitive Receptors

These potential mitigation measures are described below. With implementation of these mitigation measures, impacts would be reduced, but not to a less-than-significant level because not all sources (e.g., mobile sources) can be adequately controlled. Therefore, this impact is significant and unavoidable.

Mitigation Measure 5.11-3(a): Implement Mitigation Measure 5.1-3(a)

The County shall implement Mitigation Measure 5.1-3(a) described in Section 5.1, Land Use and Housing.

Mitigation Measure 5.11-3(b): Implement Mitigation Measure 5.1-3(b)

The County shall implement Mitigation Measure 5.1-3(b) described in Section 5.1, Land Use and Housing.

Mitigation Measure 5.11-3(c): Implement Mitigation Measure 5.11-1

The County shall implement Mitigation Measure 5.11-1 described above.

Mitigation Measure 5.11-3(d): Adopt New Policy for Facilities Housing Sensitive Receptors

> **New Policy:** New facilities in which sensitive receptors are located (e.g. residential subdivisions, schools, childcare centers, playgrounds, retirement homes, and hospitals) shall be sited away from significant sources of air pollution.

Mitigation Measure 5.11-3—Roadway Constrained 6-Lane "Plus" Alternative

Please refer to the proposed mitigation measures for the No Project Alternative above. With implementation of these mitigation measures, impacts would be reduced, but not to a less-than-significant level. Therefore, impacts would be significant and unavoidable.

Mitigation Measure 5.11-3—Environmentally Constrained Alternative

Please refer to the proposed mitigation measures 5.11-3(a), 5.11-3(b), and 5.11-3(c) for the No Project Alternative above. With implementation of these mitigation measures, impacts would be reduced, but not to a less-than-significant level. Therefore, impacts would be significant and unavoidable.

Mitigation Measure 5.11-3—1996 General Plan Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of these mitigation measures, impacts would be reduced, but not to a less-than-significant level. Therefore, impacts would be significant and unavoidable.

Impact **5.11-4**

Local Mobile-Source Emissions of Carbon Monoxide (CO). Development under the General Plan would result in local mobile-source CO emissions, caused by an increase in VMT, vehicle trips, and vehicle hours of delay (VHD), that would exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm, respectively. This impact is considered **significant**. The severity of this impact in 2025 would be greatest under the Environmentally Constrained Alternative, followed by the 1996 General Plan, Roadway Constrained 6-Lane "Plus," and No Project Alternatives. At buildout the impact would be greatest under the 1996 General Plan Alternative, followed by the Roadway Constrained 6-Lane "Plus," No Project, and Environmentally Constrained Alternatives. Impact significance before and after mitigation is shown in the table below.

Impact	Significance Before Mitigation*							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")"""		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-4: Local Mobile-Source Emissions of Carbon Monoxide (CO)	S_4	S_3	S_3	S_2	S_1	S_4	S_2	S_1
Mitigation	**Significance After Mitigation***							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-4: Implement Mitigation Measure 5.11-2(c) for the Roadway Constrained 6-Lane "Plus" Alternative	SU_4	SU_3	SU_3	SU_2	SU_1	SU_4	SU_2	SU_1

* Notes: LS = Less than Significant; N/A= Not Applicable; S = Significant; SU = Significant and Unavoidable. Significant impacts are ranked against each other by alternative for the 2025 scenario and the buildout scenario, from 1 (Worst Impact) to 4 (Least Impact). Where the impact under two different alternatives during the same time frame would be roughly equal in severity, the numerical ranking is the same.

Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Under specific meteorological conditions, the concentration of CO emissions near roadway intersections may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals. The University of California, Davis (UC Davis) Institute of Transportation Studies (ITS) Transportation Project-Level Carbon Monoxide Protocol (Garza et al. 1997) states that signalized intersections at LOS E or F represent a potential for a CO violation, also known as a "hot spot." Thus, modeling of CO concentrations is typically recommended for sensitive receptors located near signalized roadway intersections that are projected to operate at an unacceptable LOS.

An analysis of signalized intersection capacity was performed to identify the most congested and best operating intersections under the various alternatives. This was done to provide a framework for determining the potential for CO emissions from any of the alternatives to result in adverse effects. The analysis was conducted at the following intersections, which under 2025 conditions are the busiest and most congested: Plaza Drive/Missouri Flat Road, Harvard Way/El Dorado Hills Boulevard, Saratoga Way/El Dorado Hills Boulevard, White Rock Road/Latrobe Road, and Green Valley Road/Francisco Drive. This selection was based

on the number of vehicle trips, VMT, and the presence of sensitive receptors. The analysis evaluated the Environmentally Constrained Alternative, in which intersections would operate at the worst level of service (LOS) of the four equal-weight alternatives under 2025 conditions, and the No Project Alternative, in which intersections would operate at the best LOS.

As recommended in the El Dorado County AQMD Guide to Air Quality Assessment, local mobile-source CO emissions concentrations near roadway intersections were analyzed using the CALINE4 computer dispersion model in accordance with the UC Davis ITS Transportation Project-Level Carbon Monoxide Protocol (Garza et al. 1997). The 1-hour and 8-hour CO concentrations were estimated based on worst-case meteorological conditions, p.m. peak-hour traffic volumes as presented in the traffic analysis, composite emission factors modeled using the CT-EMFAC computer model (California Department of Transportation 1994), and CO-specific information including background concentration and persistence from the El Dorado AQMD Guide to Air Quality. In addition, the 1-hour CO concentrations at 3 meters and 8-hour CO concentrations at 7 meters were compared to the ambient air quality standards to determine whether the exposure of sensitive receptors was significant in accordance with the recommendation in the UC Davis ITS.

No Project Alternative (Alternative #1)

Relevant Goals/Policies—No Project Alternative

1. The relevant policies included in the 1996 General Plan that are applicable to the No Project Alternative are Policies 6.7.2.1 through 6.7.2.4, 6.7.3.1, and 6.7.4.1 through 6.7.4.5.

No Project Alternative (2025)—Impact Discussion

Based on the traffic report for the No Project Alternative under 2025 conditions, development under the General Plan would result in 5,713,600 VMT, 553,070 vehicle trips, and 35,640 VHD on a daily basis within El Dorado County. The 1-hour and 8-hour CO concentrations were modeled at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard, and White Rock Road/Latrobe Road intersections because they are projected to operate at an unacceptable LOS under the No Project Alternative with 2025 conditions. The 1-hour and 8-hour CO concentrations were estimated based on worst-case meteorological conditions, p.m. peak-hour traffic volumes as presented in the traffic analysis, and composite emission factors modeled using the CT-EMFAC computer model, which account for future emission reduction attributable to technological advancements. Based on the modeling conducted, the implementation of this alternative, as shown in Table 5.11-9, would result in maximum 1-hour

CO concentrations of 19.1 ppm at the Plaza Drive/Missouri Flat Road intersection (Exhibit 5.11-2), 42.7 ppm at the Saratoga Way/El Dorado Hills Boulevard intersection (Exhibit 5.11-3), and 33.0 ppm at the White Rock Road/Latrobe Road intersection (Exhibit 5.11-4). In addition, the implementation of this alternative, as shown in Table 5.11-6, would result in maximum 8-hour CO concentrations of 10.9 ppm at the Plaza Drive/Missouri Flat Road intersection, 28.6 ppm at the Saratoga Way/El Dorado Hills Boulevard intersection, and 24.1 ppm at the White Rock Road/Latrobe Road intersection.

The relevant policies would only partially mitigate the local mobile-source emissions. Thus, local mobile-source CO emissions resulting from implementation of the No Project Alternative under 2025 conditions would help to cause CO concentrations that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm, respectively. As a result, this impact is considered significant.

No Project Alternative (Buildout)—Impact Discussion

As mentioned above, local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Based on the traffic report for the No Project Alternative under buildout conditions, adoption of this alternative would result in 9,031,180 VMT, 794,730 vehicle trips, and 258,940 VHD on a daily basis within El Dorado County, a net increase of 3,317,131 VMT, 241,393 vehicle trips, and 87,820 VHD over 2025 conditions. Although the nature of the impact would be the same as in 2025, the number of VMT, vehicle trips, and VHD, and thus the degree of the impact, would be considerably greater under buildout. Therefore, as under 2025 conditions, the No Project Alternative at buildout would result in maximum 1-hour and 8-hour CO concentrations at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard, and White Rock Road/Latrobe Road intersections that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm. Local mobile-source CO emissions resulting from implementation of the No Project Alternative under buildout conditions would cause CO concentrations that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm, respectively. As a result, this impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Alternative #2)

Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative

The relevant policies that are applicable to the Roadway Constrained 6-Lane "Plus" Alternative are Policies HS-8a through HS-8f and HS-9a.

Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion

Based on the traffic report for the Roadway Constrained 6-Lane "Plus" Alternative under 2025 conditions, adoption of this alternative would result in 5,820,060 VMT, 574,160 vehicle trips, and 41,720 VHD on a daily basis within El Dorado County. This alternative would result in maximum 1-hour and 8-hour CO concentrations at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard, and White Rock Road/Latrobe Road intersections that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm. The relevant policies would partially mitigate the local mobile-source emissions by reducing traffic to the extent assured herein; however, even though the policies strive for acceptable LOS and would ultimately result in a reduction in traffic congestion, roadway intersections would still inevitably operate at unacceptable LOS. Thus, local mobile source CO emissions resulting from implementation of the Roadway Constrained 6-Lane "Plus" Alternative under 2025 conditions would contribute CO concentrations that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm, respectively. This impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Buildout)—Impact Discussion

Based on the traffic report for the Roadway Constrained 6-Lane "Plus" Alternative under buildout conditions, adoption of this alternative would result in 9,167,190 VMT, 829,010 vehicle trips, and 262,780 VHD on a daily basis within El Dorado County, a net increase of 3,343,573 VMT, 255,011 vehicle trips, and 222,582 VHD over 2025 conditions. Although the nature of the impact would be the same as in 2025, the number of VMT, vehicle trips, and VHD, and thus the degree of the impact, would be considerably greater under buildout. Therefore, as under 2025 conditions, the Roadway Constrained 6-Lane "Plus" Alternative at buildout would result in maximum 1-hour and 8-hour CO concentrations at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard, and White Rock Road/Latrobe Road intersections that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm. This impact is considered significant.

Environmentally Constrained Alternative (Alternative #3)

Relevant Goals/Policies—Environmentally Constrained Alternative

For the relevant policies of the Environmentally Constrained Alternative, please refer to the policies listed above under Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative.

Environmentally Constrained Alternative (2025)—Impact Discussion

Based on the traffic report for the Environmentally Constrained Alternative under 2025 conditions, adoption of this alternative would result in 6,408,690 VMT, 632,750 vehicle trips, and 50,150 VHD on a daily basis within El Dorado County. The 1-hour and 8-hour CO concentrations were modeled at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard, and White Rock Road/Latrobe Road intersections because they are projected to operate at an unacceptable LOS for the Environmentally Constrained Alternative under 2025 conditions. The 1-hour and 8-hour CO concentrations were estimated based on worst-case meteorological conditions, p.m. peak-hour traffic volumes as presented in the traffic analysis, and composite emission factors modeled using the CT-EMFAC computer model. As shown in Table 5.11-9, this alternative would result in maximum 1-hour CO concentrations of 21.6 ppm at the Plaza Drive/Missouri Flat Road intersection (Exhibit 5.11-5), 44.7 ppm at the Saratoga Way/El Dorado Hills Boulevard intersection (Exhibit 5.11-6), and 32.5 ppm at the White Rock Road/Latrobe Road intersection (Exhibit 5.11-7). In addition, the implementation of this alternative, as shown in Table 5.11-9, would result in maximum 8-hour CO concentrations of 11.3 ppm at the Plaza Drive/Missouri Flat Road intersection, 29.9 ppm at the Saratoga Way/El Dorado Hills Boulevard intersection, and 23.7 ppm at the White Rock Road/Latrobe Road intersection. The relevant policies would partially mitigate the local mobile-source emissions by reducing traffic to the extent shown herein; however, even though the policies strive for acceptable LOS and would ultimately result in a reduction in traffic congestion, roadway intersections would still inevitably operate at an unacceptable LOS. Thus, local mobile-source CO emissions resulting from implementation of the Environmentally Constrained Alternative under 2025 conditions would help to cause CO concentrations that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm, respectively. This impact is considered significant.

Environmentally Constrained Alternative (Buildout)—Impact Discussion

Based on the traffic report for the Environmentally Constrained Alternative under buildout conditions, adoption of this alternative would result in 7,809,750 VMT, 778,610 vehicle trips, and 89,870 VHD on a daily basis within El Dorado County, a net increase of 1,400,889 VMT, 145,224 vehicle trips, and 40,109 VHD over 2025 conditions. Although the nature of the impact would be the same as in 2025, the number of VMT, vehicle trips, and VHD, and thus the degree of the impact, would be considerably greater under buildout. Therefore, as under 2025 conditions, the Environmentally Constrained Alternative at buildout would result in maximum 1-hour and 8-hour CO concentrations at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard, and White Rock Road/Latrobe Road intersections that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm.

This impact is considered significant. However, in comparison to the other alternatives under buildout conditions, this alternative would result in the fewest VMT, vehicle trips, and VHD and thus the lowest local mobile-source CO concentrations.

1996 General Plan Alternative (Alternative #4)

Relevant Goals/Policies—1996 General Plan Alternative

For the relevant policies of the 1996 General Plan Alternative, please refer to the policy listed above under Relevant Goals/Policies—No Project Alternative.

1996 General Plan Alternative (2025)—Impact Discussion

Based on the traffic report for the 1996 General Plan Alternative under 2025 conditions, adoption of this alternative would result in 6,399,300 VMT, 631,470 vehicle trips, and 50,510 VHD on a daily basis within El Dorado County. This alternative would result in maximum 1-hour and 8-hour CO concentrations at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard, and White Rock Road/Latrobe Road intersections that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm. The relevant policies would partially mitigate the local mobile-source emissions by reducing traffic to the extent shown herein; however, even though the policies strive for acceptable LOS and would ultimately result in a reduction in traffic congestion, roadway intersections would still inevitability operate at unacceptable LOS. Thus, local mobile-source CO emissions resulting from implementation of the 1996 General Plan Alternative under 2025 conditions would help to cause CO concentrations that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm, respectively. This impact is considered significant.

1996 General Plan Alternative (Buildout)—Impact Discussion

Based on the traffic report for the 1996 General Plan Alternative under buildout conditions, development under the General Plan would result in 9,636,910 VMT, 939,700 vehicle trips, and 198,830 VHD on a daily basis within El Dorado County, a net increase of 3,326,664 VMT, 309,374 vehicle trips, and 371,968 VHD over 2025 conditions. Thus, in comparison to the 2025 conditions, this alternative would also result in maximum 1-hour and 8-hour CO concentrations at the Plaza Drive/Missouri Flat Road, Saratoga Way/El Dorado Hills Boulevard and White Rock Road/Latrobe Road intersections that exceed the state 1-hour or 8-hour CO ambient air quality standards of 20 ppm or 9 ppm. This impact is considered significant.

Mitigation Measure 5.11-4: Implement Mitigation Measure 5.11-2(c) for the Roadway Constrained 6-Lane "Plus" Alternative

Mitigation Measure—No Project Alternative

The County shall implement Mitigation Measure 5.11-2(c) for the Roadway Constrained 6-Lane "Plus" Alternative described above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. This would result in synchronizing traffic signals and improving traffic flow, but it is likely due to traffic volumes that congestion would still be substantial, and this impact would, therefore, be significant and unavoidable.

Mitigation Measure—Roadway Constrained 6-Lane "Plus" Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. This impact would be significant and unavoidable.

Mitigation Measure—Environmentally Constrained Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. This impact would be significant and unavoidable.

Mitigation Measure—1996 General Plan Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. This impact would be significant and unavoidable.

Impact **5.11-5**

Odorous Emissions. Development under the General Plan could result in the exposure of sensitive receptors to odorous emissions that exceed the standards. This impact is considered **significant**. The severity of this impact would be roughly equal for all four equal-weight alternatives. Impact significance before and after mitigation is shown in the table below.

Impact	Significance Before Mitigation*							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-5: Odorous Emissions	S_1	S_1	S_1	S_1	S_1	S_1	S_1	S_1
Mitigation	**Significance After Mitigation***							
	Alt. #1 (No Project)		Alt. #2 (Roadway Constrained 6-Lane "Plus")		Alt. #3 (Environmentally Constrained)		Alt. #4 (1996 General Plan)	
	2025	Buildout	2025	Buildout	2025	Buildout	2025	Buildout
5.11-5: Implement Mitigation Measure 5.1-3(b)	SU_1	SU_1	SU_1	SU_1	SU_1	SU_1	SU_1	SU_1

* Notes: LS = Less than Significant; N/A= Not Applicable; S = Significant; SU = Significant and Unavoidable. Significant impacts are ranked against each other by alternative for the 2025 scenario and the buildout scenario, from 1 (Worst Impact) to 4 (Least Impact). Where the impact under two different alternatives during the same time frame would be roughly equal in severity, the numerical ranking is the same.

No Project Alternative (Alternative #1)

Relevant Goals/Policies—No Project Alternative

The relevant policy included in the 1996 General Plan that is applicable to the No Project Alternative is Policy 6.7.6.1.

No Project Alternative (2025)—Impact Discussion

Development under the No Project Alternative would include land uses that are potential sources of odorous emissions. The type and level of odorous emissions would depend upon the nature of the land use, the individual facility in particular, and on the methods and operations that involve odorous emissions. Table 5.11-10 displays a list of common land use types known to produce odorous emissions. Typically, potential odor impacts occur in the following situations: (1) sources of odorous emissions are located near existing sensitive receptors and (2) sensitive receptors are located near existing odorous emission sources. Policy 6.7.6.1 specifically addresses the exposure of sensitive receptors to odorous emissions and states that such sensitive receptors shall be separated from odor sources.

As previously discussed, the AQMD has adopted a nuisance rule (Rule 205) that prohibits the discharge of air contaminants that cause "injury, detriment, nuisance or annoyance" to any

"considerable number of persons." The rule does not establish a quantitative detection threshold for odorous emissions, nor does the rule define "considerable number of persons."

The enforcement of discharges of odorous emissions is complicated due, in part, to the fact that the perception of odors is subjective. For instance, one individual may find the odor from a coffee roasting facility pleasant while another may find it unpleasant. In addition, in more complex environments, where multiple sources may be located within close proximity of each other, identification of the offending emission source can be difficult and time consuming. Odor impacts are also affected by meteorological conditions, in which case some odor emission sources (e.g., agriculture operations, landfills, rendering plants, food-processing facilities, wastewater treatment facilities) can affect sensitive receptors at distances of more than a mile from the source. Emission sources common within urbanized settings, such as fast-food restaurants particularly those using charbroiling equipment, and dry-cleaning establishments, are not typically considered major odor emission sources. Though such sources often do not affect large numbers of people, sensitive receptors located within close proximity can be exposed to odors on a frequent basis. Odor-generating sources can reduce impacts by modifying operations or by installation of odor-controlling equipment. However, for sensitive receptors, mitigation measures are limited. In fact, in some instances, the only measures available to sensitive receptors is to relocate upwind or further downwind from a source.

Continued development within the County would result in the location of sensitive receptors near odor-generating sources. Continued enforcement of AQMD Rule 205 and implementation of general plan policies to limit development near odor emission sources would reduce this impact, but would not eliminate exposure of sensitive receptors to nuisance odors. As a result, this impact is considered significant.

No Project Alternative (Buildout)—Impact Discussion

Please refer to No Project Alternative (2025)—Impact Discussion above. This impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Alternative #2)

Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative

The relevant policies that are applicable to the Roadway Constrained 6-Lane "Plus" Alternative are Policies HS-10a and HS-10b.

Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion

Policies HS-10a and HS-10b specifically address the exposure of sensitive receptors to odorous air emissions and state that such sensitive receptors shall be separated from odor sources. Please refer to No Project Alternative (2025)—Impact Discussion above. This impact is considered significant.

Roadway Constrained 6-Lane "Plus" Alternative (Buildout)—Impact Discussion

Please refer to Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion above. This impact is considered significant.

Environmentally Constrained Alternative (Alternative #3)

Relevant Goals/Policies—Environmentally Constrained Alternative

For the relevant policies of the Environmentally Constrained Alternative, please refer to the policies listed above under Relevant Goals/Policies—Roadway Constrained 6-Lane "Plus" Alternative.

Environmentally Constrained Alternative (2025)—Impact Discussion

Please refer to Roadway Constrained 6-Lane "Plus" Alternative (2025)—Impact Discussion above. This impact is considered significant.

Environmentally Constrained Alternative (Buildout)—Impact Discussion

Please refer to Roadway Constrained 6-Lane "Plus" Alternative (Buildout)—Impact Discussion above. This impact is considered significant.

1996 General Plan Alternative (Alternative #4)

Relevant Goals/Policies—1996 General Plan Alternative

For the relevant policies of the 1996 General Plan Alternative, please refer to the policy listed above under Relevant Goals/Policies—No Project Alternative.

1996 General Plan Alternative (2025)—Impact Discussion

Please refer to No Project Alternative (2025)—Impact Discussion above. This impact is considered significant.

1996 General Plan Alternative (Buildout)—Impact Discussion

Please refer to No Project Alternative (Buildout)—Impact Discussion above. This impact is considered significant.

Mitigation Measure 5.11-5: Implement Mitigation Measure 5.1-3(b)

Mitigation Measure—No Project Alternative

The County shall implement Mitigation Measure 5.1-3(b), which requires review of land uses for compatibility. With implementation of this mitigation measure, impacts would be reduced, but because this issue is subjective and offensive (to some) odor-causing land uses could result. This impact would be significant and unavoidable.

Mitigation Measure—Roadway Constrained 6-Lane "Plus" Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. This impact would be significant and unavoidable.

Mitigation Measure—Environmentally Constrained Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. This impact would be significant and unavoidable.

Mitigation Measure—1996 General Plan Alternative

Please refer to the proposed mitigation measure for the No Project Alternative above. With implementation of this mitigation measure, impacts would be reduced, but not to a less-than-significant level. This impact would be significant and unavoidable.

TABLES

Table 5.11-1
Ambient Air Quality Standards

Air Pollutant	California[1]	National[2]	
	Concentration[5]	Primary (>)[3,5]	Secondary (>)[4,5]
Ozone	0.09 ppm, 1-hr avg.	0.12 ppm, 1-hr avg. 0.08 ppm, 8-hr avg.	0.12 ppm, 1-hr avg. 0.08 ppm, 8-hr avg
Carbon Monoxide	9 ppm, 8-hr avg. 20 ppm, 1-hr avg.	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.
Nitrogen Dioxide	0.25 ppm, 1-hr avg.	0.053 ppm annual arithmetic mean	0.053 ppm annual arithmetic mean
Sulfur Dioxide	0.04 ppm, 24-hr avg. 0.25 ppm, 1-hr avg.	0.03 ppm, annual avg. 0.14 ppm, 24-hr avg.	0.5 ppm, 3-hr avg.
Respirable Particulate Matter (PM_{10})	30 ：g/m^3 annual geometric mean 50 ：g/m^3, 24-hr avg.	50 ：g/m^3 annual arithmetic mean 150 ：g/m^3, 24-hr avg.	50 ：g/m^3 annual arithmetic mean 150 ：g/m^3, 24-hr avg.
Fine Particulate Matter ($PM_{2.5}$)	No state standard	15 ：g/m^3 annual arithmetic mean 65 ：g/m^3, 24-hr avg.	15 ：g/m^3 annual arithmetic mean 65 ：g/m^3, 24-hr avg.
Lead	1.5 ：g/m^3, 30-day avg.	1.5 ：g/m^3 calendar quarter	1.5 ：g/m^3 calendar quarter
Sulfates	25 ：g/m^3, 24-hr avg.	No federal standards	
Hydrogen Sulfide	0.03 ppm, 1-hr avg.		
Vinyl Chloride	0.01 ppm, 24-hr avg.		
Visibility-Reducing Particle Matter	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) caused by particles when the relative humidity is less than 70%, 8-hr (10 a.m. to 6 p.m., PST)		

[1] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hr), nitrogen dioxide, suspended particulate matter (PM_{10}), 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.

[2] National standards (other than ozone, suspended particulate matter [PM_{10}], 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-hr concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hr standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hr standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[3] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

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

[5] The concentration is expressed in units in which it was promulgated where ppm=parts per million by volume and ：g/m^3=micrograms per cubic meter.

Source: CARB 2002a

Table 5.11-2
Summary of Parameters Monitored at the Ambient Air Quality Monitoring Stations in El Dorado County

Pollutant or Meteorological Variable	Placerville	Cool	South Lake Tahoe	Echo Summit
Ozone	X	X	X	X
Nitrogen dioxide			X	X
Sulfur dioxide				
Carbon monoxide	X		X	X
Respirable particulate matter (PM_{10})	X			X
Fine particulate matter ($PM_{2.5}$)			X	X
Wind speed	X	X	X	X
Wind direction	X	X	X	X
Ambient temperature	X	X	X	X
Sources: CARB 2002a, El Dorado County AQMD 2002				

Table 5.11-3
Summary of Annual Air Quality Data

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
COOL-SR193 AIR QUALITY MONITORING STATION										
Ozone (O_3)										
State Standard (1-hr avg, 0.09 ppm)										
National Standard (1-hr/8-hr avg, 0.12/0.08 ppm)										
Maximum Concentration (1-hr/8-hr avg, ppm)	NA	NA	NA	NA	0.14/0.11	0.15/0.11	0.16/0.13	0.14/0.12	0.13/0.13	0.15/0.11
Number of Days State Standard Exceeded	NA	NA	NA	NA	NA	NA	NA	36	34	40
Number of Days National 1-hr/8-hr Standard Exceeded	NA	NA	NA	NA	2/30	1/10	5/25	2/35	2/29	1/32
PLACERVILLE-GOLD NUGGET WAY AIR QUALITY MONITORING STATION										
Ozone (O_3)										
State Standard (1-hr avg, 0.09 ppm)										
National Standard (1-hr/8-hr avg, 0.12/0.08 ppm)										
Maximum Concentration (1-hr/8-hr avg, ppm)	0.12/0.11	0.12/0.11	0.13/0.10	0.13/0.11	0.13/0.11	0.11/0.10	0.14/0.13	0.13/0.12	0.12/0.10	0.12/0.10
Number of Days State Standard Exceeded	29	10	26	32	31	13	22	21	19	17
Number of Days National 1-hr/8-hr Standard Exceeded	0/29	0/12	2/22	1/31	1/27	0/13	2/17	2/23	0/15	0/15
Carbon Monoxide (CO)										
State Standard (1-hr/8-hr avg, 20/9.1 ppm)										
National Standard (1-hr/8-hr avg, 35/9.5 ppm)										
Maximum Concentration (1-hr/8-hr avg, ppm)	NA/2.43	NA/1.50	NA/1.03	NA/0.99	NA/0.94	1.6/0.83	1.7/0.90	1.4/0.88	2.7/0.96	1.4/0.84
Number of Days State Standard Exceeded	0	0	0	0	0	0	0	0	0	0
Number of Days National 1-hr/8-hr Standard Exceeded	NA/0	NA/0	NA/0	NA/0	NA/0	0/0	0/0	0/0	0/0	0/0
Respirable Particulate Matter (PM_{10})										
State Standard (24-hr avg, 50 ：g/m^3)										
National Standard (24-hr avg, 150 ：g/m^3)										
Maximum Concentration (：g/m^3)	103	62	34	53	58	62	41	49	38	52

Table 5.11-3
Summary of Annual Air Quality Data

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Number of Days State Standard Exceeded (Measured/Calculated[1])	1/6	1/6	0/0	1/6	1/6	1/6	0/0	0/0	0/0	1/6
Number of Days National Standard Exceeded (Measured/Calculated[1])	0/NA	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
SOUTH LAKE TAHOE-SANDY WAY AIR QUALITY MONITORING STATION										
Ozone (O_3)										
State Standard (1-hr avg, 0.09 ppm)										
National Standard (1-hr/8-hr avg, 0.12/0.08 ppm)										
Maximum Concentration (1-hr/8-hr avg, ppm)	0.05/0.05	0.09/0.07	0.09/0.08	0.09/0.09	0.09/0.07	0.10/0.07	0.08/0.08	0.10/0.08	0.08/0.07	0.09/0.08
Number of Days State Standard Exceeded	0	0	0	0	0	1	0	1	0	0
Number of Days National 1-hr/8-hr Standard Exceeded	0/0	0/0	0/0	0/1	0/0	0/0	0/0	0/0	0/0	0/0
Carbon Monoxide (CO)										
State Standard (1-hr/8-hr avg, 20/9.1 ppm)										
National Standard (1-hr/8-hr avg, 35/9.5 ppm)										
Maximum Concentration (1-hr/8-hr avg, ppm)	NA	NA/3.25	NA/2.60	NA/2.64	NA/2.43	3.2/2.43	3.6/2.31	3.2/2.44	-/2.84	2.9/1.88
Number of Days State Standard Exceeded	NA	0	0	0	0	0	0	0	0	0
Number of Days National 1-hr/8-hr Standard Exceeded	NA	NA/0	NA/0	NA/0	NA/0	0/0	0/0	0/0	0/0	0/0
Nitrogen Dioxide (NO_2)										
State Standard (1-hr avg, 0.25 ppm)										
National Standard (annual, 0.053 ppm)										
Maximum Concentration (1-hr avg, ppm)	NA	0.06	0.06	0.06	0.06	0.05	0.05	0.06	0.05	0.05
Number of Days State Standard Exceeded	NA	0	0	0	0	0	0	0	0	0
Annual Average (ppm)	NA	0.011	0.012	0.011	0.011	0.011	0.010	0.011	0.011	0.011
Respirable Particulate Matter (PM_{10})										
State Standard (24-hr avg, 50 ：g/m^3)										
National Standard (24-hr avg, 150 ：g/m^3)										

Table 5.11-3
Summary of Annual Air Quality Data

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Number of Days State Standard Exceeded (Measured/Calculated[1])	1/6	5/30	7/42	3/18	4/24	2/12	2/12	0/0	0/0	3/18
Number of Days National Standard Exceeded (Measured/Calculated[1])	0/NA	0/NA	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Fine Particulate Matter ($PM_{2.5}$)										
No State Standard										
National Standard (24-hr avg, 65 ：g/m^3)										
Maximum Concentration (：g/m^3)	NA	NA	NA	NA	NA	NA	NA	21	23	31
Number of Days National Standard Exceeded (Measured[2])	NA	NA	NA	NA	NA	NA	NA	0	0	0
ECHO SUMMIT AIR QUALITY MONITORING STATION										
Ozone (O_3)										
State Standard (1-hr avg, 0.09 ppm)										
National Standard (1-hr/8-hr avg, 0.12/0.08 ppm)										
Maximum Concentration (1-hr/8-hr avg, ppm)	NA	NA	NA	NA	NA	NA	NA	NA	0.09/0.08	0.10/0.08
Number of Days State Standard Exceeded	NA	NA	NA	NA	NA	NA	NA	NA	0	1
Number of Days National 1-hr/8-hr Standard Exceeded	NA	NA	NA	NA	NA	NA	NA	NA	0/0	0/0
Carbon Monoxide (CO)										
State Standard (1-hr/8-hr avg, 20/9.1 ppm)										
National Standard (1-hr/8-hr avg, 35/9.5 ppm)										
Maximum Concentration (1-hr/8-hr avg, ppm)	NA	NA	NA	NA	NA	NA	NA	NA	2.5/1.17	2.5/1.03
Number of Days State Standard Exceeded	NA	NA	NA	NA	NA	NA	NA	NA	0	0
Number of Days National 1-hr/8-hr Standard Exceeded	NA	NA	NA	NA	NA	NA	NA	NA	0/0	0/0
Nitrogen Dioxide (NO_2)										
State Standard (1-hr avg, 0.25 ppm)										

Table 5.11-3
Summary of Annual Air Quality Data

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Annual Average (ppm)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Respirable Particulate Matter (PM_{10})										
State Standard (24-hr avg, 50 : g/m^3)										
National Standard (24-hr avg, 150 : g/m^3)										
Maximum Concentration (: g/m^3)	NA	NA	NA	NA	NA	NA	NA	NA	21	32
Number of Days State Standard Exceeded (Measured/Calculated[1])	NA	NA	NA	NA	NA	NA	NA	NA	0/0	0/0
Number of Days National Standard Exceeded (Measured/Calculated[1])	NA	NA	NA	NA	NA	NA	NA	NA	0/0	0/0
Fine Particulate Matter ($PM_{2.5}$)										
No State Standard										
National Standard (24-hr avg, 65 : g/m^3)										
Maximum Concentration (: g/m^3)	NA	NA	NA	NA	NA	NA	NA	NA	10	26
Number of Days National Standard Exceeded (Measured[2])	NA	NA	NA	NA	NA	NA	NA	NA	0	0

[1] 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.

[2] The number of days a measurement was greater than the level of the national daily standard. Measurements are collected every day, every 3 days, or every 6 days, depending on the time of year and the site's monitoring schedule. The number of days above the standards is not directly related to the number of violations of the standard for the year.

ppm = parts per million by volume
: g/m^3 = micrograms per cubic meter
SR = State Route
- = not available

Sources: CARB 2002a, EPA 2003

Table 5.11-4
State and National Area Designations for the El Dorado County Portion of the Mountain Counties Air Basin

Pollutant	State Designation [1]	National Designation [2]
Ozone (1-hr)	Nonattainment	Nonattainment (Severe 15)[3]
Ozone (8-hr)	No State Standard	Nonattainment
Respirable Particulate Matter (PM_{10})	Nonattainment	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	No State Standard	To Be Determined
Carbon Monoxide	Unclassified	Unclassified/Attainment[4]
Nitrogen Dioxide	Attainment	Unclassified/Attainment[4]
Sulfur Dioxide	Attainment	Unclassified
Visibility-Reducing Particulate Matter	Unclassified	No Federal Standard
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	No Federal Standard
Lead	Attainment	Attainment

[1] As defined by CARB:
Unclassified: a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
Attainment: a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.
Nonattainment: a pollutant is designated nonattainment if there was at least one violation of a state standard for that pollutant in the area.
Nonattainment/Transitional: a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

[2] As defined by EPA:
Unclassified: 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.
Attainment: any area that meets the national primary or secondary ambient air quality standard for the pollutant.
Nonattainment: 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.

[3] An area that has a designation value of 0.180 up to 0.190 parts per million and 15 years to attain.

[4] An area that cannot be classified or are better than the national standards are indicated as Unclassified/Attainment.

Source: CARB 2001, 2002a; El Dorado County AQMD 2002; EPA 2002

Table 5.11-5
Summary of 2001 Estimated Annual Average Emissions for the El Dorado County Portion of the Mountain Counties Air Basin

Category	Pollutant (tons/day)				
	ROG	CO	NO_x	SO_x	PM_{10}
Stationary Source					
Fuel Combustion	0.14	6.46	0.41	0.03	0.41
Waste Disposal	0.01	0	0.01	0	0
Cleaning and Surface Coatings	0.85	0	0	0	0
Petroleum and Surface Coatings	0.21	0	0	0	0
Industrial Processes	0.01	0.03	0.01	0	0.24
Total Stationary	1.22	6.49	0.43	0.03	0.65
Area Source					
Solvent Evaporation	2.25	0	0	0	0
Miscellaneous Processes	2.01	30.32	0.57	0.15	16.48
Total Area	4.26	30.32	0.57	0.15	16.48
Mobile Source					
On-Road Motor Vehicles	5.8	51.64	6.81	0.02	0.18
Other Mobile Sources	4.45	23.43	2.0	0.19	0.17
Total Mobile	10.25	75.07	8.81	0.21	0.35
Natural (Non-Anthropogenic) Sources					
Natural Sources	0.10	2.39	0.10	0	0.46
Total Natural	0.10	2.39	0.10	0	0.46
Total of All Sources	15.83	114.27	9.91	0.39	17.94

CO = carbon monoxide
NO_x = oxides of nitrogen
PM_{10} = respirable particulate matter
ROG = reactive organic gases
SO_x = oxides of sulfur

Source: CARB 2002a

Table 5.11-6
Summary of El Dorado County Emission Trends and Forecasts

Pollutant	Emissions (tons/day, annual average)							
	1975	1980	1985	1990	1995	2000	2005	2010
NO_x	8	12	12	13	12	10	8	7
ROG	16	24	21	20	18	16	14	14
PM_{10}	7	11	12	13	15	17	20	22
CO	106	175	161	148	130	116	101	94

CO = carbon monoxide
NO_x = oxides of nitrogen
PM_{10} = respirable particulate matter
ROG = reactive organic gases

Source: CARB 2002

Table 5.11-7
Summary of Long-Term Daily Operational (Regional) Emissions for the No Project (#1), Roadway Constrained 6-Lane "Plus" (#2), Environmentally Constrained (#3), and 1996 General Plan (#4) Alternatives under 2025 and Buildout Conditions

Alternative	ROG (tons/day)				NO_x (tons/day)				CO (tons/day)				PM_{10} (tons/day)			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
2025																
Area Source																
Natural gas	0.01	0.01	0.02	0.02	0.13	0.16	0.20	0.20	0.06	0.07	0.09	0.09	NA	NA	NA	NA
Wood stove[1]	0.63	0.76	0.95	0.95	0.10	0.12	0.15	0.15	5.05	6.09	7.60	7.65	0.82	0.99	1.24	1.25
Fireplace[2]	2.7	3.25	4.06	4.09	0.03	0.04	0.05	0.05	2.97	3.59	4.48	4.51	0.41	0.49	0.61	0.62
Landscape maintenance	NA	NA	NA	NA	NA	NA	NA	NA	0.03	0.04	0.05	0.05	NA	NA	NA	NA
Consumer product	0.52	0.63	0.79	0.79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mobile Source	0.9	0.9	1.0	1.00	1.4	1.4	1.6	1.50	12.0	12.7	13.90	13.60	0.4	0.50	0.50	0.50
Total	4.76	5.55	6.82	6.85	1.66	1.72	2.00	1.90	20.11	22.49	26.12	25.90	1.63	1.98	2.35	2.37
Buildout																
Area Source																
Natural gas	0.01	0.02	0.03	0.04	0.18	0.26	0.35	0.49	0.08	0.11	0.15	0.21	NA	NA	NA	NA
Wood stove[1]	0.87	1.22	1.62	2.31	0.14	0.19	0.25	0.36	6.95	9.81	12.97	18.53	1.13	1.60	2.12	3.02
Fireplace[2]	3.71	5.24	6.93	9.90	0.04	0.06	0.08	0.11	4.10	5.78	7.64	10.92	0.56	0.79	1.05	1.50
Landscape maintenance	NA	0.01	0.01	0.01	NA	NA	NA	NA	0.04	0.06	0.08	0.11	NA	NA	NA	NA
Consumer product	0.72	1.02	1.35	1.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mobile Source	1.7	1.9	1.50	2.10	2.3	2.6	2.30	3.10	21.10	23.80	21.10	27.90	0.8	0.90	0.80	1.00
Total	7.01	9.41	11.44	16.28	2.66	3.11	2.98	4.06	32.27	39.56	41.94	57.67	2.49	3.29	3.97	5.52

[1] The default model setting is 35% for the percentage of residential units with wood stoves.
[2] The default model setting is 10% for the percentage of residential units with fireplaces.
See Appendix H for modeling results.

CO = carbon monoxide
NO_x = oxides of nitrogen
PM_{10} = respirable particulate matter
ROG = reactive organic gases

Source: EDAW 2003

Table 5.11-8 Toxic Air Emission by Land Use	
Land Use	Toxic Air Emission
Aerospace Manufacturing	Hexavalent Chromium
Auto Body Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Biomedical Laboratory	Benzene, Carbon Tetrachloride, Chloroform, Formaldehyde, Methylene Chloride
Chemical Manufacturing	Ethylene Dichloride, Asbestos
College/University	Cadium, Hexavalent Chromium, Ethylene Oxide
Dry Cleaner	Perchloroethylene
Electrical Manufacturing	Polychlorinated Biphenyls (PCBs), Cadium, Chromium, Nickel, Trichloroethylene, 1,4-Dioxane
Gasoline Station	Benzene, Methyl-Tertiary Butyl Ether (MTBE), Toluene, Xylene
Hospital	Dioxin, Dibenzofuran, Cadium, Ethylene Oxide
Landfill	Benzene, Vinyl Chloride
Medical Equipment Sterilization	Ethylene Oxide
Printing Services	1,2,4-Tri-methylbenzene, Ethyl Benzene, Ethylene Glycol, Monobutyl Ether, Methylene Chloride, Propylene, Xylene
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Ethylene Dibromide, Chloroform, Perchloroethylene, Trichloroethylene
Source: El Dorado County AQMD 2002	

Table 5.11-9
Local Mobile-Source Carbon Monoxide Emission Concentrations under 2025 Conditions

Intersection	Time Period	Maximum CO Concentration (ppm)[1]
No Project Alternative		
Plaza Drive/Missouri Flat Road	1 hr 8 hr	19.1 10.9
Saratoga Way/El Dorado Hills Boulevard	1 hr 8 hr	42.7 28.6
White Rock Road/Latrobe Road	1 hr 8 hr	33.0 24.1
Significance Thresholds	**1 hr** **8 hr**	**20** **9**
Environmentally Constrained Alternative		
Plaza Drive/Missouri Flat Road	1 hr 8 hr	21.6 11.3
Saratoga Way/El Dorado Hills Boulevard	1 hr 8 hr	44.7 29.9
White Rock Road/Latrobe Road	1 hr 8 hr	32.5 23.7
Significance Thresholds	**1 hr** **8 hr**	**20** **9**

[1] 1-hr and 8-hr CO concentrations were analyzed using the CALINE4 dispersion model based on the assumptions outlined above, 1-hr and 8-hr CO background concentrations of 1.3 ppm and 0.91 ppm, and a persistence factor of 0.7 from the El Dorado County APCD Guide to Air Quality Assessment.

APCD = Air Pollution Control District
CO = carbon monoxide
ppm = parts per million

Source: EDAW 2003

Table 5.11-10 Common Land Use Types Known to Produce Odorous Emissions	
Land Use Type	Land Use Type
Wastewater treatment plant	Chemical manufacturing
Sanitary landfill	Fiberglass manufacturing
Transfer station	Painting/coating operations
Composting facility	Food processing plant
Petroleum refinery	Rendering plant
Asphalt batch plant	Coffee roaster
Source: El Dorado County AQMD 2002	

EXHIBITS