

## 4.5 Air Quality

This section examines the climatic influences that affect air quality of the Elk Grove Planning Area and also describes available data on measured contaminant levels. In addition, it outlines the regulatory and planning agencies and programs relevant to the Planning Area.

### 4.5.1 EXISTING SETTING

#### AIR BASIN CHARACTERISTICS

The Elk Grove Planning Area (Planning Area) lies at the southern end of the Sacramento Valley, a broad, flat valley bounded by the coastal ranges to the west and the Sierra Nevada to the east. A sea level gap in the Coast Range (the Carquinez Strait) is located approximately 50 miles southwest and the intervening terrain is very flat. The prevailing wind direction is southwesterly, which is the wind direction when marine breezes flow through the Carquinez Strait. Marine breezes dominate during the spring and summer months, and show strong daily variations. Highest average wind speeds occur in the afternoon and evening hours; lightest winds occur in the night and morning hours. During fall and winter, when the sea breeze diminishes, northerly winds occur more frequently, but southwesterly winds still predominate. The Planning Area is within the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD), which is part of the Sacramento Valley Air Basin. The Sacramento Valley Air Basin has been further divided into Planning Areas called the Northern Sacramento Valley Air Basin (NSVAB) and the Greater Sacramento Air region, designated by the U.S. Environmental Protection Agency (EPA) as the Sacramento Federal Ozone non-attainment area. The non-attainment area consists of all of Sacramento and Yolo counties and parts of El Dorado, Solano, Placer, and Sutter counties.

The San Francisco Bay Area Air Basin lies to the west, and the San Joaquin Valley Air Basin is located to the south of the Planning Area. Considerable transport of pollutants occurs between these air basins, so that air quality in the Planning Area is partially determined by the release of pollutants elsewhere. In turn, pollutants generated in the Planning Area affect air quality in areas to the north and east.

#### AMBIENT AIR QUALITY STANDARDS

Both the U. S. EPA and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and California state ambient air quality standards are summarized in **Table 4.5-1** for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and PM<sub>10</sub>.

## 4.5 AIR QUALITY

**TABLE 4.5-1  
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
	8-Hour	0.08 PPM	–
Carbon Monoxide	8-Hour	9 PPM	9.0 PPM
	1-Hour	35 PPM	20.0 PPM
Nitrogen Dioxide	Annual Average	0.05 PPM	–
	1-Hour	–	0.25 PPM
Sulfur Dioxide	Annual Average	0.03 PPM	–
	24-Hour	0.14 PPM	0.05 PPM
	1-Hour	–	0.25 PPM
PM <sub>10</sub>	Annual Average	50 $\mu\text{g}/\text{m}^3$	20 $\mu\text{g}/\text{m}^3$
	24-Hour	150 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$
PM <sub>2.5</sub>	Annual	15 $\mu\text{g}/\text{m}^3$	12 $\mu\text{g}/\text{m}^3$
	24-Hour	65 $\mu\text{g}/\text{m}^3$	–

Notes: PPM = Parts per Million;  $\mu\text{g}/\text{m}^3$  = Micrograms per Cubic Meter  
 Source: Donald Ballanti, 2003

The U.S. EPA in 1997 adopted new national air quality standards for ground-level ozone and for fine particulate matter. The existing 1-hour ozone standard of 0.12 Parts Per Matter (PPM) will be phased-out and replaced by an 8-hour standard of 0.08 PPM. New national standards for fine particulate matter (diameter 2.5 microns or less) have also been established for 24-hour and annual averaging periods. The current PM<sub>10</sub> standards were retained, but the method and form for determining compliance with the standards were revised. Implementation of the new ozone and particulate matter standards was delayed by a lawsuit. On February 27, 2001 the U. S. Supreme Court unanimously ruled in favor of the Environmental Protection Agency, clearing the way for implementation of the new standards.

During the delay caused by the lawsuit, the CARB developed recommended designations for California air basins, proposing that Sacramento County be designated as non-attainment for the new 8-hour ozone standard. Designations for PM<sub>2.5</sub> have not been made, however, as a minimum 3-year monitoring period is required to determine designations.

### AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The most problematic pollutants in Elk Grove are ozone, carbon monoxide, and particulate matter. Carbon monoxide no longer exceeds the ambient air quality standards in Sacramento County, but has in the past. The health effects and major sources of these pollutants are described below. Toxic air pollutants are a separate class of pollutants and are discussed later in this section.

## **Ozone**

Ground level ozone, commonly referred to as smog, is greatest on warm, windless, sunny days. Ozone is not emitted directly into the air, but formed through a complex series of chemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>). These reactions occur over time in the presence of sunlight. Ground level ozone formation can occur in a matter of hours under ideal conditions. The time required for ozone formation allows the reacting compounds to spread over a large area, producing a regional pollution concern. Once formed, ozone can remain in the atmosphere for one or two days.

Ozone is also a public health concern because it is a respiratory irritant that increases susceptibility to respiratory infections and diseases, and because it can harm lung tissue at high concentrations. In addition, ozone can cause substantial damage to leaf tissues of crops and natural vegetation and can damage many natural and manmade materials by acting as a chemical oxidizing agent.

The principal sources of the ozone precursors (ROG and NO<sub>x</sub>) are the combustion of fuels and the evaporation of solvents, paints, and fuels. Over percent of the NO<sub>x</sub> produced in the region is from motor vehicles.

## **Particulate Matter (PM)**

Particulate matter can be divided into several size fractions. Coarse particles are between 2.5 and 10 microns in diameter, and arise primarily from natural processes, such as wind-blown dust or soil. Fine particles are less than 2.5 microns in diameter and are produced mostly from combustion, or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces and wood stoves produces fine particles.

The level of fine particulate matter in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs. The health effects vary depending on a variety of factors, including the type and size of particles. Research has demonstrated a correlation between high PM concentrations and increased mortality rates. Elevated PM concentrations can also aggravate chronic respiratory illnesses such as bronchitis and asthma.

## **Carbon Monoxide (CO)**

Carbon monoxide (CO) is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Motor vehicle emissions are the dominant source of CO in the Sacramento region. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can cause dizziness, headaches, unconsciousness, and even death. CO can also aggravate cardiovascular disease. Relatively low concentrations of CO can significantly affect the amount of oxygen in the bloodstream because CO binds to hemoglobin 220–245 times more strongly than oxygen.

CO emissions and ambient concentrations have decreased significantly in recent years. These improvements are due largely to the introduction of cleaner burning motor vehicles and motor vehicle fuels. The Sacramento region has attained the State and national CO standard. The records from the region's monitoring stations show that the CO standard has not been exceeded since 1999. CO is still a pollutant that must be closely monitored, however, due to its severe effect on human health.

## 4.5 AIR QUALITY

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Elevated CO concentrations are usually localized and are often the result of a combination of high traffic volumes and traffic congestion. Elevated CO levels develop primarily during winter periods of light winds or calm conditions combined with the formation of ground-level temperature inversions. Wintertime CO concentrations are higher in winter because of reduced dispersion of vehicle emissions and because CO emission rates from motor vehicles increase as temperature decreases.

### Toxic Air Contaminants (TACs)

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. Unlike criteria pollutants, no safe levels of exposure to TACs have been established. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage and death.

Diesel exhaust is a TAC of growing concern in California. The CARB in 1998 identified diesel engine particulate matter as a TAC. The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these compounds adhere to the particles, and because diesel particles are so small, they penetrate deep into the lungs. Diesel engine particulate has been identified as a human carcinogen. Mobile sources, such as trucks, buses, automobiles, trains, ships and farm equipment are by far the largest source of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections.

### AMBIENT AIR QUALITY

The SMAQMD and CARB maintain several air quality monitoring sites in the Sacramento area, including one in the City of Elk Grove. The Elk Grove monitoring site measures two pollutants: ozone and nitrogen dioxide. The nearest monitoring site for carbon monoxide is at T Street in downtown Sacramento. The nearest monitoring site for PM<sub>10</sub> is the Sacramento Branch Center Road site, located near Bradshaw Road south of U.S. 50. **Table 4.5-2** shows historical occurrences of pollutant levels exceeding the state/federal ambient air quality standards for the ten-year period 1992-2001. The number of days that each standard was exceeded is shown. All federal ambient air quality standards are met in the Elk Grove area, with the exception of ozone. Additionally, the state ambient standards of ozone and PM<sub>10</sub> are regularly exceeded.

### SENSITIVE RECEPTORS AND POLLUTION SOURCES

Sensitive receptors are facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals and medical clinics. The major sensitive receptors in Elk Grove are schools and residences.

The inventory of stationary sources of TACs maintained by the CARB shows few major air pollutant sources in Elk Grove. Larger stationary sources of pollutants include the Sacramento Regional Wastewater Treatment Plant (SRWTP) and associated cogeneration plant at the western boundary of the city and industrial facilities located at the extreme south end of the city limits near State Route 99 (SR 99). The wastewater treatment facility would also be a potential

source of odors. SR 99 and Interstate 5 (I-5) are also obvious sources of pollution in the Planning Area.

**TABLE 4.5-2  
DAYS EXCEEDING AMBIENT AIR QUALITY STANDARDS, 1992-2001**

Pollutant	Standard	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Ozone (Elk Grove)	1-Hour State	-	3	8	15	21	5	7	16	3	10
	1-Hour Federal	-	0	0	0	0	0	1	1	0	0
	8-Hour Federal	-	0	3	4	9	3	4	7	1	3
Carbon Monoxide (T Street)	8-Hour State/Federal	0	0	0	0	0	0	0	0	0	0
	1-Hour State	0	0	0	0	0	0	0	0	0	0
Nitrogen Dioxide (Elk Grove)	1-Hour State	-	0	0	0	0	0	0	0	0	0
PM <sub>10</sub> (Branch Center Road)	24-Hour State	-	7	3	4	2	3	8	11	2	3
	24-Hour Federal	-	0	0	0	0	0	0	0	0	0

Source: Ballanti, 2002.

### EMERGING AIR QUALITY ISSUES

The following is a discussion of emerging air quality issues that would not normally have been addressed by general plan policies and programs.

#### Diesel Exhaust/Land Use Issues

In 1998, after a 10-year scientific assessment process, the Air Resources Board identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). Unlike criteria pollutants like carbon monoxide, TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Two types of risk are usually assessed: chronic non-cancer risk and acute non-cancer risk. Diesel particulate has been identified as a carcinogenic material, but is not considered to have acute non-cancer risks. The State of California has begun a program of identifying and reducing risks associated with particulate matter emissions from diesel-fueled vehicles. The plan consists of new regulatory standards for all new on road, off-road and stationary diesel-fueled engines and vehicles, new retrofit requirements for existing on-road, off-road and stationary diesel-fueled engines and vehicles, and new diesel fuel regulations to reduce the sulfur content of diesel fuel as required by advanced diesel emission control systems. Land uses where individuals could be exposed to high levels of diesel exhaust include places where there are a large number of diesel trucks, such as:

- Warehouses;
- Schools with high volume of bus traffic;
- High volume highways; and
- High volume arterials and local roadways with high level of diesel traffic.

## 4.5 AIR QUALITY

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The only large-scale warehouses in the Planning Area include, but are not limited to, JVC and Apple, which are located north of Laguna Boulevard in the Laguna West area near I-5. The Elk Grove Unified School District is one of fastest growing districts in the state and currently has 50 schools within its district boundaries. Many of the schools in the District have high volumes of bus traffic during daily morning and afternoon operations, which contribute to diesel emissions in the Planning Area. High volume highways/freeways in the Planning Area include I-5 and SR 99, both of which have high volumes of daily truck traffic. Trucks are considered major sources of diesel related emissions. Additionally, the Planning Area has several high volume arterials and local roadways (i.e., Bradshaw Road, Grant Line Road and Laguna Boulevard) that have considerable amounts of diesel powered vehicles and truck traffic.

### Wood Smoke

Wood smoke has long been identified as a significant source of pollutants in urban and suburban areas. Wood smoke contributes to particulate matter and carbon monoxide concentrations, reduces visibility and contains numerous toxic air contaminants. Present controls on this source include the adoption of emission standards for wood stoves and fireplace inserts. Interest in wood smoke is likely to increase with the recent adoption of a PM<sub>2.5</sub> (particulate matter less than 2.5 microns in diameter) national standard.

### 4.6.2 REGULATORY FRAMEWORK

Air quality in the Basin is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies primarily responsible for improving the air quality in Sacramento County are discussed below along with their individual responsibilities.

#### FEDERAL

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the 1990 amendments to the Federal Clean Air Act (CAA) and the national ambient air quality standards (federal standards) that it establishes. These standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, CO, nitrogen dioxide (NO<sub>2</sub> - a form of NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub> - a form of SO<sub>x</sub>), particulate matter 10 microns in size and smaller (PM<sub>10</sub>), and lead. The U.S. EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

#### STATE

The California Air Resources Board (CARB), a department of the California Environmental Protection Agency (Cal EPA), oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAA requirements, and for regulating emissions from motor vehicles and consumer products within the State. The ARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish ambient air quality standards for the state (state standards) and a legal mandate to achieve these standards by the earliest practical date. These

standards apply to the same six criteria pollutants as the Federal CAA, and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are more stringent than the federal standards and, in the case of PM<sub>10</sub> and SO<sub>2</sub>, far more stringent.

## LOCAL

### **Sacramento Metropolitan Air Quality Management District**

The Sacramento Metropolitan Air Quality Management District (SMAQMD) coordinates the work of government agencies, businesses, and private citizens to achieve and maintain healthy air quality for Sacramento. The SMAQMD is governed by a nine-member Board of Directors that includes the members of the Sacramento County Board of Supervisors, selected members of the Sacramento City Council, and one member from the cities of Folsom, Isleton, and Galt. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, determines whether the permit conditions have been met, ensures compliance with SMAQMD rules and regulations, and conducts long-term planning related to air quality.

The SMAQMD sponsors a variety of community education programs. For example, the "Spare the Air" program focuses on reducing automobile trips, particularly when the Air Quality Index indicates that air quality is reaching unhealthy levels. Surveys indicate that approximately 22 percent of drivers curtail driving by at least one trip during unhealthy periods. The SMAQMD is also engaged in a variety of public outreach programs, including work with the American Lung Association, information brochures, radio and television announcements, and other efforts.

Sacramento County and the Planning Area are included in the Greater Sacramento Ozone non-attainment area as delineated by the U. S. EPA. The Federal Clean Air Act Amendments (FCAAA) of 1990 set new deadlines for attaining the ozone standard. The Sacramento Area was classified as a "serious" non-attainment area and given a date of 1999 by which to achieve attainment. Because achieving attainment by this date was later found to be infeasible, the region was "bumped up" to "severe" classification and an attainment date of 2005 was designated. The Clean Air Act Amendments also set specific planning requirements to ensure that the attainment goal would be met. In 1994, the CARB, in cooperation with the air districts of the Sacramento non-attainment area, fulfilled one of these requirements by preparing the *1994 Sacramento Area Regional Ozone Attainment Plan*. The plan identified a detailed comprehensive strategy for reducing emissions to the level needed for attainment and show how the region would make expeditious progress toward meeting this goal.

The 1990 Clean Air Act Amendments set "rate-of-progress" or "milestone" emission reduction targets and dates to gauge whether the non-attainment areas were making reasonable further progress toward reaching the goal of attainment. Milestone reports were required in 1996 and every 3 years thereafter until the attainment deadline. The *Sacramento Area Regional 1999 Milestone Report* concluded that the region made significant achievements in reduction of ozone precursors since 1994 and that the Sacramento area has satisfied the milestone rate-of-progress requirement. However, it was concluded that the region has fallen short of its planned goals for VOC and NO<sub>x</sub> emission reductions in 1999 (mainly due to the shortfall in emission reductions from the enhanced smog check program).

One of the principal elements of the *1994 Sacramento Area Regional Ozone Attainment Plan* was the requirement to obtain emission reductions of one ton per day each for ROG and NO<sub>x</sub> through the implementation of transportation control measures (TCMs) and control of land use project emissions. In response to this requirement, Sacramento County adopted General Plan Policy AQ-15 requiring a percent reduction in emissions associated with new projects.

## 4.5 AIR QUALITY

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Additionally, the SMAQMD and other air districts in the Sacramento federal ozone non-attainment areas recently adopted new thresholds of significance to be used in evaluating land use proposals. In setting the thresholds, the districts considered both the health-based air quality standards and the attainment strategies contained in the *1994 Sacramento Area Regional Ozone Attainment Plan*. Three types of thresholds were established:<sup>1</sup>

- Mass Emission Thresholds - The District considers increases in emissions of nitrogen oxides (NO<sub>x</sub>) greater than 85 pounds per day as significant during construction. For operation of a project, the District's threshold of significance is 65 pounds per day of either NO<sub>x</sub> or Reactive Organic Gases (ROG).
- Emissions Concentration Thresholds - A predicted violation of any California Ambient Air Quality Standard (CAAQS) during both construction or operation of the project would be considered a significant impact.
- Substantial Contribution Threshold - A project is considered to contribute substantially to an existing or project violation of the CAAQS if it emits pollutants at a level equal to or greater than five percent of the CAAQS.

The new mass emissions threshold of 65 pounds per day was intended to achieve the one ton *1994 Sacramento Area Regional Ozone Attainment Plan* goal as long as projects achieve an average mitigation effectiveness rate of 15 percent. The reduction of the threshold from 85 pounds per day to 65 pounds per day was intended to increase the number of projects subject to mitigation requirements.

The construction threshold of 85 tons per day for NO<sub>x</sub> has been in use since 1994. The purpose of this threshold is to the Mobile Off-Road commitment in the State Implementation Plan (SIP). The commitment for Mobile Off-Road NO<sub>x</sub> measures is two tons per day by 2005.

The SMAQMD has developed Standard Construction Mitigation Language that it recommends for all construction projects. This standard mitigation is to be applied to land use as well as roadway construction projects. Acceptable options for reducing emissions include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

The SMAQMD has developed two tools to assist in assessing construction impacts and applying this Standard Construction Mitigation:

- A Roadway Construction Emissions Model to assist roadway project proponents with determining the emission impacts of their projects; and
- A Construction Mitigation Calculator to assist project contractors in determining compliance with the standard mitigation measures.

### City of Elk Grove General Plan

**Table 4.5-3** identifies the General Plan policies regarding air quality that are directly applicable to the proposed project, and presents an evaluation of the consistency of the project with these statements as required by CEQA Guidelines Section 15125(d). This assessment is based on City staff's interpretation of the General Plan policies and action items. The final authority for

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<sup>1</sup> Memorandum from Norman Covell, Air Pollution Control Officer, to Lead and Responsible Agencies, Consultants and Interested Persons, dated April 12, 2002.

interpretation of these policy statements, and determination of the project's consistency rests with the City Council.

**TABLE 4.5-3  
PROJECT CONSISTENCY WITH THE GENERAL PLAN POLICIES: AIR QUALITY**

General Plan Policies and Action Items	Consistency with General Plan	Analysis
<p><b>Policy CAQ-27</b></p> <p>The City shall promote energy conservation measures in new development to reduce on-site emissions and power plant emissions. The City shall seek to reduce energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.</p>	Yes	<p>The proposed General Plan Amendment is for the alteration of land use designations for each of the seven individual sites and does not propose any actual development projects. Any air quality impacts incurred because of proposed development on the individual sites will be addressed during development review. Subsequent projects would be required to comply with this policy.</p>
<p><b>Policy CAQ-28</b></p> <p>The City shall emphasize “demand management” strategies, which seek to reduce single-occupant vehicle use in order to achieve state and federal air quality plan objectives.</p>	Yes	<p>The proposed General Plan Amendment is for the alteration of land use designations for each of the seven individual sites and does not propose any actual development projects. Subsequent projects would be required to comply with this policy.</p>
<p><b>Policy CAQ-30</b></p> <p>All new development projects, which have the potential to result in substantial air quality impacts, shall incorporate design, construction, and/or operational features to result in a reduction in emissions equal to 15 percent compared to an “unmitigated baseline” project. An “unmitigated baseline” project is a development project which is build and/or operated without the implementation of trip reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.</p>	Yes	<p>The proposed General Plan Amendment is for the alteration of land use designations for each of the seven individual sites and does not propose any actual development projects. Subsequent projects would be required to comply with this policy.</p>
<p><b>Policy CAQ-32</b></p> <p>As part of the environmental review of projects, the City shall identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures, potentially including – in the case of projects, which may conflict with applicable air quality plans – emission reductions in addition to those required by Policy CAQ-30.</p>	Yes	<p>The proposed General Plan Amendment is for the alteration of land use designations for each of the seven individual sites and does not propose any actual development projects. Subsequent projects would be required to comply with this policy.</p>
<p><b>Policy CAQ-33</b></p> <p>The City shall require that public and private development projects use low emission vehicles and equipment as part of project construction and operation, unless determined to be unfeasible.</p>	Yes	<p>The proposed General Plan Amendment is for the alteration of land use designations for each of the seven individual sites and does not propose any actual development projects. Subsequent projects would be required to comply with this policy.</p>

## 4.5 AIR QUALITY

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### Sacramento Transportation and Air Quality Collaborative

The Sacramento Transportation and Air Quality Collaborative is a consortium of forty-eight regional and local organizations developed to address air quality, transportation, land use and governance issues in the greater Sacramento area. The collaborative seeks to increase public participation through education, evaluation of transit systems, land use developments, jobs/housing balances and encouragement of regional planning efforts to achieve and maintain clean air quality as measured by federal and state ambient air quality standards.

### 4.5.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

As stated in Appendix G of the California CEQA Guidelines, an air quality impact would be considered significant if it would result in any of the following actions:

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

In addition, SMAQMD has established significance thresholds to assist Lead Agencies in determining whether a project or plan may have a significant air quality impact. According to SMAQMD's *Guide to Air Quality Assessment*, a project would have a potentially significant adverse impact on air quality if it would result in any of the following actions:

1. Cause an increase in emissions of nitrogen oxides (NO<sub>x</sub>) greater than 85 pounds per day during construction. For operation of a project, the District's threshold of significance is 65 pounds per day of either NO<sub>x</sub> or Reactive Organic Gases (ROG);
2. Emit of other criteria pollutants at a level equal to or greater than five percent of an existing exceedance of a state ambient air quality standard;
3. Frequently expose members of the public to objectionable odors;
4. Emit of toxic air contaminants (TACs) whereby either:
  - a. The lifetime probability of contracting cancer is greater than ten in one million; or
  - b. The ground-level concentration of non-carcinogenic toxic air pollutants would result in a Hazard Index of greater than one.
5. An air quality impact would be considered cumulatively significant if it would result in either of the following actions:

- a. Require a change in the existing land use designation, and increase emissions (ROG, NO<sub>x</sub>, or PM<sub>10</sub>) above those anticipated for the site if developed under the existing land use designation.
- b. Increase project emissions (ROG, NO<sub>x</sub>), or emission concentrations (criteria pollutants), above those anticipated for the site if developed under the existing land use designation.

### METHODOLOGY

The previous analysis and mitigation measures provided in the Elk Grove General Plan EIR were considered in evaluating the impacts associated with the proposed General Plan Amendment.

The City Council adopted Findings of Fact for the environmental impacts associated with implementation of the Elk Grove General Plan and also adopted a Statement of Overriding Considerations for significant and unavoidable impacts anticipated with implementation of the Elk Grove General Plan, which included creation of period exhaust emissions and fugitive dust from construction activities that would affect local air quality, an increase in air pollutant emissions from operational activities of land uses within the City, and amplification of existing regional problems with ozone and particulate matter in the cumulative condition.

### Local-Scale Analysis

Auto traffic generated by land use development and cumulative development would affect local air quality along the local and regional street system. On the local scale the pollutant of greatest interest is carbon monoxide. Concentrations of this pollutant are related to the levels of traffic and congestion along streets and at intersections.

The Elk Grove General Plan EIR included forecast levels of carbon monoxide levels near 8 worst-case intersections for the year 2025. Forecasted traffic volumes with the proposed General Plan Amendment were examined to determine if they exceeded those used in the Elk Grove General Plan EIR.

### Regional Cumulative Analysis

A General Plan would have a significant cumulative impact if it would conflict with or obstruct implementation of the regional air quality plan. Projections of housing units and employment within Elk Grove were compared to those under the adopted General Plan. The total emissions associated with buildout were also evaluated for potential to cause or contribute to exceedances of the state and ambient air quality standards.

### PROJECT IMPACTS AND MITIGATION MEASURES

#### Construction Related Emissions

**Impact 4.5.1** Implementation of the proposed General Plan Amendment would allow for actions that may result in the construction of residential, commercial or office development. This, in turn, would result in period exhaust emissions and fugitive dust from construction activities that would affect local air quality. This is considered a **less than significant** impact.

Construction emissions are generally short term or temporary in duration; however, these emissions still have the potential to significantly impact air quality. At any given time, several

## 4.5 AIR QUALITY

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construction projects may be under way, which may result in construction related emissions. The main contributors are fugitive dust emissions (PM<sub>10</sub>) and ozone forming gases, in which the SMAQMD is in severe non-attainment. Fugitive dust emissions are generally associated with grading, movement of soil and other site preparation activities. ROG and NO<sub>x</sub> emissions break down to form ozone and are associated primarily with gas and diesel equipment exhaust and the application of various exterior building coatings. The construction of the project and any the supporting infrastructure would generate emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>. Construction activities associated with the project would include grading, building demolition, building construction, and paving. Wind erosion and disturbance to exposed areas would also be sources of dust emissions. In addition, motor vehicle exhaust associated with construction equipment and construction personnel commuter trips, and material transport and delivery, would contribute to the generation of ROG, NO<sub>x</sub>, and PM<sub>10</sub>.

As stated previously, the City Council adopted a Statement of Overriding Considerations for significant and unavoidable impacts anticipated with implementation of the Elk Grove General Plan, which included creation of period exhaust emissions and fugitive dust from construction activities that would affect local air quality. Emissions from individual development construction sites would be short term and temporary but would occur through construction of the General Plan Amendment sites.

The proposed project would increase slightly the total amount of construction-related emissions resulting from a slight increase in the total amount of new development that would occur through build-out. However, impacts at any given location are likely to be unchanged in terms of impact severity or duration as compared to the adopted General Plan. This is considered a **less than significant** impact.

### *General Plan Goals, Policies and Action Items*

Implementation of General Plan policies CAQ-26, CAQ-27, CAQ-28, CAQ-30, CAQ-31, CAQ-32, and CAQ-33 (mitigation measure MM 4.7.1 from the General Plan EIR) would assist in reducing potential construction air quality impacts.

### Mitigation Measures

None required.

### **Operation Related Emissions**

**Impact 4.5.2** Implementation of the proposed General Plan Amendment would increase air pollutant emissions from operational activities of land uses within the City. This is considered a **potentially significant** impact.

Implementation of the proposed General Plan Amendment would result in increased vehicle trips, employment growth, and an increase in population. These increases would introduce additional mobile and stationary sources of emissions, which would adversely affect regional air quality. Implementation of the proposed General Plan Amendment would result in regional emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>, and CO due to increased vehicle trips, the use of natural gas, burning activities, the use of maintenance equipment, and the use of various consumer products.

Sacramento County is classified a severe non-attainment area for the federal ozone standards. In order to improve air quality and attain the health-based standards, reductions in emissions are

necessary within the non-attainment area. The growth in population, vehicle usage and business activity within the non-attainment area, when considered with growth proposed under the General Plan Amendment, would contribute to regional air quality impacts.

Following adoption of the Elk Grove General Plan EIR, the City Council adopted a Statement of Overriding Considerations for significant and unavoidable impacts anticipated with implementation of the Elk Grove General Plan, which included an increase in air pollutant emissions from operational activities of land uses within the City.

Implementation of the proposed General Plan Amendment would increase emissions of regional air pollutants such as ROG, NO<sub>x</sub>, and PM<sub>10</sub> by about one percent. The Elk Grove General Plan EIR included forecast levels of carbon monoxide levels near 8 worst-case intersections for the year 2025. Examination of the forecasted traffic volumes with the proposed project shows that total approach volumes during the PM peak hour (used as input to the CO modeling) with the proposed Amendment project would be similar to approach volumes forecast for the Elk Grove General Plan EIR. Therefore, levels of carbon monoxide with the proposed project would be no greater than those identified in Table 4.7-3 of the Elk Grove General Plan EIR. The concentrations in Table 4.7-3 of the EIR were well below the state and federal ambient air quality standards, so no significant carbon monoxide impacts are expected.

With the proposed project, total emissions are essentially unchanged from those in the General Plan EIR. However, according to the standards of significance for cumulative impacts discussed previously, a proposed project would result in a significant cumulative impact if the project resulted in emissions or emission concentrations greater than the emission anticipated for the site if developed under the existing land use designation. Therefore, the project is anticipated to have a **significant and unavoidable** impact on the regional air plan.

*General Plan Goals, Policies and Action Items*

General Plan policies CAQ-26 through CAQ-33 would reduce operational emissions by encouraging a reduction in peak hour vehicle trips (e.g., flexible work hours, telecommuting, car pooling etc.); the development (extension) and use of Regional Transit's (RT) rail and transit services, reduction of automobile dependency, and the development of the City's pedestrian and bike paths. However, this impact would remain **significant and unavoidable**.

Mitigation Measures

None available.

**Stationary Sources of Toxic Air Contaminants**

**Impact 4.5.3** Implementation of the proposed General Plan Amendment would include sources of criteria pollutants, toxic air contaminants or odors that may affect surrounding land uses. Sensitive land uses may also be located near existing sources of criteria pollutants, toxic air contaminants or odors. This impact is considered **less than significant**.

Implementation of the proposed General Plan Amendment includes land uses that are potential sources of Toxic Air Contaminants (TACs). The type and level of TACs are dependent on the nature of the land use, individual facilities, and the methods and operations of particular facilities. Diesel exhaust particulate was recently added to the California Air Resources Board (CARB) list of TACs. Activities involving long-term use of diesel powered equipment and heavy-

## 4.5 AIR QUALITY

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duty trucks contribute significantly to TAC levels. See the Elk Grove General Plan EIR for a full discussion on types of TACs.

The proposed project would have no significant potential to change sources of criteria pollutants, toxic air contaminants or odors that may affect surrounding land uses. Furthermore, the issuance of SMAQMD Air Quality permits, compliance with all District, state and federal regulations regarding stationary and TACs, the use of Best Available Control Technology (BACT), and the purchase of emission off-sets for industrial sources would reduce potential stationary and mobile sources toxic air emissions. Therefore, potential TAC impacts associated with implementation of the General Plan Amendment are considered **less than significant**.

### *General Plan Goals, Policies and Action Items*

Implementation of General Plan policies CAQ-26 through CAQ-33 would ensure potential stationary sources of TAC impacts remain at a **less than significant** level.

### Mitigation Measures

None required.

## 4.7.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

### CUMULATIVE SETTING

In July 2004, SMAQMD adopted the Guide to Air Quality Assessment in Sacramento, which provides methodologies for the review of air quality impacts from development projects contemplated within the SMAQMD boundaries. This Guide supercedes the "Air Quality Thresholds of Significance" published in 1994. The primary purpose of the Guide is to provide a means to quickly identify proposed development projects that may have a significant adverse effect on air quality. The Guide includes screening approaches and specific methods and techniques for calculating emissions, with references to applicable emissions models where appropriate. The guide also provides a measure of mitigation developers can use to reduce the air quality impact of their projects.

Sacramento County and the City of Elk Grove General Plan area are included in the Greater Sacramento Ozone non-attainment area as delineated by the U. S. EPA. Therefore, the cumulative setting considers the cumulative effect of increased emissions in the air basin.

In 1994, the Air Resources Board, in cooperation with the air districts of the Sacramento non-attainment area, fulfilled one of these requirements by preparing the *1994 Sacramento Area Regional Ozone Attainment Plan*. The plan identified a detailed comprehensive strategy for reducing emissions to the level needed for attainment and showed how the region would make expeditious progress toward meeting this goal. Milestone reports were required in 1996 and every 3 years thereafter until the attainment deadline. The current Plan utilizes transportation forecasts based on SACOG forecasts of population and employment within the non-attainment area.

Ozone has been trending downward both in terms of the overall rate of population exposure to ozone and the number of days and hours over the standard. Total emission of ozone precursors has been trending downward due to increasingly efficient emission control programs, and continued reductions in emissions are forecast for the future. Growth in population and vehicle use and new stationary sources of pollutants tend to retard air quality improvements. Current

patterns of suburban development with long average commute distances tend to exacerbate the situation.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

**Regional Air Plan Impacts**

**Impact 4.5.4** Implementation of the proposed General Plan Amendment along with potential development in the region would exacerbate existing regional problems with ozone and particulate matter. This is considered a **cumulative significant** impact.

Implementation of the proposed General Plan Amendment would result in new development, increased population, and adversely affect regional air quality. Implementation of the proposed project would result in an additional 885 single-family residences, and additional 20 multi-family units, an additional 288,000 square feet of retail space, and 216,000 fewer square feet of office space. The project does not include any industrial land uses.

Sacramento County is classified a severe non-attainment area for the federal ozone standards. In order to improve air quality and attain the health-based standards, reductions in emissions are necessary within the non-attainment area. The growth in population, vehicle usage and business activity within the non-attainment area, when considered with growth proposed under the General Plan Amendment, would contribute to cumulative regional air quality impacts.

The City Council adopted Findings of Fact for the environmental impacts associated with implementation of the Elk Grove General Plan and also adopted a Statement of Overriding Considerations for significant and unavoidable impacts anticipated with implementation of the Elk Grove General Plan, which included amplification of existing regional problems with ozone and particulate matter in the cumulative condition.

Table 4.7-5 of the Elk Grove General Plan EIR provided estimates of area and vehicular emissions from all land uses within Elk Grove calculated using the URBEMIS2002 program assuming buildout by 2025. Emissions were also calculated assuming buildout of Elk Grove and the adjacent Urban Study Area by 2040. **Table 4.5-4** is provided below showing regional air quality impacts with the proposed General Plan Amendment. Total emissions anticipated with implementation of the project is roughly one percent greater than those identified in the General Plan EIR.

**TABLE 4.5-4  
AREA SOURCE AND VEHICULAR EMISSIONS FROM STUDY AREA LAND USES WITH GENERAL PLAN AMENDMENT, TONS PER DAY**

		ROG	NOx	PM
<b>2025</b>				
Adopted General Plan Buildout	Area Sources	11.10	0.85	3.53
	Vehicles	0.89	0.84	2.89
	Total	11.99	1.69	6.42

## 4.5 AIR QUALITY

		ROG	NOx	PM
Amended General Plan Buildout (All sites)	Area Sources	11.26	0.86	3.58
	Vehicles	0.91	0.85	2.97
	Total	12.17	1.71	6.55
<b>2040</b>				
Adopted General Plan Buildout Plus Urban Study Area Buildout	Area Sources	14.85	0.76	4.53
	Vehicles	0.98	1.23	4.72
	Total	15.83	1.99	9.25
Amended General Plan Buildout (All Sites) Plus Urban Study Area Buildout	Area Sources	15.01	0.77	4.58
	Vehicles	1.00	1.24	4.80
	Total	16.01	2.01	9.38

Source: Donald Ballanti, Consulting Meteorologist, 2004

With the proposed project, total emissions are essentially unchanged from those in the General Plan EIR. However, according to the standards of significance for cumulative impacts discussed previously, a proposed project would result in a significant cumulative impact if the project resulted in emissions or emission concentrations greater than the emission anticipated for the site if developed under the existing land use designation. Therefore, the project is anticipated to have a **significant and unavoidable** impact on the regional air plan.

### *General Plan Goals, Policies and Action Items*

General Plan policies CAQ-26 through CAQ-33 would assist in reducing cumulative regional and local air quality impacts. However, this impact would remain **significant and unavoidable**.

### Mitigation Measures

None available.

### REFERENCES

- Ballanti, Donald. 2004. "Air Quality Analysis for the Elk Grove General Plan Amendment". El Cerrito, CA.
- City of Elk Grove Development Services. 2003. *City of Elk Grove General Plan*. Elk Grove, CA.
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- Sacramento Metropolitan Air Quality Management District. 2004. *Guide to Air Quality Assessment in Sacramento County*. Sacramento, CA.