

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.

4.7.1 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 4.7-1** 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 PM₁₀.

4.7 AIR QUALITY

**TABLE 4.7-1
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 ₁₀	Annual Average	50 µg/m ³	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM _{2.5}	Annual	15 µg/m ³	12 µg/m ³
	24-Hour	65 µg/m ³	--

Notes: PPM = Parts per Million; µg/m³ = 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 PM₁₀ 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_{2.5} 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 (NOx). 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_x) are the combustion of fuels and the evaporation of solvents, paints, and fuels. Over percent of the NO_x 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.

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.

4.7 AIR QUALITY

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 TAC's 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 PM₁₀ is the Sacramento Branch Center Road site, located near Bradshaw Road south of U.S. 50. **Table 4.7-2** 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 PM₁₀ are regularly exceeded.

**TABLE 4.7-2
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 ₁₀ (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.

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.

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 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:

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

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.

4.7 AIR QUALITY

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_{2.5} (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 (NO₂ - a form of NO_x), sulfur dioxide (SO₂ - a form of SO_x), particulate matter 10 microns in size and smaller (PM₁₀), 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 PM₁₀ and SO₂, far more stringent.

LOCAL

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_x 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_x 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. 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:¹

- Mass Emission Thresholds-The District considers increases in emissions of nitrogen oxides (NO_x) greater than 85 pounds per day as significant during construction. For operation of

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

4.7 AIR QUALITY

a project, the District's threshold of significance is 65 pounds per day of either NO_x 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_x 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_x 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.

Sacramento County General Plan

The Sacramento County General Plan is used as the "blueprint" to guide future development in unincorporated portions of the County, including sections of the Planning Area that are outside the Elk Grove city limits. The following Sacramento County Air Quality policies are applicable to the Planning Area outside the existing city limits of Elk Grove.

AQ-3	Promote optimal air quality benefits through energy conservation measures in new development.
AQ-5	Require the use of Best Available Control Technology (BACT) to reduce air pollution emissions.
AQ-11	Require as a building standard the installation of electrical service in all new residential development that can be used for the overnight charging of electrical vehicles.

- AQ-15 All new major indirect sources of emissions shall be reviewed and modified or conditioned to achieve a reduction in emissions. This indirect source review program will be developed in coordination with SACOG and SMAQMD, and include the following features:
- A 15 percent reduction in emissions from the level that would be produced by a base-case project assuming full trip generation per the current ITE Trip Generation Handbook.
 - A focus on cost-effectiveness measured in terms of cost per ton of pollutant avoided.
 - A list of cost-effective measures to be developed, maintained, and annually reviewed by SMAQMD.
 - A maximum expenditure cap, which will be computed for each indirect source on the basis of factors including, but not limited to, total emissions and project value.
 - A process for obtaining a waiver from the 15 percent requirement if it is found that a lower level of reduction is all that can be achieved with cost-effective measures and offsets, or that achieving the full 15 percent reduction would cost more than expenditure cap.
 - An exception for projects which have already undergone the indirect source review at some point in the development approval process.
 - A procedure to give full credit for other measures required in a project that may also achieve a reduction in emissions.
- AQ-17 Require that development projects be located and designed in a manner which will conserve air quality and minimize direct and indirect emission of air contaminants.
- AQ-19 Identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures or offset fees.
- AQ-22 Provide for buffers between sensitive land uses and sources of air pollution or odor.
- AQ-23 Promote mixed-use development to reduce the length and frequency of vehicle trips.
- AQ-25 Require that new development be designed to promote pedestrian and bicycle access and circulation.
- AQ-26 Accommodate growth within existing urban areas (infill) as a priority over urban expansion.
- AQ-37 Maximize air quality benefits through selective use of vegetation in landscaping and through revegetation of appropriate areas.

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

4.7 AIR QUALITY

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.

4.7.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

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.

METHODOLOGY

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.

Future local carbon monoxide levels were modeled using a screening form of the CALINE4 computer model contained in the statewide *Transportation Project-Level Carbon Monoxide Protocol*. Carbon monoxide levels were modeled at eight signalized intersections using forecasted PM peak hour traffic as input. Modeled inputs included peak-hour traffic levels and meteorological conditions for wintertime when the potential for elevated carbon monoxide levels is greatest. Carbon monoxide levels were modeled near the roadway edge (e.g., outside edge of sidewalk).

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 utilized within the regional air quality plan were compared to those under the proposed 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 4.7.1 Implementation of the proposed General Plan would result in period exhaust emissions and fugitive dust from construction activities that would affect local air quality. This is considered a **significant** impact.

Construction emissions are generally short term or temporary in duration; however, still have the potential to significantly impact air quality. The main contributors are fugitive dust emissions (PM₁₀) 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_x 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 approximately 63,640 dwelling units and other non-residential uses (commercial, industrial, and office) and the supporting infrastructure would generate emissions of ROG, NO_x, and PM₁₀. Construction activities associated with buildout under the proposed General Plan 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_x, and PM₁₀. Construction activities associated with infrastructure improvements and non-residential development in Elk Grove would generate pollutants intermittently; however, intensification of individual development projects would account for the majority of development and consequently, the majority of construction related emissions.

Emissions from individual development construction sites would be short term and temporary but would occur through buildout of the General Plan. At any given times, several construction projects may be under way, which may result in substantial construction related emissions. General Plan Policy CAQ-22-Action 1 requires all feasible reductions in emissions be implemented for the operation of construction vehicles on major land development and roadway construction projects.

General Plan Policies and Action Items

- CAQ-19 *It is the policy of the City of Elk Grove to minimize air pollutant emissions from all City facilities and operations to the extent feasible and consistent with the City's need to provide a high level of public service.*
- CAQ-19-Action 1 *The City shall encourage all employees to use transportation alternatives such as public transit, bicycling, walking, and carpooling for commute and other work-related trips. The City shall provide information on these and other applicable programs to all employees.*
- CAQ-19-Action 2 *All City facilities shall incorporate energy-conserving design and construction techniques.*
- CAQ-19-Action 3 *The City shall encourage City contractors and vendors to reduce emissions from their operations (such as by using low emission vehicles), and shall consider including a preference for low emission contractors and vendors in City requests for proposals where appropriate.*

4.7 AIR QUALITY

- CAQ-20 *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 the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.*
- CAQ-20-Action 1 *Provide information to the public and builders on available energy conservation techniques and products.*
- CAQ-20-Action 2 *Encourage the use of trees planted in locations that will maximize energy conservation and air quality benefits. Encourage the use of landscaping materials which produce lower levels of hydrocarbon emissions.*
- CAQ-20-Action 3 *During project review, City staff shall consider energy conservation and, where appropriate, suggest additional energy conservation techniques.*
- CAQ-20-Action 4 *During project review, ensure that "Best Available Control Technology" is properly used and implemented.*
- CAQ-21 *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.*
- CAQ-21-Action 1 *Implement the requirements for designated carpool and vanpool parking for all new office developments.*
- CAQ-21-Action 2 *All City facilities shall include designated carpool and vanpool spaces, and all City staff shall be encouraged to take part in ridesharing.*
- CAQ-23 *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 built and/or operated without the implementation of trip-reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.*
- CAQ-23-Action 1 *The City shall develop and implement "Emission Reduction Measures" to achieve the reduction required by this policy. These Emission Reduction Measures should consider the following:*
- *Cost-effectiveness*
 - *A maximum cost for measures, and consideration of a waiver from full compliance if this maximum cost would be exceeded.*
 - *Credits for emission reductions already in place (e.g., for buildings in the latter phases of a multi-phased project which included emission reduction measures in its design) or which are required to mitigate other impacts.*
- CAQ-24 *The City shall support intergovernmental efforts directed at stringent tailpipe emission standards and inspection and maintenance programs for all feasible*

vehicle classes and revisions to the Air Quality Attainment Plan to accelerate and strengthen market-based strategies consistent with the General Plan.

CAQ-24-Action 1 The City shall ensure that all City vehicles conform with applicable emission standards.

CAQ-24-Action 2 The City shall participate in intergovernmental groups seeking to improve local and regional air quality.

CAQ-24-Action 3 In conjunction with Sacramento Metropolitan Air Quality Management District, support and participate in a public education and outreach program dealing with air quality issues, with a goal of attaining a solid foundation of public support for needed air quality measures.

CAQ-25 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.

Mitigation Measures

The following mitigation measure shall be incorporated into the City of Elk Grove General Plan as an action item under Policy CAQ-19 in the Conservation and Air Quality Element.

MM 4.7.1 The City shall require that private development projects utilize low emission vehicles and equipment as part of project construction and operation, unless determined to be infeasible.

Implementation of General Plan policies CAQ-19, CAQ-20, CAQ-21, CAQ-23, CAQ-24, and CAQ-25, as well as mitigation measure MM 4.7.1 would assist in reducing potential construction air quality impacts; however, this impact remains **significant and unavoidable**.

Operation Related Emissions

Impact 4.7.2 Implementation of the proposed General Plan would increase air pollutant emissions from operational activities of land uses within the City. This is considered a **significant** impact.

Implementation of the proposed General Plan 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 would result in regional emissions of ROG, NO_x, and PM₁₀, 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. Although the land uses proposed under the General Plan would improve the jobs/housing balance in the City of Elk Grove, buildout conditions could increase the number of vehicle-miles traveled (VMT), thus increasing potential operational air quality impacts.

The results of the CALINE-4 modeling for eight intersections are shown in **Table 4.7-3** assuming build-out of the Planning Area by the year 2025. The concentrations in **Table 4.7-3** are to be compared to the state and federal ambient air quality standards: predicted 1-hour concentrations are to be compared to the state standard of 20 PPM and the federal standard of 35 PPM; predicted 8-hour concentrations are to be compared to the state and federal standard of 9 PPM. Thus, no significant carbon monoxide impacts are expected.

4.7 AIR QUALITY

**TABLE 4.7-3
PREDICTED YEAR 2025 CARBON MONOXIDE CONCENTRATIONS, IN PARTS PER MILLION**

Intersection	Proposed General Plan	
	1-Hour	8-Hour
Sheldon/ Bruceville	10.8	6.5
Elk Grove/ Franklin	9.6	5.8
Calvine/ Elk Grove-Florin	11.8	7.1
Bond/ Elk Grove-Florin	8.4	5.1
Sheldon/ Elk Grove-Florin	8.9	5.3
Laguna/ Bruceville	11.6	7.0
Laguna/ Franklin	9.6	5.8
Elk Grove/ Bruceville	9.2	5.5

Source: Ballanti, 2002.

The modeling results indicate that future year 2025 carbon monoxide levels with or without the project would be below the state and federal air quality standards. Predicted future levels of carbon monoxide at the selected "hot spot" intersections would meet both the 1-hour and 8-hour state/ federal ambient air quality standards under the proposed General Plan. Thus, no significant carbon monoxide impacts are expected.

General Plan policies 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, implementation of proposed General Plan would contribute substantially to operational emissions over existing conditions in the SMAQMD. Operational emissions associated with General Plan buildout are shown in **Table 4.7-5**. These contributions would affect regional air quality, and may result in the exceedance of National Ambient Air Quality Standards (NAAQS) or SMAQMD thresholds.

General Plan Policies and Action Items

CAQ-19 *It is the policy of the City of Elk Grove to minimize air pollutant emissions from all City facilities and operations to the extent feasible and consistent with the City's need to provide a high level of public service.*

CAQ-19-Action 1 *The City shall encourage all employees to use transportation alternatives such as public transit, bicycling, walking, and carpooling for commute and other work-related trips. The City shall provide information on these and other applicable programs to all employees.*

- CAQ-19-Action 2 *All City facilities shall incorporate energy-conserving design and construction techniques.*
- CAQ-19-Action 3 *The City shall encourage City contractors and vendors to reduce emissions from their operations (such as by using low emission vehicles), and shall consider including a preference for low emission contractors and vendors in City requests for proposals where appropriate.*
- CAQ-20 *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 the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.*
- CAQ-20-Action 1 *Provide information to the public and builders on available energy conservation techniques and products.*
- CAQ-20-Action 2 *Encourage the use of trees planted in locations that will maximize energy conservation and air quality benefits. Encourage the use of landscaping materials which produce lower levels of hydrocarbon emissions.*
- CAQ-20-Action 3 *During project review, City staff shall consider energy conservation and, where appropriate, suggest additional energy conservation techniques.*
- CAQ-20-Action 4 *During project review, ensure that "Best Available Control Technology" is properly used and implemented.*
- CAQ-21 *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.*
- CAQ-21-Action 1 *Implement the requirements for designated carpool and vanpool parking for all new office developments.*
- CAQ-21-Action 2 *All City facilities shall include designated carpool and vanpool spaces, and all City staff shall be encouraged to take part in ridesharing.*
- CAQ-22 *The City shall seek to ensure that public transit is a viable and attractive alternative to the use of private motor vehicles.*
- CAQ-22-Action 1 *Consider implementation of a development impact fee to provide funding for the development of new public transit facilities in Elk Grove.*
- CAQ-22-Action 2 *The City shall review all options for providing public transit to the residents and businesses of Elk Grove and seek to implement the option which provides the most effective and cost-efficient service.*
- CAQ-23 *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 built and/or operated without the implementation of trip-reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.*

4.7 AIR QUALITY

CAQ-23-Action 1 *The City shall develop and implement "Emission Reduction Measures" to achieve the reduction required by this policy. These Emission Reduction Measures should consider the following:*

- *Cost-effectiveness*
- *A maximum cost for measures, and consideration of a waiver from full compliance if this maximum cost would be exceeded.*
- *Credits for emission reductions already in place (e.g., for buildings in the latter phases of a multi-phased project which included emission reduction measures in its design) or which are required to mitigate other impacts.*

CAQ-24 *The City shall support intergovernmental efforts directed at stringent tailpipe emission standards and inspection and maintenance programs for all feasible vehicle classes and revisions to the Air Quality Attainment Plan to accelerate and strengthen market-based strategies consistent with the General Plan.*

CAQ-24-Action 1 *The City shall ensure that all City vehicles conform with applicable emission standards.*

CAQ-24-Action 2 *The City shall participate in intergovernmental groups seeking to improve local and regional air quality.*

CAQ-24-Action 3 *In conjunction with Sacramento Metropolitan Air Quality Management District, support and participate in a public education and outreach program dealing with air quality issues, with a goal of attaining a solid foundation of public support for needed air quality measures.*

CAQ-25 *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.*

Mitigation Measures

General Plan policies CAQ-19 through CAQ-25 and mitigation measure MM 4.7.1 would reduce potential operational air quality impacts; however, operation related emissions impacts remain **significant and unavoidable**. No feasible mitigation is available to completely mitigate this impact.

Stationary Sources of Toxic Air Contaminants

Impact 4.7.3 Implementation of the proposed General Plan 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 would include 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. **Table 4.7-4** displays potential sources of TAC emissions for various land uses proposed under the General Plan. 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-duty trucks contribute significantly to TAC levels.

**TABLE 4.7-4
TOXIC AIR EMISSION BY LAND USE**

Land Use	Toxic Air Emission
Auto Body Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Chemical Manufacturing	Ethylene, Dichloride, Asbestos
Dry Cleaner	Perchloroethylene
Electrical Manufacturing	Polychlorinated Biphenyls (PCBs), Cadmium, Chromium, Nickel
Gasoline Station	Benzene, Methyl-Tertiary Butyl Ether (MTBE)
Hospital	Dioxin, Cadmium, Ethylene Oxide
Medical Equipment Sterilization	Ethylene Oxide
Printing Services	Ethyl Benzene, Ethylene Glycol, Xylene
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Chloroform

Direct emissions are released from stationary sources, usually industrial in nature. Because of the great variation in emissions types and amounts from different industrial uses, it is not possible to predict direct emissions. The SMAQMD has statutory authority over stationary sources of emissions. The District issues permits to ensure that all equipment and processes comply with federal and state laws and regulations, and District rules. Before a stationary source is built, erected or operated, a permit to do so must be obtained from the District. Air Quality permits are, in effect, a contract between the District and stationary sources that sets limits on emissions and requires compliance with all District, state and federal regulations in order to protect public health. The District's rules and regulations impose limits on emissions and requires use of Best Available Control Technology (BACT) and purchase of emission off-sets for industrial sources exceeding certain emission levels. These regulations include the identification and quantification of emissions of Toxic Air Contaminants and, if warranted, estimation of cancer and non-cancer risk associated with any source.

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, the General Plan's potential TAC impacts are considered less than significant.

General Plan Policies and Action Items

CAQ-19 It is the policy of the City of Elk Grove to minimize air pollutant emissions from all City facilities and operations to the extent feasible and consistent with the City's need to provide a high level of public service.

CAQ-19-Action 3 The City shall encourage City contractors and vendors to reduce emissions from their operations (such as by using low emission vehicles), and shall consider including a preference for low emission contractors and vendors in City requests for proposals where appropriate.

CAQ-20 The City shall promote energy conservation measures in new development to

4.7 AIR QUALITY

reduce on-site emissions and power plant emissions. The City shall seek to reduce the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of development.

CAQ-20-Action 1 Provide information to the public and builders on available energy conservation techniques and products.

CAQ-20-Action 2 During project review, City staff shall consider energy conservation and, where appropriate, suggest additional energy conservation techniques.

CAQ-20-Action 3 During project review, ensure that "Best Available Control Technology" is properly used and implemented.

CAQ-20-Action 4 Encourage new commercial uses to limit delivery hours to non-peak hours.

CAQ-21 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.

CAQ-21-Action 1 Implement the requirements for designated carpool and vanpool parking for all new office developments.

CAQ-22 The City shall seek to ensure that public transit is a viable and attractive alternative to the use of private motor vehicles.

CAQ-22-Action 1 Consider implementation of a development impact fee to provide funding for the development of new public transit facilities in Elk Grove.

CAQ-22-Action 2 The City shall review all options for providing public transit to the residents and businesses of Elk Grove and seek to implement the option which provides the most effective and cost-efficient service.

CAQ-23 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 built and/or operated without the implementation of trip-reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.

CAQ-23-Action 1 The City shall develop and implement "Emission Reduction Measures" to achieve the reduction required by this policy. These Emission Reduction Measures should consider the following:

- Cost-effectiveness*
- A maximum cost for measures, and consideration of a waiver from full compliance if this maximum cost would be exceeded.*
- Credits for emission reductions already in place (e.g., for buildings in the latter phases of a multi-phased project which included emission reduction measures in its design) or which are required to mitigate other impacts.*

- CAQ-24 *The City shall support intergovernmental efforts directed at stringent tailpipe emission standards and inspection and maintenance programs for all feasible vehicle classes and revisions to the Air Quality Attainment Plan to accelerate and strengthen market-based strategies consistent with the General Plan.*
- CAQ-24-Action 1 *The City shall ensure that all City vehicles conform with applicable emission standards.*
- CAQ-24-Action 2 *The City shall participate in intergovernmental groups seeking to improve local and regional air quality.*
- CAQ-24-Action 3 *In conjunction with Sacramento Metropolitan Air Quality Management District, support and participate in a public education and outreach program dealing with air quality issues, with a goal of attaining a solid foundation of public support for needed air quality measures.*
- CAQ-25 *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.*

Implementation of General Plan policies CAQ-19 through CAQ-25 would reduce potential stationary sources of TAC impacts to a **less than significant** level.

Mitigation Measures

None required.

4.7.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

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.

4.7 AIR QUALITY

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Regional Air Plan Impacts

Impact 4.7.4 Implementation of the proposed General Plan along with potential development of the Urban Study Areas would exacerbate existing regional problems with ozone and particulate matter. This is considered a **cumulative significant** impact.

Implementation of the proposed General Plan would result in substantial new development, increased population, and adversely affect regional air quality. Development under the existing General Plan would correspond to SACOG projections of households and employment that were utilized in the current regional non-attainment plan. The projected number of housing units under the proposed General Plan would be less than under the 2000 City of Elk Grove General Plan. Additionally, employment under the proposed General Plan would be substantially higher, with 73,567 jobs projected under the proposed General Plan. While the additional job growth is technically inconsistent with the assumptions of the regional non-attainment plan, this additional employment is consistent with proposed General Plan goals and overall regional strategies for reducing travel by improving the jobs/housing balance. Jobs/housing imbalances promote long distance commuting. Build-out of the proposed General Plan would result in an overall jobs/housing ratio of 1.16 compared to an overall jobs/housing ratio of 0.88 under the 2000 City of Elk Grove General Plan. The proposed General Plan is consistent with non-attainment plan assumptions regarding housing and provides an improved jobs/housing balance.

Area and vehicular emissions from all land uses within Elk Grove were 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. The results are shown in **Table 4.7-5**.

TABLE 4.7-5
AREA SOURCE AND VEHICULAR EMISSIONS FROM STUDY AREA LAND USES, TONS PER DAY

		ROG	NOx	PM
General Plan Buildout (2025)	Area Sources	11.10	0.85	3.53
	Vehicles	0.89	0.84	2.89
	Total	11.99	1.69	6.42
General Plan Buildout Plus Urban Study Area Buildout (2040)	Area Sources	14.85	0.76	4.53
	Vehicles	0.98	1.23	4.72
	Total	15.74	1.96	12.25

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, would contribute to cumulative regional air quality impacts. Additionally, implementation of the proposed General Plan may either delay attainment of the standards or require the adoption of additional controls on existing and future air pollution sources to offset project-related emission increases.

General Plan Policies and Action Items

- CAQ-19 *It is the policy of the City of Elk Grove to minimize air pollutant emissions from all City facilities and operations to the extent feasible and consistent with the City's need to provide a high level of public service.*
- CAQ-19-Action 1 *The City shall encourage all employees to use transportation alternatives such as public transit, bicycling, walking, and carpooling for commute and other work-related trips. The City shall provide information on these and other applicable programs to all employees.*
- CAQ-19-Action 2 *All City facilities shall incorporate energy-conserving design and construction techniques.*
- CAQ-19-Action 3 *The City shall encourage City contractors and vendors to reduce emissions from their operations (such as by using low emission vehicles), and shall consider including a preference for low emission contractors and vendors in City requests for proposals where appropriate.*
- CAQ-20 *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 the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.*
- CAQ-20-Action 1 *Provide information to the public and builders on available energy conservation techniques and products.*
- CAQ-20-Action 2 *Encourage the use of trees planted in locations that will maximize energy conservation and air quality benefits. Encourage the use of landscaping materials which produce lower levels of hydrocarbon emissions.*
- CAQ-20-Action 3 *During project review, City staff shall consider energy conservation and, where appropriate, suggest additional energy conservation techniques.*
- CAQ-20-Action 4 *During project review, ensure that "Best Available Control Technology" is properly used and implemented.*
- CAQ-21 *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.*
- CAQ-21-Action 1 *Implement the requirements for designated carpool and vanpool parking for all new office developments.*
- CAQ-21-Action 2 *All City facilities shall include designated carpool and vanpool spaces, and all City staff shall be encouraged to take part in ridesharing.*
- CAQ-22 *The City shall seek to ensure that public transit is a viable and attractive alternative to the use of private motor vehicles.*
- CAQ-22-Action 1 *Consider implementation of a development impact fee to provide funding for the development of new public transit facilities in Elk Grove.*

4.7 AIR QUALITY

- CAQ-22-Action 2 *The City shall review all options for providing public transit to the residents and businesses of Elk Grove and seek to implement the option which provides the most effective and cost-efficient service.*
- CAQ-23 *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 built and/or operated without the implementation of trip-reduction, energy conservation, or similar features, including any such features which may be required by the Zoning Code or other applicable codes.*
- CAQ-23-Action 1 *The City shall develop and implement “Emission Reduction Measures” to achieve the reduction required by this policy. These Emission Reduction Measures should consider the following:*
- *Cost-effectiveness*
 - *A maximum cost for measures, and consideration of a waiver from full compliance if this maximum cost would be exceeded.*
 - *Credits for emission reductions already in place (e.g., for buildings in the latter phases of a multi-phased project which included emission reduction measures in its design) or which are required to mitigate other impacts.*
- CAQ-24 *The City shall support intergovernmental efforts directed at stringent tailpipe emission standards and inspection and maintenance programs for all feasible vehicle classes and revisions to the Air Quality Attainment Plan to accelerate and strengthen market-based strategies consistent with the General Plan.*
- CAQ-24-Action 1 *The City shall ensure that all City vehicles conform with applicable emission standards.*
- CAQ-24-Action 2 *The City shall participate in intergovernmental groups seeking to improve local and regional air quality.*
- CAQ-24-Action 3 *In conjunction with Sacramento Metropolitan Air Quality Management District, support and participate in a public education and outreach program dealing with air quality issues, with a goal of attaining a solid foundation of public support for needed air quality measures.*
- CAQ-25 *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.*

Mitigation Measures

General Plan policies CAQ-19 through CAQ-25 as well as mitigation measure MM 4.7.1 would assist in reducing cumulative regional and local air quality impacts; however, this cumulative impact remains **significant and unavoidable**. No feasible mitigation is available to completely mitigate this impact.

REFERENCES

City of Elk Grove Development Services. 2003. *City of Elk Grove General Plan*. Elk Grove, CA.

Garza, Vincente J.; Peter Granly; Daniel Sperling, Institute of Transportation Studies, University of California, Davis. 1997. *Transportation Project-Level Carbon Monoxide Protocol. Report UCD-ITS-RR-97-21*. Davis, CA.