

This section describes the air quality impacts of the proposed Rancho Cordova General Plan. It examines the climatic influences that affect air quality of the Rancho Cordova General Plan Planning Area and also describes available data on measured contaminant levels. (The Planning Area is defined in Section 3.1.) In addition, it outlines the regulatory and planning agencies and programs relevant to the Planning Area.

### 4.6.1. EXISTING SETTING

#### AIR BASIN CHARACTERISTICS

The Rancho Cordova General Plan 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 under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). The Planning Area 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. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) have established ambient air quality standards for common pollutants. The national ambient air quality standards ("NAAQS", or "federal standards") and California ambient air quality standards ("CAAQS", or "state standards") for important pollutants are summarized in **Table 4.6-1**. These ambient air quality standards are levels of contaminants that represent levels that protect public health and welfare, and 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. EPA and ARB have focused on the following air pollutants as indicators of ambient air quality: ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM), and lead. 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 standards are more stringent. This is particularly true for ozone and PM<sub>10</sub>.

## 4.6 AIR QUALITY

A geographical area identified to have air quality as good as, or better than, the national and / or California ambient air quality standard is referred to as being in attainment of these standards. An area may be an attainment area for one pollutant and a nonattainment area for others

In 1997, the U.S. EPA adopted new national air quality standards for ground-level ozone and for fine particulate matter, which have not yet been implemented due to litigation. The existing 1-hour ozone standard of 0.12 parts per million (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 U.S. EPA, clearing the way for implementation of the new standards.

During the delay caused by the lawsuit, ARB developed recommended designations for California air basins, proposing that Sacramento County be designated as non-attainment for the new 8-hour ozone standard. On April 28, 2005, the ARB approved the 8-hour average standard at 0.070 ppm.

**TABLE 4.6-1  
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	-	0.09 ppm
	8-Hour	0.08 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9 ppm	9.0 ppm
	1-Hour	35 ppm	20.0 ppm
Nitrogen Dioxide	Annual Average	0.053 ppm	-
	1-Hour	--	0.25 ppm
Sulfur Dioxide	Annual Average	0.03 ppm	-
	24-Hour	0.14 PPM	0.04 ppm
	1-Hour	--	0.25 ppm
PM <sub>10</sub>	Annual Average	50 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>
	24-Hour	150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual	15 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>
	24-Hour	65 µg/m <sup>3</sup>	-

Notes: PPM = Parts per Million; µg/m<sup>3</sup> = Micrograms per Cubic Meter

Source: Sacramento Metropolitan Air Quality Management District, 2004

### AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The most problematic pollutants in Rancho Cordova are ozone, carbon monoxide, and particulate matter. Carbon monoxide in Sacramento County 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 contaminants 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 from point sources (e.g., mobile or stationary); rather, they are 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.

Ozone is 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 NOx) are the combustion of fuels and the evaporation of solvents, paints, and fuels.

## **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 area. 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 area has attained the state and national CO standard. The records from the area'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.

## 4.6 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 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. In 1998, ARB 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. 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.

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

### AMBIENT AIR QUALITY

The SMAQMD and ARB maintain several air quality monitoring sites in the Sacramento area, however, none are located in the City of Rancho Cordova and not all monitoring sites measure all air pollutants. For instance, the Sloughouse monitoring site, which is the site nearest to the City, only measures ozone. The nearest monitoring site for carbon monoxide, PM<sub>2.5</sub>, Nitrogen Dioxide, and Sulfur Dioxide is at Del Paso Manor at 2701 Avalon Dr, 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, within the Planning Area. Based on these monitoring sites, all federal ambient air quality standards have been met in the Rancho, with the exception of ozone, which exceeded the 8-hour average on ten occasions in 2005. Also, California standards for PM<sub>10</sub> and ozone were exceeded in the City in 2005. See **Table 4.6-2** for air quality in Rancho Cordova.

**TABLE 4.6-2  
RANCHO CORDOVA AREA AIR QUALITY**

Pollutant	Standard <sup>3</sup>	2003		2004		2005	
		Highest	Days over	Highest	Days over	Highest	Days over
Ozone							
Highest 1-hour average <sup>1</sup>	0.09 ppm	0.131 ppm	1	0.114 ppm	0	0.132 ppm	3
Highest 8-hour average <sup>2</sup>	0.07 ppm	0.107 ppm	19	0.93 ppm	8	0.110 ppm	10
Carbon Monoxide							
Highest 8-hour average <sup>1</sup>	9.0 ppm	4.27 ppm	0	3.15 ppm	0	2.26 ppm	0

Pollutant	Standard <sup>3</sup>	2003		2004		2005	
		Highest	Days over	Highest	Days over	Highest	Days over
PM <sub>10</sub>							
Highest 24-hour average <sup>1</sup>	50 µg/m <sup>3</sup>	77.0 µg/m <sup>3</sup>	4	45.0 µg/m <sup>3</sup>	0	52.0 µg/m <sup>3</sup>	1
PM <sub>2.5</sub>							
Highest 8-hour average <sup>2</sup>	65 µg/m <sup>3</sup>	73.2 µg/m <sup>3</sup>	2	58.2 µg/m <sup>3</sup>	0	45.7 µg/m <sup>3</sup>	0
Sulfur Dioxide							
Highest 1-hour average <sup>1</sup>	.025 ppm	.003 ppm	0	.003 ppm	0	.003 ppm	0
Nitrogen Dioxide							
Highest 1-hour average <sup>1</sup>	0.25 ppm	.101 ppm	0	.066 ppm	0	.061 ppm	0

Source: California Air Resource Board

Note: (1) California standard; (2) National standard (3) ppm = parts per million, µg/m<sup>3</sup> = micrograms per cubic meter.

## ODORS

Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

## 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. Examples of these receptors are schools, retirement homes, convalescent homes, hospitals and medical clinics. The majority of sensitive receptors in Rancho Cordova are schools and residences.

## 4.6 AIR QUALITY

---

### 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.

#### **Major Stationary Air Pollutant Sources in the Planning Area**

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in September 1987. Under this act, stationary sources are required to report the types and quantities of certain substances their facilities routinely release into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, and to notify nearby residents of significant risks. The Hotspots Analysis and Reporting Program (HARP) is a tool that assists with the programmatic requirements of the Air Toxics "Hot Spots" Program. HARP is a computer software package that combines the tools of emission inventory database, facility prioritization calculation, air dispersion modeling, and risk assessment analysis. All of these tools are tied to a single database allowing information to be shared and utilized.

Major stationary air pollutant sources listed in the HARP database for the City of Rancho Cordova include: A. Teichert & Son Aggregate, AeroJet, Puente Wood Products, Sacramento Rendering Company and Teledyne Mec.

#### **Mather Airport**

The following information was excerpted, in part, from the Revised Draft Mather Airport Master Plan, February 2004. Mather Field was established in 1918 as a military base and pilot training school. The base was closed after World War I, but reactivated in 1941 as a training field. In 1958, the Strategic Air Command B-52 wing was assigned to the base. In the 1970s, Mather provided inter-service and international undergraduate navigator training. Base expansion and improvement continued throughout the 1980s, but ceased when the decision to close Mather was announced by the Department of Defense in 1988. In 1993, the Air Force issued a Record of Decision for disposal of the base and aviation facilities were transitioned to Sacramento County on March 28, 1995. Mather Airport was officially reopened as a civilian airport on May 5, 1995.

Following the airport's re-opening in May 1995, the majority of all-cargo carriers operating at Sacramento International Airport relocated to Mather Airport due to a number of reasons. Airborne Express, and United Parcel Service (UPS) currently operate at Mather.

In addition to air cargo service, Mather Airport also accommodates regional general aviation demand, including corporate general aviation, recreational general aviation, and air taxis. Mather based general aviation aircraft are primarily used for corporate, government, and recreational purposes. Trajen Flight Support and Mather Aviation provide services to general aviation users.

Additional tenants include the Sacramento County Sheriff Air Operation Bureau, Union Flights, and the California Department of Justice. The California Department of Education and the Army National Guard own property within the Airport boundary. Mather supports a large-scale aircraft shuttle for one of the area's premier technology companies. The California Department of Forestry (CDF) used Mather as its northern California maintenance base from 1995 to 2002, but relocated to McClellan Park in June 2002.

The airfield includes two parallel northeast-southwest runways separated by 1,000 feet (centerline to centerline). Primary Runway 4R-22L is 11,301 feet long and 150 feet wide (with 75-foot-wide shoulders). Runway 4L-22R is 6,040 feet long and 150 feet wide. The distance separating the parallel runways is insufficient to allow simultaneous operations during IFR conditions. In addition, Mather the airport has three 450-square-yard helipads.

From 1998 to 2000, the number of average daily all-cargo aircraft operations increased from 25 to 56. In 2001, the number of average daily all-cargo aircraft operations declined to 40. In 2001, total aircraft operations, including air cargo carriers, commuter cargo, air taxis, general aviation, and military was an average of 229 aircraft operations per day or 83,567 aircraft operations annually. 2006 projections estimate 87,000 aircraft operations or an average of 238 operations daily.

Sources of airport-related TAC emissions include aircraft, ground-service equipment, fuel storage and handling, and other sources. TACs released by these sources include but are not limited to VOCs (acetaldehyde, formaldehyde, benzene, and 1, 3-butadiene); chromium; dioxins; polycyclic organic compounds (PAHs); tetrachloroethylene; nickel; and toluene.

### **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. In September 2000, the Air Resources Board approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the Plan is to reduce diesel PM emissions and the associated health risk by 75 percent in 2010 and 85 percent by 2020. 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 General Plan Planning Area is served by four school districts. 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 in the Planning Area include SR 50 and Jackson Highway (SR 160), which have a high volume 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., Folsom Boulevard, Sunrise Boulevard Road, White Rock Road, Douglas Road, International Drive) that have considerable amounts of diesel powered vehicles and truck traffic.

## 4.6 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<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

##### U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the Federal Clean Air Act and the 1990 amendments to it ("Federal CAA"), and the national ambient air quality standards (federal standards) that the EPA 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.

##### Federal Hazardous Air Pollutant Program

Title III of the CAA requires EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. (Major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources.) The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA is required to promulgate health risk-based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

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



## STATE

**California Air Resources Board**

The California Air Resources Board, 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. 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 (SMAQMD, 1998). 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.

**Tanner Air Toxics Act**

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and has adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, ARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public-transit bus-fleet rule and emission standards for new urban buses. These rules and standards provide for (1) more stringent emission standards for some new urban bus engines, beginning with 2002 model year engines; (2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and (3) reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low-sulfur diesel-fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide.

**Air Quality and Land Use Handbook**

As part of the Air Resources Board's Community Health Program, ARB has developed an Air Quality and Land Use Handbook, which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. ARB is also developing related information and technical

## 4.6 AIR QUALITY

---

evaluation tools for addressing cumulative air pollution impacts in a community. Any recommendations or considerations contained in the Handbook are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts.

The primary goal in developing this document was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. Also, ARB community health risk assessments and regulatory programs have produced important air quality information about certain types of facilities that should be considered when siting new residences, schools, day care centers, playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.

The Handbook identifies ARB's recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that have been evaluated from the standpoint of the proximity issue. It is based on available information and reflects ARB's primary areas of jurisdiction – mobile sources and toxic air contaminants.

### REGIONAL AND 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 the Sacramento area. The SMAQMD develops market-based programs to reduce emissions associated with mobile sources, processes permits, ensures compliance with permit conditions and 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 (SMAQMD, 2004). 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 Area Regional Ozone Attainment Plan.

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 CAA 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 area was "bumped up" to "severe" classification and an attainment date of 2005 was designated. The Clean Air Act also set specific planning requirements to ensure that the attainment goal would be met. In 1994, ARB,

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 area would make expeditious progress toward meeting this goal.

The Federal CAA sets "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 (SMAQMD, 2004). Milestone reports were required in 1996 and every 3 years thereafter until the attainment deadline. The Sacramento Area Regional 2002 Milestone Report concluded that the area had made significant achievements in reduction of ozone precursors since 1994 and that the Sacramento area has satisfied the milestone rate-of-progress requirement all pollutants including VOC and NO<sub>x</sub> emission.

The Federal CAA requires that an area's transportation plan must "conform", or show that it does not harm the area's chances of reaching the ozone standard. Areas with a State Implementation Plan SIP, such as California, have a "motor vehicle emissions budget" (MVEB) tied to the SIP. Transportation planners are required to analyze the emissions anticipated from transportation plans and transportation improvement programs and ensure that they remain within the SIP's emissions budget (this is called demonstrating conformity). If not demonstrated, conformity will lapse and transportation funding can be withheld from all but exempt projects.

The current SIP's fleet information is about 10 years old. The Sacramento Area Council of Governments (SACOG) is the agency responsible for demonstrating transportation conformity in our area. SACOG estimates that applying the most recent fleet data to our existing models would result in a conformity lapse.

The State Air Resources Board, SACOG, U.S.EPA and FHWA have negotiated approval to use the 1994 vehicle fleet data through December 31, 2002. After that time, conformity findings can be made only if the new fleet data is used. This means that the transportation plans and transportation improvement programs now in place for the SMAQMD area cannot be changed until the area has a new clean air plan. The Sacramento area, unlike others in the state, is not required to update the SIP before the 8-hour ozone plans are due in 2006. However, since a conformity lapse began October 4, 2004, an expedited process to prepare a plan is underway. The 1994 Attainment Plan is still in effect, however an updated Attainment Plan is required have ARB approval by May of 2007.

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. Additionally, the SMAQMD and other air districts in the Sacramento federal ozone non-attainment area 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:

- 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).

## 4.6 AIR QUALITY

---

- 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 projected 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 pounds per day for NO<sub>x</sub> has been in use since 1994. The purpose of this threshold is to fulfill the Mobile Off-Road commitment which 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.

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

### Toxic Air Contaminates

At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. Under SMAQMD Rule 201 ("General Permit Requirements"), Rule 202 ("New Source Review"), and Rule 207 ("Federal Operating Permit"), all sources that possess the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new-source review standards and air-toxics control measures.

SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD prioritizes TAC emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by SMAQMD (e.g., health risk assessment) based on their potential to emit toxics. If it is determined that the project will emit toxics in excess of SMAQMD's threshold of significance for TACs, as identified below, sources have to implement the BACT for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, the SMAQMD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs.

### SMAQMD Rules and Regulations

SMAQMD has adopted a number of rules and regulations for the purpose of attaining the goals set forth in the federal and state Clean Air Acts. These rules and regulations, known as The Rules and Regulations of the Sacramento Metropolitan Air Quality Management District, have been implemented to provide an orderly procedure for the review of new sources of air pollution and of the modification and operation of existing sources through the issuance of permits. While there are a number of exceptions, the Rules and Regulations pertain to "any person building, erecting, altering or replacing any article, machine, equipment or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants". The Rules and Regulations contain specific guidelines for admittance of air pollutants (i.e. dust, odors, asbestos, etc.) by any new and modified stationary air pollution sources.

### Guide to Air Quality Assessment in Sacramento County

SMAQMD has developed a manual for calculating a project's air quality impacts. This document, known as the Guide to Air Quality Assessment in Sacramento County is intended to act as a guide during the Initial Study phase of a proposed land use development. Further environmental review is required if, following review in the Initial Study phase, significant air quality impacts are identified. Such review may result in an Environmental Impact Report (EIR), a Mitigated Negative Declaration, or in those cases with no significant impacts, a Negative Declaration. The Guide is intended for use by the SMAQMD to review projects. In other projects, the SMAQMD will use it to provide comments as a responsible agency or a reviewing agency under CEQA. SMAQMD recommends that this Guide be used by lead agencies at local, state, and federal levels for projects which are likely to result in emission impacts in Sacramento County. It is also intended to act as a guide for planners, consultants, land use developers, and any other entity concerned with accurate estimation and mitigation of project-related air emission impacts in Sacramento County.

### Odors

In 1991 SMAQMD adopted a nuisance rule that addresses odor exposure. Rule 402 states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any such persons, or the public, or that cause to have a natural tendency to cause injury or damage to business or property. The provisions of Rule 402 do not apply to odors emanating from agricultural operations necessary for the growing of crops or raising of fowl or animals. SMAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall

## 4.6 AIR QUALITY

---

determine whether the project results in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus constitutes a public nuisance related to air quality.

Potential stationary odors sources in the City include the Sacramento Rendering Company plant and the Kiefer Landfill located adjacent to the southeastern border of the Planning Area.

### **Sacramento County General Plan**

The Sacramento County General Plan is used to guide future development in unincorporated portions of the County, including sections of the Planning Area that are outside the Rancho Cordova City limits. The Sacramento County Air Quality Element includes policies that are intended to protect air quality in the Sacramento area. Policy AQ-3 promotes optimal air quality benefits through the use of energy conservation, while Policy AQ-5 requires the use of BACTs. Policy AQ-11 requires that new residential development install facilities for the charging of electrical vehicles and Policy AQ-15 states that all major indirect source of emissions shall be modified to reduce emissions. Policies AQ-17 and AQ-19 speak to the identification of air quality impacts of development projects as well as the location and design of the projects to reduce these impacts. Policy AQ-22 requires buffer areas between sensitive land uses and sources of air pollution or odors. Policy AQ-23 calls for the promotion of mixed-use development to reduce vehicle trips, AQ-25 requires the development be designed to promote pedestrian and bicycle access and AQ-26 calls for the accommodation of growth within existing urban areas. Finally, Policy AQ-37 calls for the use of vegetation to maximize air quality benefits. The County General Plan is currently applicable to the Planning Area outside the existing city limits of Rancho Cordova and will remain so until annexed by the City.

### **Sacramento Transportation and Air Quality Collaborative**

The Sacramento Transportation and Air Quality Collaborative is a consortium of forty-eight regional and local organizations established 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.

The Sacramento Transportation and Air Quality Collaborative is jointly funded by ten public agencies within the Sacramento countywide area: the County of Sacramento; the Cities of Citrus Heights, Elk Grove, Folsom, Rancho Cordova, and Sacramento; the Sacramento Regional Transit District (RT); the Sacramento Area Council of Governments (SACOG), the Sacramento Metropolitan Air Quality Management District (SMAQMD), and the Sacramento Transportation Authority (STA). In addition, Caltrans provides in-kind support.

### **4.6.3. IMPACTS AND MITIGATION MEASURES**

#### **STANDARDS OF SIGNIFICANCE**

The following standards, to determine whether the proposed General Plan would result in significant impacts to air quality, are based on State CEQA Guidelines Appendix G. A significant impact to air quality would occur if implementation of the proposed project would do any of the following:

- 1) Conflict with or obstruct implementation of the 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 area is in non-attainment under an applicable federal or state ambient air quality standard (including the release of emissions that exceed quantitative thresholds for ozone precursors).
- 4) Expose sensitive receptors to substantial pollutant concentrations.
- 5) Create objectionable odors affecting a substantial number of people.

The SMAQMD has published a guidance document to assist in the preparation of the air quality portions of environmental documents, by recommending thresholds of significance to be used in evaluating land use proposals. The following thresholds were recommended:<sup>1</sup>

- *Ozone Precursors Significance 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).
- *Other Criteria Pollutant Significance Thresholds* - A project that may cause an exceedance of a state air quality standard, or may make a substantial contribution to an existing exceedance of an air quality standard, will have a significant adverse air quality impact. "Substantial" is defined as making measurably worse, which is five percent or more of an existing exceedance of a state ambient air quality standard.
- *Offensive Odors Significance Threshold* - A qualitative assessment indicating that a project may reasonably be expected to generate odorous emissions in such quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property, will have a significant adverse air quality impact.
- *Toxic Air Contaminants Significance Thresholds* - The recommended significance thresholds for TACs are a lifetime probability of contracting cancer greater than 10 in one million and a ground-level concentration of non-carcinogenic toxic air pollutants would result in a Hazard Index of greater than 1<sup>2</sup>.
- *Cumulative Impacts Thresholds* - A proposed project is considered cumulatively significant, if the project requires a change in the existing land use designation (i.e., general plan amendment, rezone), and projected emissions of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.

---

<sup>1</sup> Sacramento Metropolitan Air Quality Management District, *Guide to Air Quality Assessment in Sacramento County*, July 2004.

<sup>2</sup> Maximum Incremental Cancer Risk  $\geq 10$  in 1 million  
Hazard Index  $\geq 1.0$  (project increment)  
Hazard Index  $\geq 3.0$  (facility-wide)

## 4.6 AIR QUALITY

---

Applicable federal and state ambient air quality standards shown in **Table 4.6-1** represent thresholds of significance for state and federal standards. This air quality analysis uses both the State CEQA Guidelines Appendix G significance criteria and the thresholds of significance from SMAQMD.

### METHODOLOGY

Generally, the air quality analysis for an EIR is based on land use designations identified in the General Plan Land Use Element and the projected traffic and residential, commercial, office, and industrial uses. Increases in regional criteria air pollutants were calculated using the Urbemis 2002 (v8.7) computer program (see **Table 4.6-3**). This program estimates criteria pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. Use of this model for large community-based plans, where specific land uses have not yet been identified, may not fully account for site-specific conditions, but has been used to provide a reasonable estimation of emissions based on typical land use development conditions under the proposed General Plan.

### PROJECT IMPACTS AND MITIGATION MEASURES

#### Conflict with the SMAQMD Regional Ozone Attainment Plan

**Impact 4.6.1** The implementation of the proposed City of Rancho Cordova General Plan land uses would conflict with the land use assumptions used 1994 SMAQMD Regional Ozone Attainment Plan. This is considered a **potentially significant** impact to air quality.

In the early 1990's the Sacramento area had the fifth worst ozone air quality in the United States. The Federal CAA set new deadlines for attaining the federal ozone standards. In 1994, the Sacramento Metropolitan Air Quality Management District adopted a plan to attain this standard called the Regional Ozone Attainment Plan (also called the State Implementation Plan, or SIP). Currently, SMAQMD is in the process of updating the Attainment Plan. This update uses SACOG's Sacramento Region Blueprint: Transportation/Land Use Study as a basis for projected growth in the area (per. comm. Borkenhagen). SACOG's Blueprint has projected population of 332,000 persons, 112,290 housing units, and 144,406 jobs for the area by the year 2050. While the area defined as the Rancho Cordova Community by SACOG does not precisely match the General Plan Planning Area, it is within range to approximate the SACOG anticipated growth for the area. The proposed Rancho Cordova General Plan projects a total buildout population of 310,568, 126,241 housing units and 195,021 jobs. The differences in population, housing units and employment between these two growth scenarios is substantial resulting in an exceedance of the data used to formulate the Regional Ozone Attainment Plan and its ozone reduction predictions and mitigations. Conflicts with the Regional Ozone Attainment Plan may result in the non-attainment of air quality standards for the SMAQMD area. This would be in direct disagreement with the California Clean Air Act resulting in the potential loss of transportation funding for the Sacramento area. This is considered a significant impact.

#### Proposed General Plan Policies and Action Items That Provide Mitigation

The following proposed General Plan policies and action items provide some mitigation of buildout air quality impacts:



*Policy AQ.1.1 The City coordinate with responsible agencies and other jurisdictions to improve air quality within Rancho Cordova and the greater Sacramento region.*

*Action AQ.1.1.1 Use the emissions guidelines produced by the California Air Resources Board, SMAQMD, and SACOG to ensure that City facilities and operations comply with mandated measures.*

*Action AQ.1.1.2 Support SMAQMD in the development of improved ambient air quality monitoring capabilities, as well as the establishment of standards that more adequately address the air quality impacts of proposed project plans and proposals.*

*Action AQ1.1.3 Support intergovernmental efforts directed at adopting stricter standards related to lowest emission technology vehicles, and more efficient burning engines and fuels (e.g., HVAC, generators, construction equipment, stricter tailpipe emissions standards, etc.).*

### Mitigation Measures

The above General Plan policies and action items would assist in the improvement of air quality conditions. However, they do not require the City to reduce future land uses to be more inline with the Blueprint projections used in the Attainment Plan update. As such, implementation of this policy would not fully mitigate the conflict between the proposed General Plan buildout projections and those used in the update Attainment Plan. In addition, there are no feasible methods to completely offset air pollutant emission increases from land uses under the proposed General Plan. Thus, this impact is considered **significant and unavoidable**

### **Construction Air Pollutants**

**Impact 4.6.2** Implementation of the proposed General Plan would result in short-term emissions generated by construction and demolition activities that would affect local air quality and could result in health and nuisance-type impacts in the immediate vicinity of individual construction sites as well as contribute to particulate matter and regional ozone impacts. This is considered a **significant** impact to air quality.

Construction and demolition emissions are generally short term or temporary in duration; however, they still have the potential to significantly impact air quality. The main contributors to this short-term adverse impact to air quality are fugitive dust emissions (PM<sub>10</sub>) and emission of ozone forming gases (ROG and NO<sub>x</sub>), for 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 potential construction of approximately 126,241 dwelling units and 71,209,788 square feet of commercial, industrial, and office uses and the supporting infrastructure would generate significant emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>. 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<sub>x</sub>, and PM<sub>10</sub>.

## 4.6 AIR QUALITY

---

Emissions from individual development construction sites would be short term and temporary but would occur more or less continually through buildout of the General Plan Planning Area. At any given time, several construction projects may be under way, which may result in substantial construction related emissions.

### Proposed General Plan Policies and Action Items That Provide Mitigation

The following proposed General Plan policies and action items would provide partial mitigation of construction air quality impacts:

- Policy AQ.1.1 Coordinate with responsible agencies and other jurisdictions to improve air quality within Rancho Cordova and the greater Sacramento region.*
- Action AQ.1.1.1 Use the emissions guidelines produced by the California Air Resources Board, SMAQMD, and SACOG to ensure that City facilities and operations comply with mandated measures.*
- Action AQ.1.1.2 Support SMAQMD in the development of improved ambient air quality monitoring capabilities, as well as the establishment of standards that more adequately address the air quality impacts of proposed project plans and proposals.*
- Action AQ.1.1.3 Support intergovernmental efforts directed at adopting stricter standards related to lowest emission technology vehicles, and more efficient burning engines and fuels (e.g., HVAC, generators, construction equipment, stricter tailpipe emissions standards, etc.).*
- Policy AQ.1.2 Evaluate projects for compliance with State and federal ambient air quality standards and the Sacramento Metropolitan Air Quality Management District's (SMAQMD) thresholds of significance.*
- Action AQ.1.2.1 Coordinate with SMAQMD through the environmental review process to ensure that proposed projects would not significantly affect the region's ability to meet State and federal air quality standards.*
- Action AQ.1.2.2 Require project proponents to coordinate with SMAQMD on appropriate methodologies for evaluating project emissions and air quality impacts (e.g., emissions modeling software, SMAQMD's thresholds of significance, etc.).*
- Action AQ.1.2.3 Require all new development projects that exceed SMAQMD's thresholds of significance to incorporate design, construction, and/or operational features that will result in a reduction in emissions when compared to an "unmitigated baseline" project. The measures should consider cost-effectiveness, maximum cost, and the provision of credits for emissions reductions already in place. An "unmitigated baseline project" is a development project that is built and/or operated without the implementation of trip-reduction, energy conservation, or similar features, including any such features that may be required by the Zoning Code or other applicable codes.*
- Policy AQ.2.1 Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.*

- Action AQ.2.1.1 Support the location of ancillary employee services, including childcare, restaurants, banking facilities, and convenience markets, at major employment centers for the purpose of reducing mid-day vehicle trips.
- Policy AQ.2.2 Encourage mixed-use developments that put residences in close proximity to services, employment, transit, schools, and civic facilities/services.
- Policy AQ.2.3 Encourage infill development as a way to reduce vehicle trips and improve air quality.
- Action AQ.2.3.1 Identify and adopt incentives for planning and implementing infill development projects within urbanized areas and near job centers and transportation nodes.
- Policy AQ.2.4 Maximize air quality benefits through selective use of landscaping vegetation that is low in emission of volatile organic compounds, and through re-vegetation of appropriate areas.
- Action AQ.2.4.1 Provide buffers and setbacks between sensitive land uses and sources of air pollution.
- Policy AQ.3.1 Promote walking and bicycling as viable forms of transportation to services, shopping, and employment.
- Policy AQ.3.2 Promote mass transit as an alternative to single-occupant motor vehicle travel.
- Policy AQ.3.3 Involve local businesses in creating, maintaining, or promoting mass transit opportunities and reducing vehicle emissions.
- Policy AQ.3.4 Emphasize "demand management" strategies that seek to reduce single-occupant vehicle use in order to achieve state and federal air quality plan objectives.
- Action AQ.3.4.1 Provide disincentives for single-occupant vehicle trips by reducing the parking supply and introducing pricing controls (e.g., paid parking) in areas where multiple forms of transportation are available.
- Action AQ.3.4.2 Require designated carpool and vanpool parking in all new office developments.
- Policy AQ.4.1 Promote improved air quality benefits through energy conservation measures for new and existing development.
- Action AQ.4.1.1 Require energy-conserving features in the design and construction of new development. Many options exist for reducing pollution from energy-producing systems, including the following:
- Requiring the use of the best available technologies to reduce air pollution standards.
  - Using building materials and methods that reduce emissions.

## 4.6 AIR QUALITY

---

- Requiring that development projects be located and designed in a way that minimizes direct and indirect emission of air contaminants.
- Installing efficient heating equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.
- Utilizing automated time clocks or occupant sensors to control heating systems.

*Action AQ.4.1.2 Encourage the use of cost-effective and innovative emission-reduction technologies in building components and design.*

*Action AQ.4.1.3 Support the use of building materials and methods that increase efficiency beyond State Title 24 standards.*

*Action AQ.4.1.4 Encourage the use of "EPA Energy Star"-certified appliances.*

*Action AQ.4.1.5 Promote the implementation of sustainable design strategies for "cool communities," such as installing reflective roofing or light-colored pavement and planting urban shade trees.*

*Action AQ.4.1.6 Consider incorporating energy-conserving design and construction techniques in all City facilities.*

### Mitigation Measures

The above General Plan policies and action items would reduce potential construction related air quality impacts. However, implementation of these policies and action items would not fully offset air pollutant emissions from construction activities. Thus, this impact is considered **significant and unavoidable**.

### Operational Air Pollutants

**Impact 4.6.3** Implementation of the proposed General Plan would increase air pollutant emissions from operational activities of land uses within the Planning Area will exceed thresholds for ROG and NO<sub>x</sub>, and other federal or state emissions standards. This is considered a **significant impact**.

Implementation of the proposed General Plan would result in increased 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. The U.S. Environmental Protection Agency has designated the Greater Sacramento Air Area as an ozone non-attainment area. 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.

Implementation of the proposed General Plan would result in regional emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>, and CO due to increased use of motor vehicles, natural gas, burning activities, maintenance equipment, and various consumer products, thereby increasing potential operational air quality impacts.

Increases in operational air impacts with implementation of the proposed General Plan would generally consist of two sources: stationary and mobile.

- A stationary source of air pollution refers to an emission source that does not move (e.g., utilities and chemical and manufacturing facilities). Often, stationary sources are defined as large emitters that release relatively consistent qualities and quantities of pollutants. The term “area source” is used to describe the many smaller stationary sources located together whose individual emissions may be low, but whose collective emissions can be significant. Typically, area sources are those that emit less than 25 tons per year of any combination of hazardous air pollutants, or less than 10 tons per year of any single hazardous air pollutant.
- A mobile source of air pollution refers to a source that is capable of moving under its own power. In general, mobile sources imply on-road transportation, but there is also a non-road or off-road category that includes gas-powered lawn tools and mowers, farm and construction equipment, recreational vehicles, boats, planes, and trains.

Increases in industrial, commercial, office uses as well as services that provide for an increasing population, intensify stationary source air emissions. Implementation of the proposed General Plan would result in an increase in population and commercial, industrial and office uses, operational air pollution impacts would increase beyond current day levels. While a portion of the operational impacts are traffic related, as discussed below, the highest increases of ROG and PM<sub>10</sub> are anticipated to come from stationary sources (see **Table 4.6-3**).

Motor vehicles are a major source of ozone in the Sacramento area. Buildout of the General Plan would add an estimated 310,568 persons to the area, increasing area traffic. Congested intersections, due to increased traffic, lower average speeds and increase idling times leading to an increase in local carbon monoxide concentrations. CO emissions are expected to decrease per vehicle-mile traveled due to cleaner burning fuels and improved technology. An increase in the number of vehicles may work to off-set any improvements in CO concentrations, however since the background levels for CO (2.26 ppm for an 8-hour average in 2005 in the City) are so low this would be less than a significant impact.

**Table 4.6-3** illustrates the potential air quality emissions under buildout conditions. Increases in regional criteria air pollutants were calculated using the Urbemis 2002 (v8.7) computer program. This program estimates criteria pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. According to this analysis, under buildout conditions, uses in the Planning Area may produce 14,296.66 tons of ROG, 3,168.86 tons of NO<sub>x</sub>, and 8,420.85 tons of PM<sub>10</sub> per year. As discussed under Impact 4.6.1, the increase in potential air pollutant emission sources in the Planning Area has the possibility to conflict with the Regional Ozone Attainment Plan, as well as exceed state and federal air quality thresholds.

4.6 AIR QUALITY

TABLE 4.6-3  
PROJECTED GENERAL PLAN BUILDOUT AIR QUALITY

Input Assumptions									
Planning or Focus Area (Model Run)	Dwelling Units		Commercial		Office		Industrial		
Planning or Focus Area (Model Run)	/# Units	Trip Gen Rate	/1000 sqft	Trip Gen Rate	/1000 sqft	Trip Gen Rate	/1000 sqft	Trip Gen Rate	
General Plan Planning Area	126,241.00	6.42	11,971,169	21.47	36,397,637	1.66	22,840,982	3.48	
City Area	75,923.00		5,764,627		21,614,312		7,705,690		
Non-City Area/Unincorporated	50,318.00		6,206,542		14,783,325		15,135,292		
Projected Annual Emissions									
Planning or Focus Area (Model Run)	Area Source Emissions (TONS/YR)			Mobile Sours Emissions (TONS/YR)			Total Emissions (TONS/YR)		
	ROG	NOx	PM10	ROG	NOx	PM10	ROG	NOx	PM10
General Plan Planning Area	12,347.99	1,966.26	22.62	1,948.67	1,202.60	8,398.23	14,296.66	3,168.86	8,420.85
City Area	2,905.58	258.55	482.00	194.74	144.05	867.52	3,100.32	402.61	1349.53
Non-City Area/Unincorporated	1,949.85	176.17	319.46	150.82	111.12	665.15	2,100.67	287.29	984.61
Projected Daily Emissions									
Planning or Focus Area (Model Run)	Area Source Emissions (TONS/DAY)			Mobile Sours Emissions (TONS/DAY)			Total Emissions (TONS/DAY)		
	ROG	NOx	PM10	ROG	NOx	PM10	ROG	NOx	PM10
General Plan Planning Area	33.83	5.39	0.06	5.34	3.29	23.01	39.17	8.68	23.07
City Area	7.96	0.71	1.32	0.53	0.39	2.38	8.49	1.10	3.70
Non-City Area/Unincorporated	5.34	0.48	0.88	0.41	0.30	1.82	5.76	0.79	2.70

*Emissions were calculated based on default assumptions provided in the model for the lower Sacramento Valley area. Model default assumptions for pass-by and double-counting adjustments were included. Actual emissions will vary depending on how development occurs, the specific types of land uses developed, and emission control measures implemented.*

The proposed General Plan has a number of policies and actions designed reduce mobile and stationary source air quality impacts and promote alternative transportation.

Proposed General Plan Policies and Action Items That Provide Mitigation

The following proposed General Plan policies and action items provide partial mitigation of operational air quality impacts:

*Stationary Source Reduction Policies and Actions*

*Policy AQ.4.1 Promote improved air quality benefits through energy conservation measures for new and existing development.*

*Action AQ.4.1.1 Require energy-conserving features in the design and construction of new development. Many options exist for reducing pollution from energy-producing systems, including the following:*

- Requiring the use of the best available technologies to reduce air pollution standards.
- Using building materials and methods that reduce emissions.
- Requiring that development projects be located and designed in a way that minimizes direct and indirect emission of air contaminants.
- Installing efficient heating equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.
- Utilizing automated time clocks or occupant sensors to control heating systems.

*Action AQ.4.1.2 Encourage the use of cost-effective and innovative emission-reduction technologies in building components and design.*

*Action AQ.4.1.3 Support the use of building materials and methods that increase efficiency beyond State Title 24 standards.*

*Action AQ.4.1.4 Encourage the use of "EPA Energy Star"-certified appliances.*

*Action AQ.4.1.5 Promote the implementation of sustainable design strategies for "cool communities," such as installing reflective roofing or light-colored pavement and planting urban shade trees.*

*Action AQ.4.1.6 Consider incorporating energy-conserving design and construction techniques in all City facilities.*

*Policy AQ.4.2 Support vehicle improvements and the use of clean vehicles that reduce emissions and improve air quality.*

*Action AQ.4.2.1 Replace the City's fleet vehicles with new vehicles that utilize the lowest emission technology available, whenever economically feasible.*

## 4.6 AIR QUALITY

---

Action AQ.4.2.2 Consider adopting a policy that provides a preferential treatment to contractors using reduced emission equipment for City construction projects and for City contracts for services (e.g., garbage collection).

Action AQ.4.2.3 Encourage lowest emission technology buses in public transit fleets.

Action AQ.4.2.4 Promote developments and street systems that support the use of neighborhood electric vehicles.

Action AQ.4.2.5 Consider adoption of an ordinance that limits the amount of time diesel-powered trucks, buses, and other heavy vehicles may idle.

Policy AQ.4.4 Support SMAQMD's program of retrofitting construction equipment.

Action AQ.4.4.1 Enforce construction-related air quality mitigation measures adopted through the CEQA process.

### *Mobile Source Reduction Policies and Actions*

Policy AQ.2.1 Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.

Action AQ.2.1.1 Support the location of ancillary employee services, including childcare, restaurants, banking facilities, and convenience markets, at major employment centers for the purpose of reducing mid-day vehicle trips.

Policy AQ.2.2 Encourage mixed-use developments that put residences in close proximity to services, employment, transit, schools, and civic facilities/services.

Action AQ.2.2.1 Promote compact development within one-quarter to one-half mile of rail transit stations and transit stations along enhanced transit corridors.

Action AQ.2.2.2 Require Greenfield areas of the City to be developed in keeping with the City's Building Block Concept of livable, walkable neighborhoods with services and employment opportunities integrated within every Village of the community.

Policy AQ.2.3 Encourage infill development as a way to reduce vehicle trips and improve air quality.

Action AQ.2.3.1 Identify and adopt incentives for planning and implementing infill development projects within urbanized areas and near job centers and transportation nodes.

Policy AQ.2.4 Maximize air quality benefits through selective use of landscaping vegetation that is low in emission of volatile organic compounds, and through re-vegetation of appropriate areas.

Action AQ.2.4.1 Provide buffers and setbacks between sensitive land uses and sources of air pollution.



- Action AQ.2.4.2 Promote criteria for all new parking lots to include tree plantings that will result in 50 percent shading of parking lot surface areas within 15 years.
- Policy AQ.3.1 Promote walking and bicycling as viable forms of transportation to services, shopping, and employment.
- Action AQ.3.1.1 Facilitate street design that encourages biking and walking in both new and established areas.
- Action AQ.3.1.2 Require all new development to be designed to enable easy pedestrian and bicycle access and circulation.
- Action AQ.2.1.1 Develop and distribute user-friendly maps of the City's existing and planned pedestrian and bicycle facilities to businesses and post on the City's website.
- Policy AQ.3.2 Promote mass transit as an alternative to single-occupant motor vehicle travel.
- Action AQ.3.2.1 Provide and/or adequately advertise shuttles from local transit stations to special event and civic centers.
- Action AQ.3.2.2 Encourage employers to provide: direct shuttle service to light rail; transit subsidies; bicycle facilities; ridesharing; flex schedules and alternative work schedules, including telecommuting and work-at-home programs; and preferential parking for carpools.
- Action AQ.3.2.3 Support the development of Transportation Demand Management services through the City's Transportation Tax Area that result in active marketing of transit services, ride sharing programs, bike and pedestrian facilities, and provision of transit subsidies that provide air quality benefits.
- Policy AQ.3.2.4 Require that new development pay its fair share of the cost of transit facilities.
- Policy AQ.3.3 Involve local businesses in creating, maintaining, or promoting mass transit opportunities and reducing vehicle emissions.
- Action AQ.3.3.1 Encourage commercial, retail, and residential developments to participate in or create Transportation Management Associations.
- Action AQ.3.3.2 Recommend that business owners schedule deliveries at off-peak traffic periods.
- Policy AQ.3.4 Emphasize "demand management" strategies that seek to reduce single-occupant vehicle use in order to achieve state and federal air quality plan objectives.
- Action AQ.3.4.1 Provide disincentives for single-occupant vehicle trips by reducing the parking supply and introducing pricing controls (e.g., paid parking) in areas where multiple forms of transportation are available.

## 4.6 AIR QUALITY

---

Action AQ.3.4.2 Require designated carpool and vanpool parking in all new office developments.

Action AQ.3.4.3 Consider developing a model trip reduction and air quality improvement program for City employees. The program could include flexible or compressed work schedules, commuter matching services, telecommuting options, and preferential carpool/vanpool parking, transit subsidies.

### Mitigation Measures

**MM 4.6.3a** The following mitigation measure shall be added as a policy under General Plan Goal AQ.1:

The City shall prohibit wood-burning open masonry fireplaces in all new development. Fireplaces with EPA-approved inserts, EPA-approved stoves, and fireplaces burning natural gas will be allowed.

**MM 4.6.3b** The following mitigation measure shall be added as a policy under General Plan Goal AQ.1:

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

The proposed General Plan policies, actions items and mitigation measures MM 4.6.3a and b listed above would reduce potential mobile and stationary source air quality impacts. The air quality analysis completed for the project, based on the projected buildout population, number of housing units and commercial/industrial/office square footage, show that under buildout conditions operational air quality pollutants are projected to be: ROG (39.17 tons/day), NO<sub>x</sub> (8.68 tons/day) and Pm<sub>10</sub> (23.07 tons/day) (see **Table 4.6-3**). While the proposed policies and actions would assist in reducing the stationary and mobile air quality impacts generated by implementation of the General Plan, ultimately the fact remains that the land uses proposed are more intense than the assumptions for development of the area contained in the SMAQMD 1994 Regional Ozone Attainment Plan. The effectiveness of above listed policies and actions to effectively reduce air emissions below levels projected in the Attainment Plan is currently unknown. It must be assumed that there is a possibility that the more intensive development proposed would violate an air quality standard or contribute substantially to an existing or projected air quality violation. In addition, there are no feasible methods to completely offset air pollutant emission increases from land uses under the proposed General Plan. For these reasons, the impact is considered **significant and unavoidable**.

### Sources of Toxic Air Contaminants

**Impact 4.6.4** Implementation of the proposed General Plan would include sources of toxic air contaminants that may affect surrounding land uses. Sensitive land uses may also be located near existing sources toxic air contaminants. This impact is considered **potentially significant** impact.

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 4.6-4** 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 (ARB) list of TACs. Activities involving long-term use of diesel powered equipment and heavy-duty trucks contribute significantly to TAC levels.

**TABLE 4.6-4  
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

### Stationary Sources

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 permitting process was instigated to assist the controlling of air pollutants by stationary sources and is intended to ensure that these air emissions do not harm public health.

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 sources toxic air emissions. Therefore, the General Plan's potential stationary TAC impacts are considered less than significant.

## 4.6 AIR QUALITY

---

### Mobile Sources

Mobile sources of TAC emissions in the Planning Area would be associated primarily with the operation of school buses transporting students to and from the high, middle, and elementary schools in the Planning Area, as well as diesel-powered delivery trucks associated with roadways and commercial/retail/ and industrial uses in the Planning Area.

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

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

- a) The driver of a school bus or vehicle, transit bus, or heavy-duty vehicle (other than a bus) shall manually turn off the bus or vehicle upon arriving at a school and shall restart no more than 30 seconds before departing. A driver of a school bus or vehicle shall be subject to the same requirement when operating within 100 feet of a school and shall be prohibited from idling more than 5 minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or heavy duty vehicle (other than a bus) shall be prohibited from idling more than 5 minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns shall be exempt from these restrictions.
- b) The motor carrier of the affected bus or vehicle shall ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep track of driver education and tracking activities. According to ARB, implementation of the above requirements would eliminate unnecessary idling for school buses and other heavy-duty vehicles, thus reducing localized exposure to TAC emissions and other harmful air pollution emissions at and near schools and protecting children from unhealthy exhaust emissions.

In addition to the school bus-idling ATCM, ARB adopted an idling-restriction ATCM for large commercial diesel-powered vehicles that became effective February 1, 2005. In accordance with this measure, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. ARB is currently evaluating additional ATCMs intended to further reduce TACs associated with commercial operations, including a similar requirement to limit idling of smaller diesel-powered commercial vehicles. However, these provisions do not address diesel emissions for truck traffic along roadways in the Planning Area.

While these measures will reduce the amount of TACs associated with diesel-powered vehicles, determination of the potential air quality impacts due to the emission of TACs by commercial diesel-powered trucks cannot be ascertained given the size and scope of land use changes with implementation of the proposed General Plan and the uncertainty of future development types. As a result, exposure of sensitive receptors to mobile-source TACs would be considered a potentially significant impact.

### Short-term Construction Sources

Implementation of the proposed General Plan Project would result in the potential construction of a variety of projects. This construction would result in short-term emissions of diesel exhaust from on-site heavy duty equipment. Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a TAC by ARB in 1998. Construction would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The amount of which the receptors are exposed (a function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). The use of construction equipment would be temporary in nature, however, even with the dispersive properties of diesel PM, short-term construction activities could expose sensitive receptors to levels that exceed applicable standards, therefore this would be considered a potentially significant impact.

### Mather Airport

According to the Mather Airport Master Plan, there will be an increase in aircraft operations and ground-support operations in the future. Projected aircraft operations for 2011 are estimated at 97,900 operations (an average of 268 per day) and for 2021 118,900 operations (an average of 325 operations per day) (Mather Airport Master Plan). This is an increase of over current conditions of 11.6 percent for 2011 and 35.6 percent for 2021.

Sources of airport-related TAC emissions include aircraft (e.g., air carriers, commuter and cargo aircraft, and general aviation); ground-service equipment; fuel storage and handling; and other sources. TACs released by these sources include but are not limited to VOCs (acetaldehyde, formaldehyde, benzene, and 1, 3-butadiene); chromium; dioxins; polycyclic organic compounds (PAHs); tetrachloroethylene; nickel; and toluene.

Studies conducted for Chicago's O'Hare Airport identified that the cancer risks associated with operations at the airport exceed 10 in 1 million over an area of approximately 40 square miles and 1 in 1 million over an area of approximately 1,000 square miles, assuming 70 years of exposure (KM Chng Environmental 1999). Additionally, in 2000, the Illinois EPA monitored TAC emissions in the vicinity of O'Hare Airport as well as other locations in the Chicago area from June to December, focusing on toxic compounds identified in EPA's national strategy and on mobile-source emissions associated with airport operations (Illinois Environmental Protection Agency 2002). A review and analysis of the accumulated monitoring results found that the levels of toxic compounds (e.g., acetaldehyde and formaldehyde) attributable to airport operations were detected at monitoring sites. However, the concentrations of such compounds were indistinguishable from (or lower than) typical urban background levels.

U.S. EPA, the National Aeronautics and Space Administration, the Federal Aviation Administration, the aviation industry (General Electric and Boeing), and the research community (Massachusetts Institute of Technology) are conducting a multi-agency aircraft particle emissions experiment. The main focus is to test aircraft engines for TACs. Data from this study are anticipated to be released in 2006 and updated emission factors to follow in approximately two years. This data, along with further monitoring around airports and validation of modeling results, will allow the compilation of more accurate emissions data into EPA models and identification of the proper characterization methods.

Based on the above discussion, it can be ascertained that Mather Airport has the potential to expose sensitive receptors to TAC emissions to an extent that health risks could result. However,

## 4.6 AIR QUALITY

---

Mather Airport is quite modest in size compared to O'Hare International Airport and this issue is not well understood at this time. Therefore, any conclusions regarding health risks would be speculative. Additionally, Mather Airport is not listed on the HARP facilities database. Therefore, no impact conclusion can be made based on research of this issue.

### Proposed General Plan Policies and Action Items That Provide Mitigation

The following proposed General Plan policies and action items provide partial mitigation of toxic impacts:

*Policy AQ.2.1 Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.*

*Action AQ.2.1.1 Support the location of ancillary employee services, including childcare, restaurants, banking facilities, and convenience markets, at major employment centers for the purpose of reducing mid-day vehicle trips.*

*Policy AQ.4.1 Promote improved air quality benefits through energy conservation measures for new and existing development.*

*Action AQ.4.1.1 Require energy-conserving features in the design and construction of new development. Many options exist for reducing pollution from energy-producing systems, including the following:*

- Requiring the use of the best available technologies to reduce air pollution standards.
- Using building materials and methods that reduce emissions.
- Requiring that development projects be located and designed in a way that minimizes direct and indirect emission of air contaminants.
- Installing efficient heating equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.
- Utilizing automated time clocks or occupant sensors to control heating systems.

*Action AQ.4.1.2 Encourage the use of cost-effective and innovative emission-reduction technologies in building components and design.*

*Action AQ.4.1.3 Support the use of building materials and methods that increase efficiency beyond State Title 24 standards.*

*Action AQ.4.1.4 Encourage the use of "EPA Energy Star"-certified appliances.*

*Action AQ.4.1.5 Promote the implementation of sustainable design strategies for "cool communities," such as installing reflective roofing or light-colored pavement and planting urban shade trees.*

- Action AQ.4.1.6 Consider incorporating energy-conserving design and construction techniques in all City facilities.
- Policy AQ.4.2 Support vehicle improvements and the use of clean vehicles that reduce emissions and improve air quality.
- Action AQ.4.2.1 Replace the City's fleet vehicles with new vehicles that utilize the lowest emission technology available, whenever economically feasible.
- Action AQ.4.2.2 Consider adopting a policy that provides a preferential treatment to contractors using reduced emission equipment for City construction projects and for City contracts for services (e.g., garbage collection).
- Action AQ.4.2.3 Encourage lowest emission technology buses in public transit fleets.
- Action AQ.4.2.4 Promote developments and street systems that support the use of neighborhood electric vehicles.
- Action AQ.4.2.5 Consider adoption of an ordinance that limits the amount of time diesel-powered trucks, buses, and other heavy vehicles may idle.
- Policy AQ.4.4 Support SMAQMD's program of retrofitting construction equipment.
- Action AQ.4.4.1 Enforce construction-related air quality mitigation measures adopted through the CEQA process.

#### Mitigation Measures

- MM 4.6.4a The following change is made to General Plan Policy AQ.4.2.5:
- ~~Consider a~~Adoption of an ordinance that limits the amount of time diesel-powered trucks, buses, and other heavy vehicles may idle in accordance with California Air Resources Control Board rules for mobile TAC sources.
- MM 4.6.4b The following shall be added as a new policy under General Plan Goal AQ.2:
- Utilize the guidelines in the California Air Resources Control Board Air Quality and Land Use Handbook: A Community Health Perspective when evaluating new development requests that either would generate toxic air contaminant emissions near sensitive receptors or locate new sensitive receptors near existing sources of air toxic emissions or order to minimize health hazards.

Implementation of the above General Plan policies and action items and mitigation measures MM 4.6.4a and b would reduce potential stationary, mobile and construction TAC source impacts. However, implementation of these policies and action items would not fully offset TAC source emissions or exposure. Thus, this impact is considered **significant and unavoidable**.

#### **Possible Exposure of Sensitive Receptors to Odorous Emissions**

- Impact 4.6.5** Implementation of the proposed General Plan would include sources that may expose sensitive receptors to construction and long-term odorous emissions. This impact is considered a **potentially significant** impact.

## 4.6 AIR QUALITY

---

Implementation of the proposed General Plan would allow for the development of uses that have the potential to produce odorous emissions either during the construction or operation of the development. Additionally, implementation of the General Plan may allow for the construction of sensitive land uses (i.e. residential development, schools, parks, offices, etc.) near existing or future sources of odorous emissions, as specific land use designations are not yet determined for the Planning Area.

Future construction activities could result in odorous emissions from diesel exhaust associated with construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, exposure to this emission by sensitive receptors would be limited.

While the human nose is the sole sensing device for odors, SMAQMD has adopted a nuisance rule that addresses odor exposure. Rule 402 states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or to the public, or that endanger the comfort, repose, health, or safety of any such persons, or the public, or that cause to have a natural tendency to cause injury or damage to business or property. The provisions of Rule 402 do not apply to odors emanating from agricultural operations necessary for the growing of crops or raising of fowl or animals. If public complaints are sufficient to cause the odor source to be considered a public nuisance, then SMAQMD can require the identified source to incorporate mitigation measures to correct the nuisance condition. For example, the Sunrise-Douglas Community Plan/Sun Ridge Specific Plan project went through an extensive analysis of odor issues from the Sacramento Rendering Plant that was deemed in violation of Rule 402. As a result, odor mitigation measures were identified by SMAQMD, which resulted in plant upgrades that reduced and/or eliminated the issue for the Sunrise-Douglas Community Plan area as well as the Planning Area.

Potential odor issues pertaining to the Kiefer Landfill would be addressed through the implementation of mitigation measures MM 4.12.5.1 and MM 4.6.5.

### Proposed General Plan Policies and Action Items That Provide Mitigation

The following General Plan policies and actions address potential odor issues for future development:

*Policy LU.1.4 Promote high quality, efficient, and cohesive land utilization that minimizes negative impacts (e.g., traffic congestion and visual blight) and environmental hazards (e.g. flood, soil instability) on adjacent neighborhoods and infrastructure and preserve existing and future residential neighborhoods from encroachment of incompatible activities and land uses.*

*Action LU.1.4.3 Require the disclosure of potential land use compatibility issues in all parts of the City, such as noise, dust, odors, etc., in order to provide potential purchasers with the information necessary to make informed decisions about the property and its future land uses.*

### Mitigation Measures

**MM 4.6.5** The following mitigation measure shall be added as a new policy under General Plan Goal AQ.1:



Require odor impact analyses be conducted for evaluating new development requests that either could generate objectionable odors that may violate SMAQMD Rule 402 or any subsequent rules and regulations regarding objectionable odors near sensitive receptors or locate new sensitive receptors near existing sources of objectionable odors. Should objectionable odor impacts be identified, odor mitigation shall be required in the form of setbacks, facility improvements or other appropriate measures.

Implementation of the proposed General Plan policies, action items and mitigation measures MM 4.6.5 and MM 4.12.5.1 (2,000-foot setback from Kiefer Landfill) listed above require the protection of residential neighborhoods from incompatible land uses, including future land uses, and the disclosure of potential odorous emissions to potential property owners. Therefore, this impact is considered **less than significant**.

#### 4.6.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

##### CUMULATIVE SETTING

Sacramento County and the City of Rancho Cordova General Plan areas 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 area 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. The reader is referred to Section 4.0 regarding a further description of regional development conditions considered as part of the cumulative setting conditions. Current patterns of suburban development with long average commute distances tend to exacerbate the situation.

##### CUMULATIVE IMPACTS AND MITIGATION MEASURES

##### Regional Air Quality Impacts

**Impact 4.6.6** Implementation of the proposed General Plan along with potential development of the Planning Area would exacerbate existing regional problems with ozone and particulate matter. The proposed General Plan's contribution to these conditions is considered **cumulatively considerable**.

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 Attainment Plan. However, the update to the Regional

## 4.6 AIR QUALITY

---

Ozone Attainment Plan uses projections from the Sacramento Region Blueprint. The Sacramento Region Blueprint was intended to provide for reduced air quality impacts by compact development that reduces vehicle miles traveled and the General Plan is modeled after the Blueprint. The projected number of housing units under the proposed General Plan would be greater than under the Blueprint. Additionally, employment under the proposed General Plan would be substantially higher, with 195,021 jobs projected under the proposed General Plan and 144,406 under the Blueprint. While the additional job growth is technically inconsistent with the assumptions of the Regional Ozone 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. In Rancho Cordova, a substantial number of workers commute to the City, as the current jobs/housing ratio is 2.36:1 (2.36 jobs per housing unit). Build-out of the proposed General Plan would result in an overall jobs/housing ratio of 1.54:1 (1.54 jobs per housing unit), thus reducing the ratio of commuters to the City.

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.

Additionally, with the increase growth projected with implementation of the proposed General Plan, an increase in TACs is anticipated. Approximately 11,971,169 square feet of commercial space and 22,840,982 square feet of industrial space are projected for the Planning Area under buildout conditions. Operation of these land uses as well as the potential increase in diesel traffic to serve these uses, the increase of projected aircraft operations at Mather Airport and increase of diesel traffic in the area will increase the amount of TACs.

### Proposed General Plan Policies and Action Items That Provide Mitigation

The following General Plan policies and action items that provide for partial mitigation of air quality impacts:

#### *Stationary Source Reduction Policies and Actions*

*Policy AQ.4.1 Promote improved air quality benefits through energy conservation measures for new and existing development.*

*Action AQ.4.1.1 Require energy-conserving features in the design and construction of new development. Many options exist for reducing pollution from energy-producing systems, including the following:*

- Requiring the use of the best available technologies to reduce air pollution standards.*
- Using building materials and methods that reduce emissions.*
- Requiring that development projects be located and designed in a way that minimizes direct and indirect emission of air contaminants.*

- *Installing efficient heating equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.*
- *Utilizing automated time clocks or occupant sensors to control heating systems.*

*Action AQ.4.1.2 Encourage the use of cost-effective and innovative emission-reduction technologies in building components and design.*

*Action AQ.4.1.3 Support the use of building materials and methods that increase efficiency beyond State Title 24 standards.*

*Action AQ.4.1.4 Encourage the use of "EPA Energy Star"-certified appliances.*

*Action AQ.4.1.5 Promote the implementation of sustainable design strategies for "cool communities," such as installing reflective roofing or light-colored pavement and planting urban shade trees.*

*Action AQ.4.1.6 Consider incorporating energy-conserving design and construction techniques in all City facilities.*

*Policy AQ.4.2 Support vehicle improvements and the use of clean vehicles that reduce emissions and improve air quality.*

*Action AQ.4.2.1 Replace the City's fleet vehicles with new vehicles that utilize the lowest emission technology available, whenever economically feasible.*

*Action AQ.4.2.2 Consider adopting a policy that provides a preferential treatment to contractors using reduced emission equipment for City construction projects and for City contracts for services (e.g., garbage collection).*

*Action AQ.4.2.3 Encourage lowest emission technology buses in public transit fleets.*

*Action AQ.4.2.4 Promote developments and street systems that support the use of neighborhood electric vehicles.*

*Action AQ.4.2.5 Consider adoption of an ordinance that limits the amount of time diesel-powered trucks, buses, and other heavy vehicles may idle.*

*Policy AQ.4.4 Support SMAQMD's program of retrofitting construction equipment.*

*Action AQ.4.4.1 Enforce construction-related air quality mitigation measures adopted through the CEQA process.*

### *Mobile Source Reduction Policies and Actions*

*Policy AQ.2.1 Promote strategic land use patterns for businesses that reduce the number and length of motor vehicle trips and that encourage multiple forms of transportation for employees and patrons.*

## 4.6 AIR QUALITY

---

- Action AQ.2.1.1 Support the location of ancillary employee services, including childcare, restaurants, banking facilities, and convenience markets, at major employment centers for the purpose of reducing mid-day vehicle trips.
- Policy AQ.2.2 Encourage mixed-use developments that put residences in close proximity to services, employment, transit, schools, and civic facilities/services.
- Action AQ.2.2.1 Promote compact development within one-quarter to one-half mile of rail transit stations and transit stations along enhanced transit corridors.
- Action AQ.2.2.2 Require Greenfield areas of the City to be developed in keeping with the City's Building Block Concept of livable, walkable neighborhoods with services and employment opportunities integrated within every Village of the community.
- Policy AQ.2.3 Encourage infill development as a way to reduce vehicle trips and improve air quality.
- Action AQ.2.3.1 Identify and adopt incentives for planning and implementing infill development projects within urbanized areas and near job centers and transportation nodes.
- Policy AQ.2.4 Maximize air quality benefits through selective use of landscaping vegetation that is low in emission of volatile organic compounds, and through re-vegetation of appropriate areas.
- Action AQ.2.4.1 Provide buffers and setbacks between sensitive land uses and sources of air pollution.
- Action AQ.2.4.2 Promote criteria for all new parking lots to include tree plantings that will result in 50 percent shading of parking lot surface areas within 15 years.
- Policy AQ.3.1 Promote walking and bicycling as viable forms of transportation to services, shopping, and employment.
- Action AQ.3.1.1 Facilitate street design that encourages biking and walking in both new and established areas.
- Action AQ.3.1.2 Require all new development to be designed to enable easy pedestrian and bicycle access and circulation.
- Action AQ.2.1.1 Develop and distribute user-friendly maps of the City's existing and planned pedestrian and bicycle facilities to businesses and post on the City's website.
- Policy AQ.3.2 Promote mass transit as an alternative to single-occupant motor vehicle travel.
- Action AQ.3.2.1 Provide and/or adequately advertise shuttles from local transit stations to special event and civic centers.

- Action AQ.3.2.2 Encourage employers to provide: direct shuttle service to light rail; transit subsidies; bicycle facilities; ridesharing; flex schedules and alternative work schedules, including telecommuting and work-at-home programs; and preferential parking for carpools.
- Action AQ.3.2.3 Support the development of Transportation Demand Management services through the City's Transportation Tax Area that result in active marketing of transit services, ride sharing programs, bike and pedestrian facilities, and provision of transit subsidies that provide air quality benefits.
- Policy AQ.3.2.4 Require that new development pay its fair share of the cost of transit facilities.
- Policy AQ.3.3 Involve local businesses in creating, maintaining, or promoting mass transit opportunities and reducing vehicle emissions.
- Action AQ.3.3.1 Encourage commercial, retail, and residential developments to participate in or create Transportation Management Associations.
- Action AQ.3.3.2 Recommend that business owners schedule deliveries at off-peak traffic periods.
- Policy AQ.3.4 Emphasize "demand management" strategies that seek to reduce single-occupant vehicle use in order to achieve state and federal air quality plan objectives.
- Action AQ.3.4.1 Provide disincentives for single-occupant vehicle trips by reducing the parking supply and introducing pricing controls (e.g., paid parking) in areas where multiple forms of transportation are available.
- Action AQ.3.4.2 Require designated carpool and vanpool parking in all new office developments.
- Action AQ.3.4.3 Consider developing a model trip reduction and air quality improvement program for City employees. The program could include flexible or compressed work schedules, commuter matching services, telecommuting options, and preferential carpool/vanpool parking, transit subsidies.
- Policy AQ.5.1 Encourage employers to participate in SMAQMD's public education programs.
- Action AQ.5.1.1 Provide air quality information on the City's website, including links to public information provided by SMAQMD and the California Air Resources Board.
- Action AQ.5.1.2 Encourage employers to post flyers about carpools, vanpools, and other modes of transportation that contribute to improved air quality in locations that are easily visible to employees.
- Policy AQ.5.2 Support programs that encourage children to safely walk or bike to school.

## 4.6 AIR QUALITY

---

### Mitigation Measures

Implementation of the above proposed General Plan policies and action items and mitigation measures MM 4.6.2 and MM 4.6.4a and b identified above would assist in reducing the General Plan's contribution to cumulative regional and local air quality impacts; however, this contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact. No feasible mitigation is available to completely mitigate this impact.

### REFERENCES

- California Air Resources Board. April 2005. *Air Quality And Land Use Handbook: A Community Health Perspective*. Sacramento, CA.
- Covell, Norman, Air Pollution Control Officer. April 12, 2002. Memorandum to Lead and Responsible Agencies, Consultants, and Interested Persons.
- Illinois EPA. 2002. *Chicago O'Hare Airport Air Toxic Monitoring Program, June-December 2000, Final Report Illinois EPA.*, Bureau of Air. May 2002.
- KM Chng. 1999. *Findings Regarding Source Contribution to Soot Deposition, O'Hare International Airport and Surrounding Communities, prepared for the City of Chicago*. December 1999. KM Chng Report No. 991102.
- Sacramento County Department of Airports. February 2004. *Revised Draft Mather Airport Master Plan*. Prepared by Leigh Fisher Associates. Sacramento, CA.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). September 1998. *The Rules and Regulations of the Sacramento Metropolitan Air Quality Management District*.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). May 2003. *Sacramento Area Regional 2002 Milestone Report*.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). July, 2004. *Guide to Air Quality Assessment in Sacramento County*.
- Borkenhagen, Jeane. SMAQMD. Personal communication. January 2006.