

4.5 – AIR QUALITY

This section describes the air quality impacts of the proposed Redevelopment Plan. It examines the climatic influences that affect air quality of the Project Area and also describes available data on measured contaminant levels. The Project Area is defined in Section 3.1 of this EIR. In addition, this section outlines the regulatory and planning agencies and programs relevant to the Project Area.

4.5.1. EXISTING SETTING

AIR BASIN CHARACTERISTICS

The Project 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 Project Area is under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). The Project 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 Project Area. Considerable transport of pollutants occurs between these air basins, so that air quality in the Project Area is partially determined by the release of pollutants elsewhere. In turn, pollutants generated in the Project 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 4.5-1**. 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 (NO₂), sulfur dioxide (SO₂), 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 PM₁₀.

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**TABLE 4.5-1
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 ₁₀	Annual Average	50 µg/m ³	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM _{2.5}	Annual	15 µg/m ³	12 µg/m ³
	24-Hour	65 µg/m ³	-

Source: *Sacramento Metropolitan Air Quality Management District, 2004*

Notes: PPM = Parts per Million; µg/m³ = Micrograms per Cubic Meter

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 PM₁₀ standards were retained, but the method and form for determining compliance with the standards were revised. Implementation of the new ozone and particulate matter standards was delayed by a lawsuit. On February 27, 2001 the U. S. Supreme Court unanimously ruled in favor of the 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.

AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The most problematic pollutants in the Project Area 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 done so at various points 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.

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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.

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The SMAQMD and ARB maintain several air quality monitoring sites in the Sacramento area, however, none are located in the Project Area nor the City of Rancho Cordova and not all monitoring sites measure all air pollutants. For instance, the Sloughhouse monitoring site, which is the site nearest to the City, only measures ozone. The nearest monitoring site for carbon monoxide, PM_{2.5}, Nitrogen Dioxide, and Sulfur Dioxide is at Del Paso Manor at 2701 Avalon Dr, Sacramento. The nearest monitoring site for PM₁₀ is the Sacramento Branch Center Road site, located near Bradshaw Road south of U.S. 50, outside the Project Area. Based on these monitoring sites, all federal ambient air quality standards have been met in the City, with the exception of ozone, which exceeded the 8-hour average on ten occasions in 2005. Also, California standards for PM₁₀ and ozone were exceeded in the City in 2005. See **Table 4.5-2** for air quality in the City of Rancho Cordova.

TABLE 4.5-2
RANCHO CORDOVA AREA AIR QUALITY

Pollutant	Standard ³	2003		2004		2005	
		Highest	Days over	Highest	Days over	Highest	Days over
Ozone							
Highest 1-hour average ¹	0.09 ppm	0.131 ppm	1	0.114 ppm	0	0.132 ppm	3
Highest 8-hour average ²	0.07 ppm	0.107 ppm	19	0.93 ppm	8	0.110 ppm	10
Carbon Monoxide							
Highest 8-hour average ¹	9.0 ppm	4.27 ppm	0	3.15 ppm	0	2.26 ppm	0
PM ₁₀							
Highest 24-hour average ¹	50 µg/m ³	77.0 µg/m ³	4	45.0 µg/m ³	0	52.0 µg/m ³	1
PM _{2.5}							
Highest 8-hour average ²	65 µg/m ³	73.2 µg/m ³	2	58.2 µg/m ³	0	45.7 µg/m ³	0
Sulfur Dioxide							
Highest 1-hour average ¹	.025 ppm	.003 ppm	0	.003 ppm	0	.003 ppm	0
Nitrogen Dioxide							
Highest 1-hour average ¹	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/m³ = 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

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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 located within the Project Area consist of schools and residences.

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 Project 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 Electronic Tech. None of these sources is located within the Project Area. However, Puente Wood Products is located approximately 0.13 miles to the east of the Project Area and Teledyne Electronic Tech. is located approximately 0.35 miles to the southeast of the Project Area.

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 instrument flight 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.

Mather Airport is not located within the Project Area. However, the northern boundary of the Airport Master Plan area and the Comprehensive Land Use Plan area for the airport is located immediately adjacent to the southern portion of the Project Area that lies adjacent to Mather Field Road.

Diesel Exhaust/Land Use Issues

In 1998, after a 10-year scientific assessment process, the Air Resources Board identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). Unlike criteria pollutants like carbon monoxide, TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Two types of risk are usually assessed: chronic non-cancer risk and acute non-cancer risk. Diesel particulate has been identified as a carcinogenic material, but is not considered to have acute non-cancer risks. The state has begun a program of identifying and reducing risks associated with particulate matter emissions from diesel-fueled vehicles. The California Diesel Risk Reduction Program 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 that require the use of filters and other measures to reduce the sulfur content of diesel fuel as required by advanced diesel emission control systems (California Air Resources Board, 2006). 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.
- Freight railways

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The Project Area is served by one school district. 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 Project Area. US-50 is located within the Project Area and exhibits a high volume of daily truck traffic. Trucks are considered major sources of diesel related emissions. Additionally, the Project Area has several high volume arterials and local roadways (i.e., Folsom Boulevard, Sunrise Boulevard, White Rock Road, International Drive) that have considerable amounts of diesel powered vehicles and truck traffic.

Wood Smoke

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

4.5.2 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 (NO₂ - a form of NO_x), sulfur dioxide (SO₂ - a form of SO_x), particulate matter 10 microns in size and smaller (PM₁₀), and lead. The U.S. EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

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 CAA 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 PM₁₀ and SO₂, 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

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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.

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 Project 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 NOx 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_x through the implementation of transportation control measures (TCMs) and control of land use project emissions. In response to this requirement, Sacramento County adopted General Plan Policy AQ-15 requiring a percent reduction in emissions associated with new projects. Additionally, the SMAQMD and other air districts in the Sacramento federal ozone non-attainment 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 (Covell, 2002):

- *Mass Emission Thresholds*-The District considers increases in emissions of nitrogen oxides (NO_x) greater than 85 pounds per day as significant during construction. For operation of a project, the District's threshold of significance is 65 pounds per day of either NO_x or Reactive Organic Gases (ROG).
- *Emissions Concentration Thresholds*-A predicted violation of any California Ambient Air Quality Standard (CAAQS) during both construction and 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_x 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.

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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 required. 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 emissions 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 emissions 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 for which it acts as the lead agency. 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 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.

4.5.3. IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

The following standards, to determine whether the proposed project 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:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project area is in non-attainment under an applicable federal or state ambient air

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quality standard (including the release of emissions that exceed quantitative thresholds for ozone precursors).

- Expose sensitive receptors to substantial pollutant concentrations.
- 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 are based on guidelines in the SMAQMD Guide to Air Quality Assessment (2004):

- *Ozone Precursors Significance Thresholds* - Increases in emissions of nitrogen oxides (NO_x) greater than 85 pounds per day are significant during construction. For operation of a project, the threshold of significance is 65 pounds per day of either NO_x 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 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 that would result in a Hazard Index of greater than 1¹.
- *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), and projected emissions of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.

Applicable federal and state ambient air quality standards shown in **Table 4.5-1** represent thresholds of significance applicable to all projects. This air quality analysis uses both the CEQA Guidelines Appendix G significance criteria and the thresholds of significance from SMAQMD.

¹ Maximum Incremental Cancer Risk ≥ 10 in 1 million
Hazard Index ≥ 1.0 (project increment)
Hazard Index ≥ 3.0 (facility-wide)

METHODOLOGY

Generally, the air quality analysis for an EIR is based on land use designations identified in the proposed Rancho Cordova General Plan Land Use Element and the projected traffic and residential, commercial, office, and industrial uses within the Project Area. Increases in regional criteria air pollutants were calculated using the Urbemis 2002 (v8.7) computer program (see **Table 4.5-3**). 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.

PROJECT IMPACTS AND MITIGATION MEASURES

Conflict with the SMAQMD Regional Ozone Attainment Plan

Impact 4.5.1 Implementation of the proposed project 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 SMAQMD 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 "Rancho Cordova Community" area by the year 2050. The proposed Rancho Cordova General Plan projects a total buildout population of 310,568, 126,241 housing units, and 195,021 jobs, within roughly the same area used in the SACOG analysis.

The Redevelopment Plan does not propose any specific redevelopment activities at this time. However, the Plan would provide the necessary funding and other enhancement for redevelopment of the Project Area consistent with the proposed Rancho Cordova General Plan. Therefore, the Redevelopment Plan would facilitate growth that is consistent with the assumptions of the proposed Rancho Cordova General Plan, but greater than SACOG's original projections. 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 conflict with the California Clean Air Act could result in the potential loss of transportation funding for the Sacramento area. This would result in a significant impact.

Mitigation Measures

The following mitigation measures will be adopted by the City Council in connection with the adoption of the Redevelopment Plan as measures that will apply to all development in the Project Area until the proposed General Plan is adopted:

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MM 4.5.1a The Agency shall require that future redevelopment projects that have the potential to result in significant air impacts shall incorporate design, construction, and/or operational features to result in a reduction in emissions equal to 15 percent compared to baseline emissions for the project. Baseline emissions are the estimated emissions of the project if the project were built without the implementation of any emissions reduction measures required by the City of Rancho Cordova Zoning Code or SMAQMD. Design measures may include the use of certain building materials, pedestrian and bicycle access design, mixes of land use within a project, requirements for certain types of equipment for heating and cooling, and/or participation in the SMAQMD offset fee program.

MM 4.5.1b The Agency shall require that any public facility project in the Project Area utilize Air Resources Board, SMAQMD, and SACOG guidelines for City facilities and operations in order to comply with mandated measures to reduce emissions from fuel consumption, energy consumption, surface coating operations, and solvent usage.

Implementation of the above mitigation measures would reduce project-specific air quality impacts from future redevelopment activities in the Project Area. However, emissions for the Project Area, based on the proposed General Plan uses and densities, could still be greater than SACOG projections. Implementation of the above mitigation would not fully mitigate the conflict between the proposed Rancho Cordova General Plan buildout projections and those used in the update Attainment Plan. Therefore, the impact would be **significant and unavoidable**.

Construction Air Pollutants

Impact 4.5.2 Implementation of the proposed project would result in short-term construction emissions generated by demolition and construction 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 would result in a **significant** impact.

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 (PM₁₀) and emission of ozone forming gases (ROG and NO_x), 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_x emissions break down to form ozone and are associated primarily with gas and diesel equipment exhaust and the application of various exterior building coatings. The potential construction of approximately 2,775 dwelling units and the addition of 2,257,872 square feet of commercial and office uses and the supporting infrastructure anticipated in the Project Area would generate significant emissions of ROG, NO_x, and PM₁₀. Construction activities associated with proposed General Plan buildout under the Redevelopment Plan would include grading, building demolition, building construction, and paving. Wind erosion and disturbance to exposed areas would also be sources of dust emissions. In addition, motor vehicle exhaust associated with construction equipment and construction personnel commuter trips, and material transport and delivery, would contribute to the generation of ROG, NO_x, PM₁₀, PM_{2.5}.

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

Mitigation Measures

The following mitigation measure will be adopted by the City Council in connection with the adoption of the Redevelopment Plan as measures that will apply to all development in the Project Area until the proposed General Plan is adopted:

MM 4.5.2 The Agency shall require that subsequent projects mitigate any construction emissions that are in excess of applicable Sacramento Metropolitan Air Quality Management District (SMAQMD) standards of significance. Mitigation of construction emissions shall be designed in coordination with SMAQMD and may include the use of low emission equipment, particulate matter control measures, and/or participation in the SMAQMD offset fee program.

Implementation of the above measure would reduce the construction-related emissions of redevelopment projects initiated as a result of implementation of the proposed project. However, the mitigation would not reduce emissions below the significance thresholds identified above. Therefore, the proposed project would have a **significant and unavoidable** impact associated with construction related emissions.

Operational Air Pollutants

Impact 4.5.3 Implementation of the proposed project would increase air pollutant emissions from operational activities of land uses within the Project Area and will exceed thresholds for ROG and NO_x as well as other federal or state emissions standards. This would result in a **significant** impact.

While the Redevelopment Plan does not propose any specific redevelopment activities at this time, the plan would facilitate growth projected by the proposed Rancho Cordova General Plan. As described in Section 3.0 of this EIR, the Project Area is expected to grow by an additional 2,775 dwelling units, 150,000 square feet of retail space, and 2,107,872 square feet of office space. 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_x) are the combustion of fuels and the evaporation of solvents, paints, and fuels.

Implementation of the proposed project would result in regional emissions of ROG, NO_x, and PM₁₀, and CO due to increased use of motor vehicles, natural gas, burning activities, maintenance equipment, and various consumer products above SMAQMD thresholds, thereby creating potential operational air quality impacts.

Increases in operational air impacts with implementation of the proposed project 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

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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 commercial and office uses as well as services that provide for an increasing population intensify stationary source air emissions. Implementation of the proposed project would result in an increase in population as well as commercial and office uses. Therefore, operational air pollution impacts would increase beyond current day levels and potentially beyond SMAQMD's thresholds. While a portion of the operational impacts are traffic related, the majority of ROG and NOx emissions at buildout are anticipated to come from stationary sources (see **Table 4.5-3**).

**TABLE 4.5-3
EMISSIONS SUMMARY – REDEVELOPMENT PROJECT AREA**

Scenario	Emissions (tons/year)		
	ROG	NOx	PM10
Existing Land Uses (Year 2006)	564.44	220.42	198.37
Area Source Emissions	395.51	34.91	65.85
Traffic Emissions	168.93	185.51	132.52
Projected Buildout No-Project (Year 2030)	428.89	64.66	197.64
Area Source Emissions	394.05	35.28	65.81
Traffic Emissions	34.85	29.44	131.83
Redevelopment Plan Buildout (Year 2030)	542.88	81.90	243.50
Area Source Emissions	500.20	46.23	83.42
Traffic Emissions	42.68	35.67	160.08
Additional Emissions from Redevelopment Plan	113.99	17.24	45.86

Note: Above data were calculated using Urbemis2002 (v 8.7) default model assumptions for the Sacramento Valley Air Basin. Trip generation rates used for the analysis were 6.43 trips/dwelling unit for residential, 21.47 trips/1,000 sq. ft. for retail uses, 1.66 trips/1,000 sq. ft. for office uses, and 3.48 trips/1,000 sq. ft. for industrial uses. Actual emissions will vary depending on how development occurs, the specific types of land uses developed, and emission control measures implemented.

Motor vehicles are a major source of CO in the Sacramento area. Under buildout conditions, the Project Area would include an additional population of 6,087 residents. Congested intersections, due to increased traffic, lower average speeds and increase idling times leading to an increase in local carbon monoxide (CO) 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 offset 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.

Mitigation Measures

Implement mitigation measures **MM 4.5.1a and b**.

Implementation of mitigation measures **MM 4.5.1a and b** would reduce the operational emissions of future redevelopment activities within the Project Area. However, substantial additional emissions from growth in the Project Area are expected. These emissions would be greater than the significance thresholds identified above. Therefore, implementation of the proposed project would result in **significant and unavoidable** impacts associated with operational emissions.

Toxic Air Contaminants

Impact 4.5.4 Implementation of the proposed project 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 would result in a **potentially significant** impact.

Growth facilitated by the Redevelopment Plan would include increased density of 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 4.5-4** displays potential sources of TAC emissions for various land uses that could be redeveloped within the Project Area. 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 4.5-4
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

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

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are, in effect, a contract between the District and stationary sources that sets limits on emissions and requires compliance with all District, state and federal regulations in order to protect public health. The District's rules and regulations impose limits on emissions and requires use of Best Available Control Technology (BACT) and purchase of emission off-sets for industrial sources exceeding certain emission levels. These regulations include the identification and quantification of emissions of Toxic Air Contaminants and, if warranted, estimation of cancer and non-cancer risk associated with any source.

The issuance of SMAQMD Air Quality permits, compliance with all District, state and federal regulations regarding stationary and TACs, the use of Best Available Control Technology (BACT) and the purchase of emission off-sets for industrial sources would reduce potential stationary and mobile sources toxic air emissions. Compliance with SMAQMD's regulatory requirements may reduce the level of TACs emitted by stationary sources, however, whether or not the use of BACTs and the purchase of emission off-sets will reduce TACs to levels below the significance thresholds identified above cannot be determined when considering the uncertain types of future development in the Project Area. Therefore, this impact would be potentially significant.

Mobile Sources

Mobile sources of TAC emissions in the Project Area would be associated primarily with the operation of school buses transporting students to and from the high, middle, and elementary schools in the Project Area, as well as diesel-powered delivery trucks associated with roadways and commercial/retail/ and industrial uses in the Project 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. While these measures will reduce the amount of TACs associated with diesel-powered vehicles, determination of whether or not the ARB regulatory requirements would reduce the potential air quality impacts due to the emission of TACs by commercial diesel-powered trucks to levels below the significance thresholds identified above cannot be ascertained given 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

Future redevelopment projects could 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. Health-related risks associated with diesel-exhaust emissions are primarily associated with long-term exposure and associated risk of contracting cancer. Typical risk levels are calculated using a 70-year period of exposure (Legleiter, 2006). Assuming that construction activities occur in much shorter time frames, approximately six months to a year, the use of diesel-powered construction equipment would be very short-term, occurring over approximately one percent of the total exposure period. Therefore, exposure of sensitive receptors to diesel PM associated with construction activities would not be expected to create a risk greater than the significance thresholds identified above and the impact from construction related TACs would be less than significant.

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 over current conditions of 11.6 percent for 2011 and 35.6 percent for 2021.

In recent years there has been heightened scientific awareness and public debate over potential impacts that may result from the exposure of sensitive receptors to TAC emissions generated by aircraft and ground-support operations at and near airports. 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.

Several studies and analyses have been performed in an effort to evaluate the risk posed by airport operations. In 1999 and 2000, public-initiated studies and analyses were released

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regarding toxic emissions from O'Hare International Airport and associated health risks in surrounding residential communities. The overall findings of these analyses were that the cancer risks associated with operations at O'Hare 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). These studies also identified the need for better assessment of the data utilized and recommended that comprehensive air monitoring be conducted around O'Hare Airport so that these data could be used to conduct a more complete and comprehensive analysis.

In response, the Illinois EPA in 2000 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). The compounds of interest included volatile and semivolatile organics, carbonyls, and trace metals. The purpose of this program was to collect information that would help assess the relative impact of airport generated emissions and toxic characteristics of large urban areas. One important objective of the monitoring program was to determine whether the emissions associated with O'Hare Airport have a measurable impact on air quality in areas adjacent to the airport. 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.

More recently, in an effort to improve available data, a multi-agency aircraft particle emissions experiment was established with participants from EPA, the National Aeronautics and Space Administration (NASA), the Federal Aviation Administration (FAA), the aviation industry (General Electric and Boeing), and the research community (Massachusetts Institute of Technology). 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. These 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, Mather Airport has the potential to expose sensitive receptors to TAC emissions to an extent that health risks could result. However, Mather Airport is much smaller in size compared to O'Hare International Airport its impacts could possibly include health risks above the thresholds identified by SMAQMD. Given the uncertainty in defining and measuring the potential for impact, this impact is considered potentially significant pending further review and update in subsequent environmental review for redevelopment projects.

Mitigation Measures

The following mitigation measures will be adopted by the City Council in connection with the adoption of the Redevelopment Plan as measures that will apply to all development in the Project Area until the proposed General Plan is adopted:

- MM 4.5.4a** The Agency shall prohibit subsequent projects under the redevelopment plan from placing sensitive receptors within the proximity of known toxic air contaminant (TAC) producing facilities and land uses. Sensitive receptors shall be located a safe distance from TAC sources as described in California Air Resources Board guidelines and Sacramento Metropolitan Air Quality Management District requirements.

MM 4.5.4b The Agency shall require that subsequent projects under the redevelopment plan that would include sources of toxic air contaminants (TAC) obtain all required permits from the Sacramento Metropolitan Air Quality Management District (SMAQMD) and implement all feasible best available control technology, as required by SMAQMD.

Incorporation of mitigation measures **MM 4.5.4a and b** would reduce potential stationary, mobile, and construction TAC source impacts. However, implementation of mitigation would not fully reduce TAC emissions below SMAQMD thresholds from stationary and mobile sources and Mather Airport. While the proposed project would have a **less than significant** impact associated with construction related TAC emissions, impacts associated with TAC emissions from stationary sources, mobile sources, and Mather Airport would remain **significant and unavoidable**.

Possible Exposure of Sensitive Receptors to Odorous Emissions

Impact 4.5.5 Implementation of the proposed project would include sources that may expose sensitive receptors to construction and long-term odorous emissions. This impact is considered **a potentially significant** impact.

Future redevelopment activities within the Project Area have the potential to produce odorous emissions during the construction or operation of the development. Additionally, implementation of the proposed project 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.

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 less than significant.

Mitigation Measures

The following mitigation measures will be adopted by the City Council in connection with the adoption of the Redevelopment Plan as measures that will apply to all development in the Project Area until the proposed General Plan is adopted:

MM 4.5.5a The Agency shall require that any subsequent projects under the Redevelopment Plan shall comply with SMAQMD rules and guidelines addressing odor impacts, including but not limited to Nuisance Rule 402.

MM 4.5.5b The Agency shall require that any subsequent projects under the Redevelopment Plan shall identify any nearby sources of noxious odors. If redevelopment projects include sensitive receptors, an air quality analysis shall be conducted for the project by a qualified air quality specialist. Any mitigation included in the analysis shall be incorporated into the project in order to reduce potential exposure of sensitive receptors to odors.

Implementation of the above mitigation would ensure that the proposed project would have a **less than significant** impact associated with odors.

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4.5.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

Sacramento County and the Project Area are included in the Greater Sacramento Ozone non-attainment area as delineated by the U. S. EPA. Therefore, the cumulative setting considers the cumulative effect of increased emissions in the air basin. In 1994, the Air Resources Board, in cooperation with the air districts of the Sacramento non-attainment area, fulfilled one of these requirements by preparing the *1994 Sacramento Area Regional Ozone Attainment Plan*. The plan identified a detailed comprehensive strategy for reducing emissions to the level needed for attainment and showed how the 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. Current patterns of suburban development with long average commute distances tend to exacerbate the situation.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Regional Air Plan Impacts

Impact 4.5.6 Implementation of the proposed project along with potential development of the surrounding area would exacerbate existing regional problems with ozone and particulate matter. The proposed project's incremental contribution to this impact would be **cumulatively considerable**.

The Redevelopment Plan would facilitate growth under the proposed Rancho Cordova General Plan that would result in new development and increased population, adversely affecting regional air quality (as described in Impacts 4.5.1, 4.5.2, and 4.5.3 above). The update to the Regional 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 proposed Rancho Cordova General Plan is modeled after the Blueprint. Projected growth in the cumulative area is expected to be greater than that assumed in the Blueprint, especially in the area of jobs. Additional jobs projected in the Project Area are 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, thereby increasing vehicle emissions. 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 as 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.

Additionally, with the increase growth projected with implementation of the proposed project, an increase in TACs is anticipated. Operation of this growth as well as the potential increase in

diesel traffic to serve it, the increase of projected aircraft operations at Mather Airport, and the increase of diesel traffic in the area will increase the amount of TACs.

The Redevelopment Project Area constitutes only part of the Rancho Cordova Planning Area, therefore its contribution to this cumulative impact would be less than that of the proposed Rancho Cordova General Plan. Additionally, the Redevelopment Plan serves to facilitate increased density in an already developed area, which would serve to reduce travel and thus air quality impacts. However, as described in Impacts 4.5.1 through 4.5.3 above, the proposed project would still have significant air quality impacts and would, therefore, contribute to the cumulative impact, possibly contributing to additional delays in reaching attainment for the region.

Mitigation Measures

Implement mitigation measures **MM 4.5.1a** and **b**, **4.5.2**, **4.5.4a** and **b**, and **4.5.5a** and **b**. Mitigation described in the impacts above would reduce the proposed project's contribution. However, significant emissions could still be produced. Therefore, the proposed project's incremental contribution to the cumulative impact would be **cumulatively considerable** and **significant and unavoidable**.

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4.5 AIR QUALITY

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