

CHAPTER 4

AIR QUALITY ELEMENT

The Federal Clean Air Act and the California Clean Air Act establish standards for air quality and govern air emissions throughout California. Responsibility for air quality planning and regulation in Placer County is borne by a variety of federal, state, regional, and local agencies. Air quality policy and regulation is critical to the RTP because on- and off-road vehicles contribute over two-thirds of pollution emissions.

This chapter describes air quality related law, the roles of air quality regulators, and the impact of these laws on the RTP. This chapter also describes the required determination that must be made by the Sacramento Area Council of Governments that the RTP conforms to federal air quality regulations.

4.1 Environmental Setting

Placer County is located within three separate air basins, Mountain Counties, Sacramento Valley Air Basins, and Lake Tahoe. Land area included in California air basins generally share similar meteorological and geographic conditions (air basins are defined in Section 39606 of the Health and Safety Code and the California Code of Regulations (CCR Title 17, Division 3, Chapter 1, Article 1). Placer County totals 1,416 square miles, 65 percent (918 square miles) within the Mountain Counties Air Basin, 30 percent (426 square miles) within the Sacramento Valley Air Basin, and five percent (72 square miles) of which is located with the Lake Tahoe Air Basin.

The jurisdiction of PCTPA is defined in California Government Code Section 67910 as Placer County, exclusive of the Lake Tahoe Air Basin. The planning area of the RTP is coterminous with the jurisdiction of PCTPA. The Placer County RTP planning area is made up of the Mountain Counties Air Basin and the Sacramento Valley Air Basin and represents approximately 95 percent of the Placer County land area, or 1,344 square miles.

PCTPA is responsible for preparing an RTP for the portion of Placer County containing the Sacramento Valley Air Basin and the Mountain Counties Air Basin. Because the Lake Tahoe Air Basin is not within the jurisdiction of PCTPA, the Placer County 2027 RTP does not consider air quality conformity issues for the Lake Tahoe Air Basin. The Tahoe Regional Planning Agency (TRPA) has been designated the Metropolitan Planning Organization (MPO) for the Lake Tahoe Air Basin, and therefore, considers air quality conformity issues for this area.

The following is a description of the Mountain Counties and Sacramento Valley Air Basins.

MOUNTAIN COUNTIES AIR BASIN

The Mountain Counties Air Basin (MCAB) includes Plumas, Sierra, Nevada, Amador, Calaveras, Tuolumne, Mariposa counties, a portion of El Dorado and Placer County, excluding that portion included in the Lake Tahoe Air Basin as well as the southwestern portion of Placer County that is in the Sacramento Valley Air Basin. The MCAB includes both eastern and western slopes of the Sierra Nevada Mountains incorporating much of the Sierra foothills.

Elevation within the MCAB varies from less than 1,000 feet above sea level on the west to approximately over 6,000 feet on the east. The general climate in the MCAB varies considerably with elevation and proximity to the Sierra Nevada crest. The terrain features of the MCAB make it possible for various climates to exist in relatively close proximity. The pattern of mountains and hills causes a wide variation in rainfall, temperature, and localized winds throughout the MCAB. Temperature variations have an important influence on basin wind flow, dispersion along mountain ridges, and vertical mixing.

The Sierra Nevada receives large amounts of precipitation during winter, from storms originating in from the Pacific Ocean. Precipitation levels are high in the highest mountain elevations but decline rapidly toward the western portion of the basin. Winter temperatures in the mountains can be below freezing for weeks at a time, and substantial depths of snow can accumulate. In the western foothills, winter temperatures usually dip below freezing only at night and precipitation is mixed as rain or light snow. In the summer, temperatures in the mountains are mild, with daytime peaks in the 70s to low 80s F, but the western end of the county can routinely exceed 100 degrees F.

The local topography and meteorology conditions in the MCAB largely determine the effect of air pollutant emissions in the basin. Regional airflows are affected by the mountains and hills, which direct surface air flows, cause shallow vertical mixing, and hinder dispersion, thereby creating areas of high pollutant concentrations. Inversion layers, where warm air overlays cooler air, frequently occur and trap pollutants close to the ground. In the winter, these conditions can lead to carbon monoxide “hotspots” along heavily traveled roads and at busy intersections. During the summer’s longer daylight hours, stagnant air, high temperatures, and plentiful sunshine provide the conditions that can result in the formation of ozone.

SACRAMENTO VALLEY AIR BASIN

The Sacramento Valley Air Basin (SVAB) includes Tehama, Glenn, Butte, Colusa, Yolo, Sutter, Yuba, Sacramento, and Shasta Counties, and a portion of Solano County, as well as that portion of Placer County that lies west of Range 9 East, which is approximately three miles east of Auburn. The SVAB is bounded by the Sacramento Valley extending from the Sacramento River Delta north to Shasta County. The Placer County portion of the SVAB includes the eastern edge of the Sacramento Valley and the lower slopes of the Sierra Nevada.

Like the MCAB, the SVAB contains areas with differing climates. In general, this air basin has a mild climate that is characterized by hot, dry summers, and moist, mild winters. The north-

south alignment of the valley, the coast range, and the Sierra Nevada mountains strongly influence wind flow in the valley. A sea-level gap in the coast range at the Carquinez Straits permits cool, marine air to flow occasionally into the valley during the summer season. This marine air lowers the temperature throughout the Sacramento-San Joaquin River Delta as far north as Sacramento. In the spring and fall, a large north-to-south pressure gradient develops over the northern part of the state. Air flowing over the Siskiyou Mountains to the north warms and dries as it descends to the valley floor.

The SVAB can experience temperatures exceeding 100° F, caused by airflow from sub-tropical high-pressure areas that bring light winds and humidity below 20 percent. Heavy fog occurs mostly in midwinter, and seldom in spring, summer or autumn. An occasional winter fog, under stagnant atmospheric conditions, may persist for several days. Light and moderate fogs are more frequent, and may come anytime during the wet, cold season. The fog is usually confined to early morning hours and dissipates by afternoon hours.

In the winter months, the SVAB experiences a high percentage of days with calm atmospheric conditions. These calm conditions result in stagnation of air and increased air pollution. Movement of air allows for the dispersion and subsequent dilution of air pollutants. Without movement, air pollutants can collect and concentrate in a single area, increasing the health hazards associated with air pollutants

The SVAB frequently experiences temperature inversions that inhibit the dispersion of pollutants. With inversions occurring near the ground, very little mixing or turbulence occurs, and high concentrations of pollutants may occur locally near major roadways. Elevated inversions, or inversions which occur higher in the atmosphere, can be generated by a variety of meteorological phenomena. Elevated inversions act as a lid (or upper boundary) and restrict vertical mixing. Below the elevated inversion, dispersion is not restricted. Mixing heights for elevated inversions are lower in the summer and more persistent. During summer months, low inversions over the SVAB are responsible for high levels of ozone in the SVAB.

4.2 Air Quality Regulatory Structure

FEDERAL CLEAN AIR ACT

The Federal Clean Air Act of 1970 (federal CAA) requires the U.S. Environmental Protection Agency (U.S. EPA) to establish national health-based air quality standards to protect against common air pollutants, often referred to as “criteria pollutants.” Criteria pollutants include ozone (smog), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), lead (Pb), and particulate matter (soot). The U.S. EPA is responsible for enforcing the federal CAA, establishing national ambient air quality standards (AAQS) for criteria pollutants, and regulating major air emission sources such as on- and off-road vehicles, power plants, industrial sources, and hazardous pollutants.

CALIFORNIA CLEAN AIR ACT

The California Clean Air Act (state CAA) of 1988 established AAQS for California that are more stringent than the national standards. In addition to the criteria pollutants regulated by the federal CAA, the state CAA adds three additional air pollutants, visibility reducing particles, sulfates, and hydrogen sulfide. The state CAA does not set a specific deadline by which California's AAQS must be met. However, it does require a five percent reduction in emissions per year, or "reasonably feasible" reductions until compliance with state standards is achieved.

The California Environmental Protection Agency, through the California Air Resources Board, implements the state CAA and sets state AAQS. The mission of the Air Resources Board is to protect the public health by regulating mobile sources of air pollution, including mobile sources, fuels, consumer products, and air toxics. In addition, the Air Resources Board oversees and assists local air pollution control districts.

LOCAL AND REGIONAL AIR QUALITY REGULATION

There are several additional regional and local agencies that are involved in the regulation of air quality that affect Placer County or that are involved in the implementation of policies that affect air quality.

Sacramento Area Council of Governments

SACOG is designated as the Metropolitan Planning Organization (MPO) for the El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties and prepares the Metropolitan Transportation Plan (MTP) for the Sacramento Region. In addition, SACOG, through a memorandum of understanding with PCTPA, governs federal transportation planning and programming for Placer County and is responsible for ensuring that the Placer County RTP conforms to the State Implementation Plan (SIP).

Placer County Transportation Planning Agency

The Placer County Transportation Planning Agency (PCTPA) is responsible for transportation planning within the Sacramento Valley and Mountain Counties Air Basin portions of Placer County, including preparation of the Regional Transportation Plan (RTP) for the county. PCTPA is designated as the Regional Transportation Planning Agency, Congestion Management Agency, and the Airport Land Use Commission for Placer County. As the designated Congestion Management Agency for Placer County, PCTPA is eligible to receive federal Congestion Management and Air Quality Funds for programs to reduce congestion and improve air quality such as bikeways, pedestrian improvements, and alternative fuel for transit buses. PCTPA is described in greater detail in Chapter 1.

Placer County Air Pollution Control District

The Placer County Air Pollution Control District (PCAPCD) was created by state law to enforce local, state, and federal air pollution regulations in Placer County. The PCPACD is governed by a nine member board of directors containing three members of the County Board of Supervisors and a representative of the city council of each city within the county. The responsibilities of the APCD are set forth in §40001 of the California Health and Safety Code, which reads: “subject to the powers and duties of the state board, the (PCAPCD) shall adopt and enforce rules and regulations to achieve and maintain the state and national ambient air quality standards in all areas affected by emission sources under (its) jurisdiction, and shall enforce all applicable provisions of state and federal law.”

Placer County and Cities within Placer County

Placer County contains six incorporated cities: Auburn; Colfax; Lincoln; Loomis; Rocklin; and Roseville. Placer County and these six cities do not directly regulate air quality within their jurisdictions. The county and cities each adopt policies to reduce air pollutant emissions as part of their general plans and other local programs.

AIR QUALITY PLANS AND PROGRAMS

State Implementation Plans

The federal CAA required states that exceeded national AAQS to prepare SIPs to demonstrate how the standards would be met. At the state and local level, the SIP is the principal mechanism for complying with the federal CAA. The SIP is a compendium of all of the state’s rules, regulations, and air quality plans needed to meet national AAQS. Federal requirements relating to SIPs vary depending upon the degree of nonattainment severity. SIPS are amended on an ongoing basis as new rules and plans are adopted.

States were originally required to meet national AAQS by 1987. The federal CAA was amended several times after 1970 extending the deadlines by which attainment of national AAQS must be achieved. The 1990 amendments to the federal CAA established the following five categories of air pollution severity for ozone nonattainment areas: marginal; moderate; serious; severe; and extreme. Placer County and the several counties in the Sacramento region, referred to as the Sacramento Federal Ozone Nonattainment Area (SFONA), were designated severe nonattainment with respect to ozone. The 1990 federal CAA amendments also set specific planning requirements to ensure that the attainment goals are met. As a result, the air districts that make up the SFONA prepared the *Sacramento Area Regional Ozone Attainment Plan* (hereafter “Ozone Attainment Plan”) in November, 1994.

Sacramento Area Regional Ozone Attainment Plan (1994)

The Placer County Air Pollution Control District, in partnership with four other Sacramento Valley pollution control districts, adopted the Ozone Attainment Plan in November, 1994. The Ozone Attainment Plan could not demonstrate that the Sacramento Area would be able to meet the federal standard for ozone by 1999. In exchange for moving the attainment deadline to 2005, the region accepted a designation of “severe nonattainment” which included additional requirements on stationary pollution sources (stationary sources are defined by U.S. EPA as a place or object from which pollutants are released and which does not move around, includes power plants, gas stations, incinerators, houses etc). As described above, the five air pollution control districts in the Sacramento Region, El Dorado and Placer Air Pollution Control Districts and the Feather River, Sacramento, and Yolo-Solano Air Quality Management District, collaborated to prepare the Ozone Attainment Plan. The Ozone Attainment Plan became part of the SIP in 1994 to comply with the federal CAA. Pursuant to the Ozone Attainment Plan, air quality in the Sacramento Region was expected to meet national AAQS by 2005.

The Ozone Attainment Plan contains transportation control measures (TCMs) and land use measures that are intended to result in the reductions in the emissions of criteria pollutants to meet national AAQS by 2005. TCMs and land use measures contained in the Ozone Attainment Plan include: employer trip reduction regulations; transit service expansion; high occupancy vehicle lanes; flexible work hours; vanpool assistance programs; transit oriented development policies; pedestrian and bikeway improvements; and congestion management strategies. TCMs and land use measures are implemented directly by the five air districts as well as the local jurisdictions within each air district.

The Federal Highway Administration notified the air districts of the region at the end of 2002, that 40 CFR § 93.110 requires that the air districts in the Sacramento region could no longer use the motor vehicle emissions budget (MVEB) and planning assumptions contained in the 1994 SIP. The MVEB contained in the 1994 SIP is the yardstick by which progress towards attainment is measured. Federal law now requires that conformity determinations be based on the most recent planning assumptions in force at the time. In order to comply with this requirement, the air districts of the region will need to update the SIP based on the new assumptions.

Ozone Attainment Plan Update

The air districts of the Sacramento region initiated an update to the SIP in 2002 due to the requirement relating to an updated MVEB and an impending conformity lapse that could incur within region as early as October 2004. A conformity lapse occurs when a transportation plan would result in emissions beyond the permissible levels based on the SIP. The SIP update contains two primary objectives: (1) minimize the length of the conformity laps; and (2) prevent a “bump-up” to an “extreme” nonattainment designation. The Ozone Attainment Plan update was scheduled to be completed late 2004 or early 2005.

On April 15, 2004, a new eight-hour AAQS for ozone was implemented by U.S. EPA to replace the one-hour AAQS. This standard was originally announced in 1997, but was delayed due to court challenges by industry groups. The U.S. EPA issued the new ozone AAQS as a final rule published in the Federal Register. As a result of the change from the one-hour to the eight-hour AAQS, the Sacramento Region has received a “serious” nonattainment designation for ozone and has been given a new attainment date of June 2013. In addition, the air districts that make up the SFONA will be required to prepare a new attainment plan based on the eight-hour AAQS for approval by the U.S. EPA no later than May 2007. The air districts of the region will likely be able to use a considerable portion of the work relating to the one-hour SIP update to prepare the eight-hour ozone SIP.

The U.S. EPA is preparing to issue a new rule that revokes the one-hour ozone standard. It is expected that the U.S. EPA will revoke the one-hour AAQS in June 2005. However, because the date that the one-hour standard will be revoked is not certain (and they are now required to prepare an eight-hour SIP), the air districts have determined that their best option is to pursue a demonstration of a minimum rate of progress (ROP) towards attainment before attainment plans are ready. A ROP does not require photochemical modeling, which is extremely resource intensive. Photochemical modeling relates air pollution emissions through a sophisticated computer model that simulates the formation of ozone based on meteorology and air quality data. Instead, a ROP must demonstrate that the region has adopted all of the current control measures contained in the one-hour SIP and has achieved all other emission reduction targets.

Local Land Use Plans

The population in Placer County has been growing at either the highest or second highest rate in the state of California over the past few years. In addition, job growth in Placer County was the fastest in the nation in 2003. Other parts of the Sacramento region have been experiencing similar rates of growth, increasing vehicles miles traveled and making it difficult for the region to meet state and national AAQS. In order to limit the effects of increased population on air quality, it is important that local and regional land use and air quality planning are closely coordinated.

California law requires cities and counties to prepare general plans to guide the physical development of their jurisdictions for approximately twenty years into the future. Air quality is normally addressed in the mandatory conservation element; however, many local jurisdictions have included separate air quality elements because of the importance of air quality in their areas.

Placer County last updated its general plan in 1994. Goals and policies relating to air quality are contained in the *Placer County General Plan - Natural Resources Element*, and are divided into Air Quality – General, and Air Quality - Transportation/Circulation. Placer County’s air quality related goals include protecting local air quality and integrating air quality planning with local land use planning. In addition, Placer County adopted an *Ozone Reduction Ordinance* in October, 2003, to reduce emissions resulting from county operations. This ordinance could serve as a model for other local governments in the region.

The City of Roseville is the largest city in the county and contains one-third of the total county population. The *Roseville General Plan 2010* was adopted in 1992 with a technical update in 2003. The *Roseville General Plan 2010* contains an *Air Quality Element* with detailed air quality background information as well as a range of goals, policies, and implementation measures addressing air quality. Among the ongoing ten implementation measure categories included in the *Air Quality Element* are interagency coordination, which requires coordination with PCAPCD in enforcing federal and state air quality regulations and measures to reduce emissions from motor vehicles.

The other five Placer County cities, whose populations together combine to one third of the Placer County total, do not have air quality elements. However, each city does have policies in their circulation or natural resources elements to reduce emissions from mobile and stationary sources and to encourage coordination with federal, state, and regional air quality regulators.

4.3 Air Quality Standards

National and state AAQS have been established by U.S. EPA and the Air Resources Board for criteria pollutants. National AAQS have been divided into primary and secondary standards. Primary standards refer to levels of air quality to protect the public health. Secondary standards refer to levels of air quality to protect public welfare (e.g., agriculture, visibility, property) for any known adverse effects of a pollutant. The Air Resources Board established equal or more stringent AAQS for each of the national criteria pollutants, as well as for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 4.3-1 contains the national and state AAQS for each air pollutant regulated by the federal and state government.

Under state and federal law, the Air Resources Board is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to AAQS. An attainment designation signifies that pollutant concentrations do not exceed the standard during the required time period; nonattainment means that an area exceeds the standard one or more times during a year; and unclassified means that sufficient information is not available to support classification as attainment or nonattainment. Table 4.3-2 summarizes the status of the three Placer County air basins for each criteria pollutant AAQS.

**Table 4.3-1
State and Federal Ambient Air Quality Standards for Criteria Pollutants**

Averaging Time	California Standards		Federal Standards		
	Concentration	Method	Primary	Secondary	Method
Ozone (O₃)					
1 hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³)	Same as primary standard	Ethylene Chemiluminescence
8 hour	---		0.08 ppm (157 µg/m ³)		
Respirable Particulate Matter (PM₁₀)					
Annual Geometric Mean	30 µg/m ³	Size selective inlet sampler ARB Method P (8/22/85)	50 µg/m ³	Same as primary standard	Inertial separation and gravi-metric analysis
24 hour	50 µg/m ³		150 µg/m ³		
Fine Particulate Matter (PM_{2.5})					
24 hour	No separate state standard		65 µg/m ³	Same as primary standard	Inertial separation and gravi-metric analysis
Annual arithmetic mean			15 µg/m ³		
Carbon Monoxide (CO)					
8 hour	9.0 ppm (10 µg/m ³)	Non-dispersive infrared photometry	9.0 ppm (10 µg/m ³)	None	Non-dispersive infrared photometry
1 hour	20 ppm (23 µg/m ³)		35 ppm (40 µg/m ³)		
Nitrogen Dioxide (NO₂)					
Annual arithmetic mean	---	Gas phase chemiluminescence	0.053 ppm (100 µg/m ³)	Same as primary standard	Gas phase chemiluminescence
1 hour	0.25 ppm (470 µg/m ³)		---		
Lead					
30 days average	1.5 µg/m ³	AIHL method 54 (12/74) atomic absorption	---	---	High volume sampler and atomic absorption
Calendar Quarter	---		1.5 µg/m ³	Same as Primary Standard	
Sulfur Dioxide (SO₂)					
Annual arithmetic mean	---	Flourescence	0.030 ppm (80 µg/m ³)	---	Pararosaniline
24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	---	
3 Hour	---		---	0.5 ppm (1300 µg/m ³)	
1 Hour	0.25 ppm (665 µg/m ³)		---	---	
Visibility Reducing Particles					
8 hour (10 am to 6 pm PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer-visibility of ten miles or more (for Lake Tahoe: 0.07-30 miles or more) due to particles when the relative humidity is less than 70 percent. Method: ARB Method V		No Federal Standards		
Sulfates					
24 Hour	25 µg/m ³	Turbidimetric Barium Sulfate-AIHL Method 61	No Federal Standards		
Hydrogen Sulfide					
1 Hour	0.03 ppm (42 µg/m ³)	Cadmium Hydroxide Stractan	No Federal Standards		

Source: California Air Resources Board, 1999

Table 4.3-2
Attainment Status By Placer County Air Basin

POLLUTANT	ATTAINMENT STATUS						
	Sacramento Valley Air Basin	Severe (1 hr) Nonattainment	Nonattainment	Attainment	Unclassified/Attainment	Unclassified	No standard
Ozone	●	⊙					
Carbon Monoxide				⊙	●		
Nitrogen Dioxide				⊙	●		
Sulfur Dioxide				⊙		●	
PM10			⊙			●	
Sulfates				⊙			●
Lead				⊙			●
Hydrogen Sulfide						⊙	●
Visibility Reducing Particulates						⊙	●

Mountain Counties Air Basin	ATTAINMENT STATUS					
	Severe (1 hr) Nonattainment	Nonattainment	Attainment	Unclassified/Attainment	Unclassified	No standard
Ozone	●	⊙				
Carbon Monoxide				●	⊙	
Nitrogen Dioxide			⊙	●		
Sulfur Dioxide			⊙		●	
PM10		⊙			●	
Sulfates			⊙			●
Lead			⊙			●
Hydrogen Sulfide					⊙	●
Visibility Reducing Particulates					⊙	●

● Federal Standard ⊙ State Standard

Source: California Air Resources Board, Area Designations for State and National Air Quality Standards, 2003

4.4 Criteria Pollutants of Concern

The criteria pollutants of primary concern for Placer County are discussed below.

OZONE

In the stratosphere, ozone (O₃) protects the earth from the sun's ultraviolet rays, but in lower levels of the atmosphere, ozone is considered an air pollutant and is one of the main components of smog. Ozone is not directly emitted, but is formed in the atmosphere over several hours from

reactions of various “precursors” in the presence of sunlight. Nitrogen oxides (NO_x) and reactive organic gasses (ROG) are the primary reactive compounds, or precursors, contributing to the formation of ozone. Tail-pipe emissions from on- and off-road vehicles are responsible for 70 percent of the ozone precursors in the Sacramento region.

Short-term exposure to ozone, which is a strongly oxidizing form of oxygen, results in: injury and damage to the lung; decreases in pulmonary function; and impairment of immune mechanisms. Children and persons with a pre-existing respiratory disease (e.g., asthma, chronic bronchitis, emphysema) are at greater risk. In addition, negative effects on vegetation have been documented at ozone concentrations below AAQS.

The U.S. EPA previously set the national primary and secondary ozone AAQS at 0.12 parts per million (ppm) averaged over a one-hour period. As of April 15, 2004, the new national AAQS for ozone is 0.08 parts per million (ppm) averaged over an eight-hour period was implemented. The Air Resources Board has set a more stringent one-hour state AAQS for ozone at 0.09 ppm.

PARTICULATE MATTER 10 MICRONS OR LESS

Particulate matter refers to inhalable particles that are less than 10 microns in diameter (PM₁₀). Particulates are classified as primary or secondary depending on their origin. Primary particles are unchanged after being directly emitted (e.g., road dust) and are the form of PM₁₀ that are most commonly analyzed and modeled. Because it is emitted directly and has limited dispersion characteristics, primary PM₁₀ is considered a localized pollutant. Primary PM₁₀ sources are derived from both human and natural activities. A significant portion of PM₁₀ sources is generated from a variety of human activity. These types of activities include agricultural operations, industrial processes, combustion of wood and fossil fuels, construction and demolition activities, and entrainment of road dust into the air. Natural biogenic sources also contribute to the overall PM₁₀ problem. Natural sources include windblown dust and wildfires.

Secondary PM₁₀ sources emit into the atmosphere air contaminants that form or help form PM₁₀. Hence, these pollutants are considered precursors to PM₁₀ formation. These secondary PM₁₀ pollutants include emissions of ROG, NO_x, and sulfur oxides (SO_x). Control measures that reduce PM₁₀ precursor emissions tend to have a beneficial impact on ambient PM₁₀ levels.

Increases in mortality have been associated with very high 24-hour concentrations of PM₁₀, with some increased risk of mortality at lower concentrations. Small increases in mortality appear to exist at even lower levels. Risks to sensitive individuals increase with consecutive, multi-day exposures to elevated PM concentrations. The research also indicates that aggravation of bronchitis occurs with elevated 24-hour PM₁₀ levels, and small decreases in lung function take place when children are exposed to lower 24-hour peak PM₁₀ levels. Lung function impairment persists for 2-3 weeks following exposure to PM₁₀.

PARTICULATE MATTER 2.5 MICRONS OR LESS

In July 1997, the EPA adopted new air quality standards for particulate matter. The EPA established annual and 24-hour standards for the fine fraction of particulates which are 2.5 microns or less in size. It revised the primary (health-based) PM standards by adding a new annual PM_{2.5} standard set at 15 µg/m³ and a new 24-hour PM_{2.5} standard set at 65 µg/m³. Based on health studies conducted, PM_{2.5} is considered to be more adverse to human health than any other pollutant.

The EPA also revised the secondary (welfare-based) standards by making them identical to the primary standards. The purpose of the secondary standards in combination with the federal regional haze program is intended to provide protection against the major PM related welfare effects, such as visibility impairment, soiling and materials damage. Other recent changes made by the EPA include rules to address the monitoring network design for the new PM_{2.5} standards and to improve visibility by requiring states to develop programs to help reduce regional haze.

The EPA will retain the current annual PM₁₀ standard of 50 µg/m³ and adjust the PM₁₀ 24-hour standard of 150 µg/m³ by changing the form of the standard. The EPA has yet to promulgate the air quality designations of the various regions for the new PM_{2.5} standard. The SVAB portion of Placer County is proposed to be designated as nonattainment by U.S. EPA for the new PM_{2.5} standard. The air districts in this new nonattainment area will have to prepare an attainment plan relating to PM_{2.5}, similar to the Ozone Attainment Plan. Emission inventories for PM_{2.5} will have to be established and control measures developed to bring the region into attainment.

CARBON MONOXIDE

Carbon monoxide (CO) is formed by the incomplete combustion of carbon containing fuels. Because it is directly emitted from combustion engines, carbon monoxide can have adverse localized impacts, primarily in areas with heavy traffic congestion. CO is considered a localized pollutant because it is emitted directly, rather than formed in the atmosphere, and it has limited dispersion characteristics.

CO affects human health relating to blood; blood's affinity to CO is over 200 times higher than blood's affinity for oxygen, resulting in the displacement of oxygen from blood. As the level of CO in the blood increases, the level of oxygen decreases. This condition places at risk angina patients, persons with other cardiovascular diseases or with chronic obstructive lung disease, asthmatics and fetuses. Symptoms of exposure may include headaches, dizziness, sleepiness, nausea, vomiting, confusion, and disorientation.

Primary and secondary national AAQS for CO is 35 ppm for a one-hour period and 9 ppm averaged over an eight hour period. The Air Resources Board has established a state AAQS of 20 ppm for a one-hour period and 9 ppm averaged over an eight hour period.

OTHER CRITERIA POLLUTANTS

The other criteria air pollutants are nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb). The AAQS for NO₂ have as their objective the prevention of respiratory disease, odor, and ozone creation. AAQS for SO₂ are designed to prevent health risks and improve visibility. The standards for ambient Pb concentrations are set to protect against toxic health effects of this substance. The adverse environmental effects of NO₂, and SO₂ go beyond public health, odor, and visibility impacts. Their ability to react with atmospheric water vapor to create acid rain results in accelerated weathering of stone and masonry structures and facilities, enhanced leaching of nutrients and toxic substances in soils, and direct damage to vegetation and aquatic biota. Monitored NO₂, SO₂, and Pb concentrations in the area have not exceeded state or federal standards in the past five years.

CUMULATIVE DEGRADATION OF AIR QUALITY

Emissions associated with local development and development throughout the SVAB and MCAB, combined with those of the San Francisco Bay Area which migrate east with prevailing winds, cumulatively degrade air quality throughout both air basins. Adherence to the SIP for the region will help reduce cumulative air quality impacts. The topography and meteorology of the region, combined with population-related emissions increases, are expected to result in continued violations of ozone and PM10 standards. In addition, potential violations of CO standards could occur due to increases in traffic volumes associated with regional population growth.

4.5 Air Quality Conformity Determination

DEFINITION OF CONFORMITY

The 1990 amendments to the federal CAA included provisions requiring that actions by the federal government not undermine state or local efforts to achieve and maintain national AAQS. These are often referred to as requirements for general conformity. Conformity determinations are made by comparing a federal action to the requirements of the SIP. The federal CAA contains specific conformity provisions for transportation related federal actions, which include regional transportation plans involving programs and projects that will receive federal funds. Under the transportation conformity provisions of the federal CAA, the determination of conformity is made by the agency responsible for the project.

PLACER RTP CONFORMITY RESPONSIBILITY

In the case of the Placer County RTP, the conformity determination is to be made by the SACOG who is the MPO for the region (the SVAB and MCAB portion of Placer County). SACOG will perform a quantitative analysis of emissions resulting from the programs and projects contained in the Metropolitan Transportation Plan, including programs and projects contained in the Placer

County RTP. It is the responsibility of SACOG to ensure that the RTP conforms to the SIP and to make the necessary conformity findings relating to the SFONA that area required under Section 176(c) of the federal CAA.

RTP POLICY RELATING TO AIR QUALITY CONFORMANCE

The RTP contains many goals and policies to reduce vehicle trips and improve air quality. The goal areas containing the most explicit policies relating to air quality are: Non-motorized Transportation, Transportation Systems Management, and Integrated Land Use, Air Quality, and Transportation Planning. The Action Element also contains action plans that are intended to further the RTP's air quality-related goals and policies. The action plans include both short-term and long-term steps for each transportation mode.