

CHAPTER 7

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 federal and State air quality related law, the roles of air quality regulators, and the impact of these laws on the RTP. This chapter describes the required determination that must be made by the Sacramento Area Council of Governments that the RTP conforms to federal air quality regulations. This chapter also provides background information on global warming, climate change and greenhouse gas emissions.

7.1 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). The most recent changes to air basin boundaries occurred in May 1996. 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 2035 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-

Figure 7-1
Air Basins in Eastern Placer County

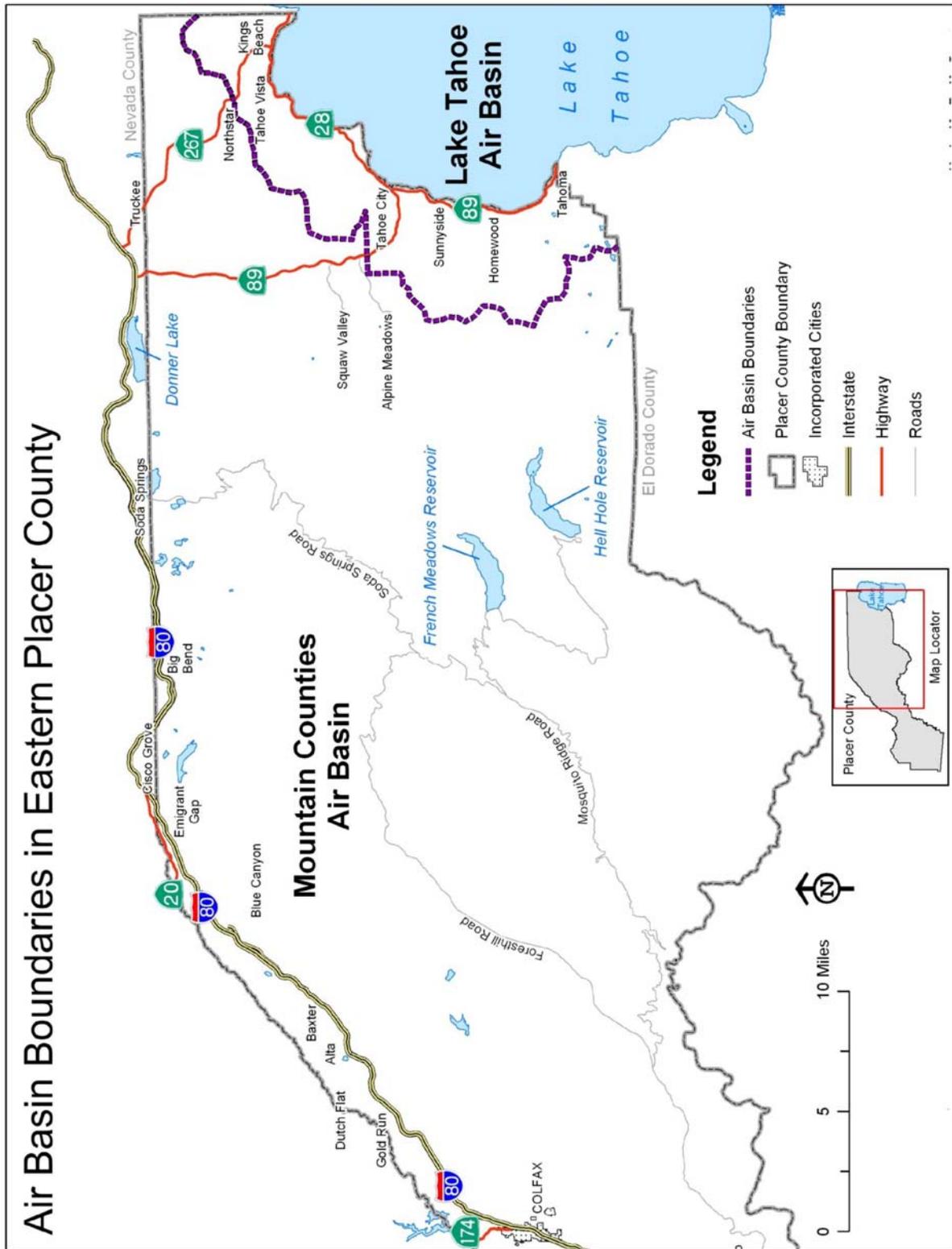
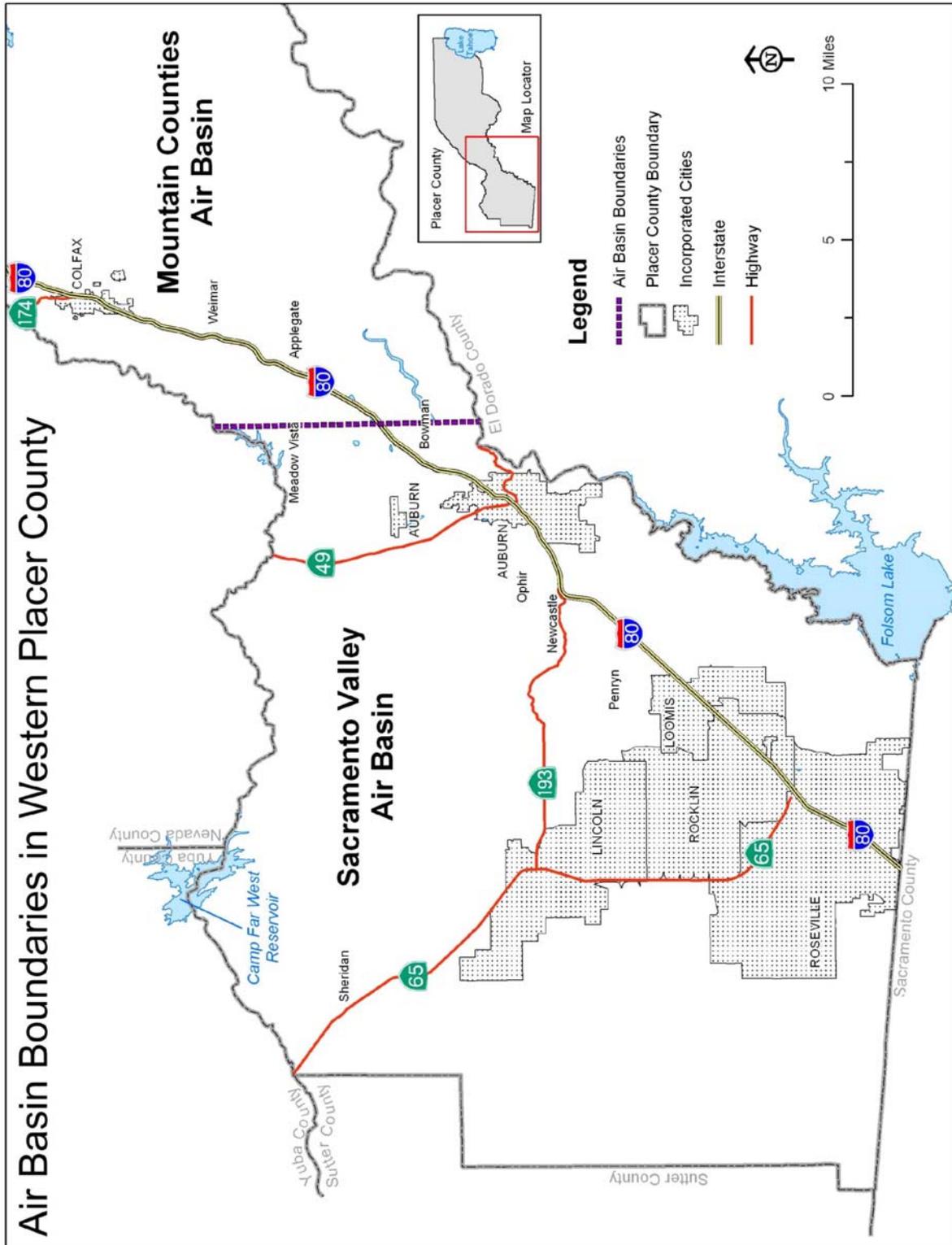


Figure 7-2
Air Basins in Western Placer County



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.

7.2 Air Quality Regulatory Structure

FEDERAL CLEAN AIR ACT

The Federal Clean Air Act of 1970 (federal CAA) requires the U.S. Environmental Protection Agency (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 (PM). The EPA is responsible for enforcing the federal CAA, establishing national ambient air quality standards (NAAQS) 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 is 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 (CARB), implements the state CAA and sets state AAQS. The mission of the CARB 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 CARB 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's role and responsibilities are described in greater detail in Chapter 2.

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 exceed National Ambient Air Quality Standards (NAAQS) 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 NAAQS. 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 NAAQS by 1987. The federal CAA was amended several times after 1970 extending the deadlines by which attainment of NAAQS 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.

Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2008)

On April 15, 2004, a new eight-hour NAAQS for ozone was implemented by EPA to replace the one-hour NAAQS. EPA made determinations of which areas violate the eight-hour ozone standard, effective June 15, 2004. As a result of the change from the one-hour to the eight-hour NAAQS, the Sacramento Region has received a “serious” nonattainment designation for ozone, with an attainment deadline of June 2013. The Clean Air Act permits a state to request that EPA reclassify or “bump-up” a nonattainment area to a higher classification and extend the time allowed for attainment. Reclassification is considered appropriate for nonattainment areas that must rely on longer term strategies to achieve the emission reductions needed for attainment. More stringent requirements are imposed with each higher classification.

The Sacramento regions needs to rely on the longer term emission reduction strategies from the State and federal mobile source control programs; therefore, the 2013 attainment date cannot be met. Consequently, CARB on behalf of the air districts in the Sacramento region requested EPA in February 2008, to a voluntary reclassification of the Sacramento Federal Ozone Nonattainment Area (SFONA) from a “serious” to a “severe” eight-hour ozone nonattainment area, with an extended attainment deadline of June 2019. The air districts that make up the SFONA prepared the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* (hereafter “SIP”). The SIP was adopted by the California Air Resources Board in March 2009. EPA issued its Final Rule approving the Sacramento region’s request to reclassify the ozone non-attainment status from “serious” to “severe-15,” effective June 4, 2010.

The SIP 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 NAAQS by 2019. TCMs and land use measures contained in the SIP include: intelligent transportation systems (ITS); employer trip reduction regulations; transit service funding programs; high occupancy vehicle lanes; park and ride lots / transit centers; flexible work hours; vanpool assistance programs; transit oriented development policies; pedestrian and bikeway improvements; congestion management strategies; MTP regional funding programs; and other specific funding programs, including Freeway Service Patrol. TCMs and land use measures are implemented directly by the five air districts as well as the local jurisdictions within each air district. TCMs included in the SIP that are the responsibility of Placer County jurisdictions are shown in Table 7.1.

The SIP also includes several research and policy development TCMs that are currently in the study phase by SACOG. It is anticipated that future policies will be included in SACOG’s MTP update and SIP, and as applicable the next update of the Placer County RTP.

Table 7.1
**Placer Transportation Control Measures Included
 in the 8-Hour Ozone State Implementation Plan (SIP)**

TCM ID	SACOG ID	Transportation Control Measure	Description	Placer Cost	Completion Year	Lead Agency
ITS-4	VAR11000	STARNET Implementation	Develop and install an information exchange system--the Sacramento Transportation Area Network, or STARNET--and connect 18 traffic and emergency centers. Design and construct pedestrian and landscaping improvements at the multimodal center including a Class I bike facility adjacent to Taylor Rd. from downtown Loomis to Sierra College Blvd.	0	2009	SACOG
TF-2	PLA19100	Improvements to Loomis Multimodal Center		\$659,225	2010	Town of Loomis
TR-1a	PLA25223	Auburn Transit Bus Replacement		\$225,000	2008	City of Auburn
TR-1b	PLA25371	Roseville Transit Bus Purchase		\$2,300,000	2009	City of Roseville
TR-1c	PLA25322	Roseville Transit Bus Replacement		\$375,000	2008	City of Roseville
TR-2b	PLA25215	Roseville Operating Assistance		\$145,000	2008	City of Roseville
AQ-2	SAC22090	SECAT	Heavy-Duty NOx control strategies; SECAT program; GIS Transit program (includes bus stop and centralized regional transit information system, and trip planning) Bus Replacement projects include: REG17782, YCT18087, UNI10441, SAC24145, PCT10481	\$1,286,813	Annually thru 2018	SACOG
AQ-3	VAR56022	Spare the Air	Conduct the Spare the Air Education Program jointly funded by the Sacramento Metro AQMD, Yolo-Solano AQMD and the Placer County Air Quality Control District	\$337,428	Annually thru 2018	SMAQMD
Total				\$5,328,466		

Source: Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, SMAQMD, March 2009.

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 NAAQS. 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 and greenhouse gases. 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.

Alternative Fuels

As part of the region’s overall effort to meet the NAAQS by 2019 and achieve air quality conformity with transportation plans, SACOG partners with the local air districts to promote use of clean-fuel vehicles. One measure to promote the use of clean fuel vehicles is the Sacramento Emergency Clean Air Transportation (SECAT) Program. Substantial air quality benefits can be realized by accelerating fleet modernization with cleaner fuel technologies. The SECAT Program was created to provide incentives to on-road heavy-duty truck owners to purchase technologies to reduce NOx emissions, and to help replace older diesel transit buses. PCTPA has contributed CMAQ funds toward this program.

Auburn, Placer County and Roseville have also constructed CNG fueling stations in Auburn and Roseville, and Placer County is expanding its Auburn facility. Placer County has also completed the first phase of a CNG facility in the North Lake Tahoe area. All three jurisdictions operate some CNG-fueled vehicles now and Placer County has made a commitment to completely convert their transit fleet to CNG within the next few years.

In addition, private companies in Placer County operate alternative fueling stations. PG&E operates a CNG fueling station in Auburn. Four gas stations in the Rocklin / Roseville area provide ethanol (E-85) fueling stations.

7.3 Air Quality Standards

National and state AAQS have been established by EPA and the CARB for criteria pollutants. The NAAQS 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.

EPA sets NAAQS for five criteria pollutants: ozone, particulate matter (PM), carbon monoxide, nitrogen dioxide, and sulfur dioxide. The CARB established equal or more stringent AAQS for each of the national criteria pollutants, as well as for visibility-reducing particles, sulfates, hydrogen sulfide, lead, and vinyl chloride. Table 7.2 contains the national and state AAQS for each air pollutant regulated by the federal and state government.

Under State and federal law, the CARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to NAAQS. 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 7.2 summarizes the status of the three Placer County air basins for each criteria pollutant under California and national standards.

Table 7.2
State and National Ambient Air Quality Standards for Criteria Pollutants

Averaging Time	California Standards		National Standards		
	Concentration	Method	Primary	Secondary	Method
Ozone (O₃)					
1 hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	---	Same as Primary 0.03 ppm (42 µg/m ³) Standard	Ultraviolet Photometry
8 hour	0.07 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM₁₀)					
Annual Geometric Mean	20µg/m ³	Gravimetric or Beta Attenuation	---	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
24 hour	50 µg/m ³		150 µg/m ³		
Fine Particulate Matter (PM_{2.5})					
24 hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
Annual Arithmetic Mean	12µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)					
8 hour	9 ppm (10 µg/m ³)	Non-Dispersive Infrared Photometry	9 ppm (10 µg/m ³)	None	Non-Dispersive Infrared Photometry
1 hour	20 ppm (23 µg/m ³)		35 ppm (40 µg/m ³)		
8 Hour (Lake Tahoe)	6 ppm (7 µg/m ³)		---		
Nitrogen Dioxide (NO₂)					

Annual Arithmetic Mean	0.03 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm(100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
1 hour	0.18 ppm (339 µg/m ³)		0.100 ppm (see footnote 8)	None	
Lead (see footnote 9)					
30 days average	1.5 µg/m ³	Atomic Absorption	---	---	---
Calendar Quarter	---		1.5 µg/m ³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Rolling 3-Month Average (see footnote 10)	---		0.15µg/m ³		
Sulfur Dioxide (SO₂)					
Annual Arithmetic Mean	---	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	---	Spectrophotometry (Pararosaniline Method)
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)	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: Beta Attenuation & Transmittance through Filter Tape.		No Federal Standards		
Sulfates					
24 Hour	25 µg/m ³	Ion Chromatography	No Federal Standards		
Hydrogen Sulfide					
1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence	No Federal Standards		
Vinyl Chloride (see footnote 9)					
24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography	No Federal Standards		

Notes:

- California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
- To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
- The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- National lead standard, rolling 3-month average: final rule signed October 15, 2008.

Source:

- California Air Resources Board, February 2010.

Table 7.3
Attainment Status by Placer County Air Basin

CRITERIA POLLUTANT	NATIONAL & STATE DESIGNATION					
Sacramento Valley Air Basin	Severe (8 hr) Nonattainment	Nonattainment	Attainment	Unclassified/Attainment	Unclassified	No Standard
Ozone	●	⊙				
Carbon Monoxide			⊙	●		
Nitrogen Dioxide			⊙	●		
Sulfur Dioxide			⊙		●	
PM10		⊙			●	
PM2.5		●	⊙			
Sulfates			⊙			●
Lead			⊙			●
Hydrogen Sulfide					⊙	●
Visibility Reducing Particulates					⊙	●
Mountain Counties Air Basin	Severe (8 hr) Nonattainment	Nonattainment	Attainment	Unclassified/Attainment	Unclassified	No Standard
Ozone	●	⊙				
Carbon Monoxide				●	⊙	
Nitrogen Dioxide			⊙	●		
Sulfur Dioxide			⊙		●	
PM10		⊙			●	
PM2.5				●	⊙	
Sulfates			⊙			●
Lead			⊙			●
Hydrogen Sulfide					⊙	●
Visibility Reducing Particulates					⊙	●
Lake Tahoe Air Basin	Severe (8 hr) Nonattainment	Nonattainment	Attainment	Unclassified/Attainment	Unclassified	No Standard
Ozone		⊙		●		
Carbon Monoxide			⊙	●		
Nitrogen Dioxide			⊙	●		
Sulfur Dioxide			⊙●			
PM10		⊙			●	
PM2.5			⊙	●		
Sulfates			⊙			●
Lead			⊙			●
Hydrogen Sulfide					⊙	●
Visibility Reducing Particulates					⊙	●

● Federal Standard

Federal Designation Definitions

Nonattainment: any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment: any area (other than an area identified in clause (i)) that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable: any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

⊙ State Standard

State Designation Definitions

Unclassified: a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment: a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a three-year period.

Nonattainment: a pollutant is designated nonattainment if there was at least one violation of a State standard for that pollutant in the area.

Note:

1. EPA designated new PM_{2.5} effective December 14, 2009.

Sources:

1. The Green Book Nonattainment Areas for All criteria Pollutants, EPA, January 2010.
2. Area Designations for State Ambient Air Quality Standards, CARB, December 2009.

7.4 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, and emphysema) are at greater risk. In addition, negative effects on vegetation have been documented at ozone concentrations below NAAQS.

EPA adopted a new eight-hour ozone standard on March 12, 2008 is slightly more stringent than the old standard adopted in 1997. The new standard is 0.075 parts per million (ppm), slightly

lower than the old standard of 0.08 ppm. CARB has set a more stringent eight-hour state AAQS for ozone at 0.07 ppm.

Currently, the Sacramento region's ozone pollution ranks seventh worst in the United States. Table 7.4 provides historical air quality data for the Spare the Air Program in Placer County, showing the number of ozone exceedances under national and State one and eight-hour standards.

**Table 7.4
National and State Ozone Exceedance Days for Placer County**

Type	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
State 1-hour Ozone	N/A	16	23	5	32	28	21	22	38	35	26	29	25	10
Federal 1-hour Ozone	N/A	0	2	0	2	1	0	1	5	1	1	3	7	0
Federal 8-hour Ozone	N/A	12	18*	4**	34	22	16	18	31	27	19	28	Standard not in effect***	

Notes:

1. * A new federal 8-hour ozone standard of 0.075 parts per million (ppm) began in 2008.
2. ** The federal 8-hour ozone standard of 0.084 ppm was in effect from 1999 to 2007.
3. The federal 1-hour ozone standard was revoked on June 15, 2005; however, it still has regulatory applicability in some areas.

Source:

1. Placer County Air Pollution Control District, Sacramento Metropolitan Air Quality Management District, and CARB.

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, NOx, and sulfur oxides (SOx). 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 in 2006 by adding a new annual PM2.5 standard set at 15 $\mu\text{g}/\text{m}^3$ and a new 24-hour PM2.5 standard set at 65 $\mu\text{g}/\text{m}^3$. Based on health studies conducted, PM2.5 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 PM2.5 standards and to improve visibility by requiring states to develop programs to help reduce regional haze.

The EPA issued final nonattainment designations for the new PM2.5 standard in October 2009. The SVAB portion of Placer County has been designated as nonattainment by EPA for the new PM2.5 standard. The air districts and SACOG will need to develop a PM2.5 SIP, including a transportation conformity budget, by November 2012. Emission inventories for PM2.5 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 NAAQS 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 NAAQS for NO₂ have as their objective the prevention of respiratory disease, odor, and ozone creation. NAAQS 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 PM standards. In addition, potential violations of CO standards could occur due to increases in traffic volumes associated with regional population growth.

7.5 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 NAAQS. 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. This ensures that transportation activities will not cause new air quality violations, worsen existing violations, or delay the timely attainment of the relevant NAAQS. Conformity currently applies under EPA rules to areas that are designated as nonattainment. Under the transportation conformity provisions of the federal CAA, the determination of conformity is made by the agency responsible for the project. Transportation conformity is required under CAA Section 176(c).

PLACER RTP CONFORMITY RESPONSIBILITY

In the case of the Placer County RTP, the conformity determination is made by the SACOG who is the MPO for the region (the SVAB and MCAB portion of Placer County). SACOG performs a quantitative analysis of emissions resulting from the programs and projects contained in the

Metropolitan Transportation Plan (MTP) and the Metropolitan Transportation Improvement Program (MTIP), as amended, including programs and projects contained in the Placer County RTP, and compare this calculation to the NAAQS for this region. 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.

The conformity tests used for the Sacramento region vary by pollutant, and include ROG and NOx for the SFONA, CO for the CO Maintenance Area, and Particulate Matter for the PM10 and PM2.5 Nonattainment Areas. The emission budgets used in the conformity determination are from the 8-Hour Ozone SIP adopted by CARB in March 2009. EMFAC 2007 was used to develop the emission estimates for the conformity determinations.

Virtually all of the 2035 RTP projects are either included in the 2035 MTP and short-term projects (2010 – 2015) are programmed in the MTIP. The conformity analysis performed on the 2035 RTP projects relies on a previous emissions analysis approved by the SACOG Board of Directors in January 2010 as part of Amendment #23 to the 2009/2012 MTIP and Amendment #2 to the 2035 MTP (see Appendix N). SACOG will complete an air quality conformity analysis on the 2011/2014 MTIP and Amendment #3 to the 2035 MTP by October 2010. Most of the projects in the 2011/2014 are carried over from the 2009/2012 MTIP. A separate conformity analysis will address the new PM2.5 designation. Federal approval of the conformity findings is expected by December 2010.

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.

The projects contained in the 2035 RTP are included in the 2035 MTP. The majority of short-term projects are programmed in the 2009/2012 MTIP through Amendment #40 and carried over to the new 2011/2014 MTIP. The projects in the 2035 RTP do not interfere with the timely implementation of any transportation control measures (TCMs) in the approved SIP. The 2035 RTP promotes travel and development patterns consistent with the 2035 MTP and facilitate the attainment of air quality measures contained in the SIP.

Transportation projects in Placer County, which are exempt from a regional emissions analysis for PM2.5, may require a qualitative hot spot analysis if they meet any of the criteria established for a project of air quality concern as described in EPA's final rule and EPA / FHWA guidance issued in March 2006. SACOG's Regional Planning Partnership committee, in its air quality conformity and consultation role, uses the EPA / FHWA guidance to make the findings for transportation projects in Placer County.

7.6 Global Warming, Climate Change & Greenhouse Gas

BACKGROUND

Climate change is considered a global problem and GHG emissions are considered global pollutants, unlike criteria air pollutants such as ozone and carbon monoxide, which are pollutants of regional and local concern.

In May 2008 the California Transportation Commission (CTC) added an Addendum to the 2007 Regional Transportation Plan Guidelines requiring that RTPs address the issue of Climate Change and Greenhouse Gas emissions. This section of the Air Quality Element addresses this requirement.

GLOBAL WARMING, CLIMATE CHANGES & GREENHOUSE GAS

Atmospheric greenhouse gases (GHGs) and clouds within the earth's atmosphere influence the temperature of the planet. GHGs and clouds absorb most of the outgoing infrared radiation from the earth's surface that would otherwise escape into space. This process is known as the Greenhouse Effect. GHGs and clouds, in turn, radiate some heat back to the earth's surface and some out to space. The resulting balance between incoming solar radiation and outgoing radiation from both the earth's surface and the atmosphere keeps the planet habitable.

Anthropogenic GHGs released into the atmosphere enhance the Greenhouse Effect by absorbing additional radiation that would otherwise escape into space, thereby causing planet temperatures to increase and changes in the earth's climate. The California Climate Change Center reports that temperatures in the State are expected to rise 4.7 to 10.5 degrees Fahrenheit by the end of the century.

The anthropogenic produced GHGs responsible for increasing the Greenhouse Effect and their relative contribution to global climate change, in terms of CO₂ equivalent, are as follows: carbon dioxide (CO₂) at 53 percent; methane (CH₄) at 17 percent; near-surface ozone (O₃) at 13 percent; nitrous oxide (N₂O) at 12 percent; and chlorofluorocarbons (CFCs) at 5 percent. These are the GHGs referenced in the Kyoto Agreement and in the international guidance on the development of national inventories provided by the Intergovernmental Panel on Climate Change.

According to the California Energy Commission (CEC), the most common anthropogenic GHG is CO₂, which constitutes approximately 84 percent of GHG emissions produced in California. Worldwide, California ranks as the 12th to 16th largest emitter of CO₂ and is responsible for approximately two percent of the world's CO₂ emissions.

Impact of Global Warming and Climate Change on the Transportation System

California is extremely susceptible to a wide range of climate change effects. Examples include: increase in temperatures, earlier snowpack melt, changed precipitation patterns, increased severity of wildfires, and extreme weather events. These effects have potentially negative impacts on the transportation system including heat waves causing roadways to buckle, fire damaged watersheds that result in mudslides, and flooded highways and roads.

FUEL CONSUMPTION

Increasing GHG emissions are primarily associated with the burning of fossil fuels and deforestation, as well as agricultural activity and the decomposition of solid waste. The United States, with approximately five percent of the world's population, accounts for approximately 25 percent of the world's petroleum-based fuel consumption, or about 21 million barrels per day. Most of the increase in world oil demand comes from the transportation sector. Two-thirds of the nations petroleum-based fuel consumption is in the transportation sector, about 14 million barrels per day. Over the last 20 years, California's consumption of transportation related fuels increased by 50 percent. Petroleum-based fuels currently provide approximately 96 percent of the State's transportation energy needs.

According to the California EPA, transportation is the State's largest source of CO₂. If there are no significant policy or market changes, transportation related fuel consumption is projected to increase another 18 percent by 2025. The CEC estimates that if anticipated growth in VMT is not slowed, the increase will completely nullify the other advances that the State is seeking to control transportation related emissions, including lowering the carbon content of fuel.

Table 7.5 summarizes historical and projected fuel consumption for Placer County vehicles. The table also summarizes VMT by road system. During the period of the Plan (2005 to 2025), vehicle fuel consumption is anticipated to rise by 36 percent in Placer County, about double the projected statewide increase; whereas, VMT will increase from 37 to 49 percent for non-state and state highways respectively.

Table 7.5

Estimated & Projected Vehicle Fuel Consumption (Million Gallons) by Type & Vehicle Miles Traveled (VMT)(Millions) by Road System for Placer County

	2005	2008	2010	2015	2020	2025	2030
Vehicle MPG	17.991	18.152	18.2	18.501	18.639	18.691	18.754
Gasoline	161.929	161.36	165.603	185.807	204.38	221.762	248.579
Diesel	35.25	32.615	35.187	39.185	43.227	47.074	51.71
Total FC	197.179	193.975	200.79	224.992	247.607	268.836	300.289
State HWG VMT	1,872.20	1,957.79	2,031.69	2,314.19	2,565.76	2,793.46	3,130.96
Non-State HWY VMT	1,607.68	1,547.98	1,606.41	1,829.78	2,028.69	2,208.72	2,475.57
Total VMT	3,479.88	3,505.77	3,638.10	4,143.97	4,594.45	5,002.18	5,606.53

Sources:

1. 2008 California Motor Vehicle Stock, Travel, and Fuel Forecast, Caltrans, June 2009.
2. Estimates of Highway Gasoline Use by County (1,000 Gallons), Caltrans, Revised November 2006.

Impact of Gas Prices on Transportation Behavior

In July 2008, SACOG examined the impact of increasing gas prices on transportation behavior to estimate the travel changes that may result. The test used MTP travel forecasts for 2018 and increased year 2018 gasoline prices by 66 percent (in 2005, real gasoline prices increased by about 70 percent to \$4.25 / gallon). The test showed significant decreases in VMT and increases in transit trips due to increasing fuel costs; smaller changes in the expected directions for total trips. VMT per household decreased by about ten percent; transit trips increased by 12 percent; vehicle emission reduction varied by type of pollutant – CO2 decreased by nine percent, with ozone precursors decreasing by about six percent.

CALIFORNIA GREENHOUSE GAS EMISSION LEGISLATION

The State Legislature has adopted the public policy position that global warming is “a serious threat to the economic well-being, public health, natural resources, and the environment of California” (Health and Safety Code Section 38501).

The California legislature enacted AB 1493 in July 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB apply to 2009 and later model year vehicles. CARB estimates that the regulations will reduce GHG emissions from the light duty vehicle fleet by an estimated 18 percent in 2020 and 27 percent in 2030.

California Governor Schwarzenegger issued two Executive Orders regarding the greenhouse gas issue. S-3-05 (June 2005) calls for a coordinated approach to address the detrimental air quality effects of GHG and requires the following GHG emission reduction targets: by 2010 reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. S-20-06 (October 2006) requires State

agencies to continue their cooperation to reduce GHG and to have a Climate Action Team develop by a plan by June 2009 that outlines a number of actions to reduce GHG emissions to meet the targets required in Executive Order S-3-05 are met.

In 2006, the California legislature adopted AB 32, also known as the California Global Warming Solutions Act of 2006. AB 32 requires the CARB to set statewide GHG emission reduction targets by 2010 and regional targets by 2011, which would achieve GHG emissions equivalent to statewide levels in 1990 by 2020.

Executive Order S-01-07 was approved by Governor in January 2007. S-01-07 mandates a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. It also requires that a Low Carbon Fuel Standard for transportation fuels be established for California.

In 2008, the California legislature adopted SB 375. SB 375 requires CARB to set targets for the purpose of reducing GHG emissions from passenger vehicles for 2020 and 2035. The targets only apply to the regions in the State covered by the 18 metropolitan planning organizations (MPOs). SB 375 requires that MPOs, as part of the RTP, to develop strategies to achieve the GHG emission reduction targets. CARB must propose draft targets by June 10, 2010, and adopt final targets by September 30, 2010. Under SB 375, a region must include a Sustainable Communities Strategy as the land use basis of the RTP. If the resulting plan does not meet the GHG targets required under AB 32, the MPO must then prepare an Alternative Planning Strategy that would demonstrate how the targets could be met through alternative development patterns, infrastructure, or additional transportation measures.

SB 97 charged the Governor's Office of Planning and Research (OPR) with the responsibility of preparing guidelines to mitigate GHG emissions identified through the California Environmental Quality Act (CEQA) review process, including the effects associated with transportation and energy consumption.

CALIFORNIA GREENHOUSE GAS EMISSION INVENTORY

CARB is responsible for developing the California Greenhouse Gas Emission Inventory. The Inventory accounts for all greenhouse (GHG) emissions within the State. The current inventory covers the years 1990 to 2004. Fuel combustion accounts for 85 percent of the GHG emissions within California. The majority of the emissions are CO₂.

In 1990, the total statewide GHG emissions were 433.3 million metric tons (MMT) carbon dioxide equivalent. The transportation sector emitted 150.7 MMT or 25 percent of this total, with on-road sources contributing more than 70 percent of this inventory.

In 2004, the total statewide GHG emissions were 468.8 MMT. The transportation sector emitted 182.4 MMT or about 39 percent of this total, with on-road transportation contributing about 94 percent of this inventory. CARB's carbon calculator indicates that on a per capita basis an average Californian is responsible for about 6.7 tons of CO₂ per year, with an average California

vehicle responsible for 3.7 tons of CO₂ per year; and an average household at 10.9 tons of CO₂ per year.

Forecasting the amount of emissions that would occur in year 2020 if no GHG actions are taken is necessary to assess the scope of the emission reductions the State has to make to return to the 1990 emissions level by 2020. This forecast is known as “Business-as-Usual.” The year 2020 forecast for statewide GHG emissions is 596.4 MMT. The transportation sector accounts for about 38 percent of this forecast total or 225.4 MMT, with on-road transportation representing about 93 percent of the transportation inventory. Within on-road transportation, about 76 percent is emitted by passenger vehicles, with the remainder from 24 percent heavy duty vehicles. The forecast assumes no change in vehicle fleet mix over time and assumes growth in VMT derived from regional transportation modeling.

REGIONAL GREENHOUSE REDUCTION TARGETS

Regional GHG targets for light and medium duty vehicles will be set by CARB. The targets will be included as part of the update of the SACOG MTP for years 2020 and 2035. The targets will become the benchmarks for the MTP’s Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), and when met will allow the Sacramento region to take advantage of some CEQA streamlining options for residential development. SACOG currently estimates that the 2035 MTP will reduce GHG emissions on a per capita basis from 2005 levels by four percent in 2020 and by 13 percent in 2035. These estimates are summarized in Appendix O.

The challenge to reduce GHGs is to reduce the amount of fuel burned or to find a new fuel or technologies to meet the State’s transportation energy needs. As part of the MTP update, SACOG is examining several scenarios to find a future transportation and land use development pattern that will minimize GHG emissions. In addition, vehicle and fuel technologies under CARB’s global warming program will be included in the MTP analysis.

The scenarios under consideration focus on:

- The amount, location, and type of residential and commercial growth;
- The mix of road, transit, and non-motorized system investment; and
- The cost of travel by transit and auto.

These scenarios will be evaluated with all the performance measures from the MTP to keep the GHG target process in balance with other regional goals and objectives.

SACOG will be recommending to CARB GHG per capita targets of -7 percent for 2020 and -16 percent for 2035.

PLACER RTP GREENHOUSE GAS RESPONSIBILITY

CARB will give each region a target for GHG emissions. As the adoption of the regional GHG emission reduction targets will occur after the adoption of the 2035 RTP, the 2035 RTP does not address specific GHG emission reduction targets at this time. In the case of the Placer County RTP, the development of GHG reduction targets, strategies, and implementation responsibility is to be made by the SACOG, the MPO for the region. SACOG and PCTPA have executed a MOU, which establishes a framework for how SACOG will carry out its MPO responsibilities for Placer County. It is anticipated that SACOG will address GHG reduction targets in the development of its next MTP update. Consequently, the next generation of this RTP will need to address this issue as applicable.

The CTC guidance makes recommendations to reduce GHGs with specific targets. The 2035 RTP provides a starting place to work toward Placer County responsibility to address regional GHG targets; and is in alignment with the principles of AB 32 and SB 375. The 2035 RTP contains many goals and policies to reduce vehicle trips and improve air quality. The goal areas containing the most explicit policies relating to GHGs 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.

7.7 Air Quality Action Plan

Short and Long Range

1. Solicit the input of the Placer County Air Pollution Control District on all transportation plans, programs and projects. (*PCTPA, jurisdictions, Caltrans, PCAPCD*)
2. Prioritize and recommend transportation projects that minimize vehicle emissions while providing cost effective movement of people and goods. (*PCTPA, jurisdictions, PCAPCD, SACOG*)
3. Continue to promote projects that can be demonstrated to reduce air pollution and greenhouse gases, maintain clean air and better public health, through programs and strategies, to green the transportation system. (*PCTPA, jurisdictions, PCAPCD, SACOG*)
4. Work with the Placer County Air Pollution Control District in developing plans that meet the standards of the California Clean Air Act and the Federal Clean Air Act Amendments, and also lead to reduced greenhouse gas emissions. (*PCTPA, jurisdictions, PCAPCD, SACOG*)

5. Work with the Sacramento Area Council of Governments to evaluate the impacts of transportation plans and programs on the timely attainment of ambient air quality standards; regional greenhouse gas emission reduction targets; and health risks of sensitive receptors from exposure to mobile source air toxics. (*PCTPA, jurisdictions, PCAPCD, SACOG*)
6. Ensure transportation planning efforts comply with SB375 and AB32. (*PCTPA, jurisdictions, transit operators, PCAPCD, Caltrans, SACOG*)
7. Participate in SACOG efforts to develop a Regional Climate Action Plan. (*PCTPA, jurisdictions, PCAPCD, SACOG*)
8. Expand the use of alternative fuels to reduce impacts on air quality and GHG emissions. (*PCTPA, jurisdictions, PCAPCD, SACOG*)
9. Encourage jurisdictions and Caltrans to develop a green construction policy, the recycling of construction debris to the maximum extent feasible, and to use the minimum feasible amount of GHG emitting materials in the construction of transportation projects. (*PCTPA, jurisdictions, Caltrans, PCAPCD, SACOG*)
10. Encourage jurisdictions and Caltrans to mainstream energy efficiency in transportation projects, using energy efficient lighting technology in traffic signals, crosswalk lights, street lighting, railroad crossing lights, and parking lot lights. (*PCTPA, jurisdictions, Caltrans, PCAPCD, SACOG*)
11. Encourage jurisdictions and Caltrans to use lighter colored pavement with increased reflectivity in pavement rehabilitation projects, to reduce the urban heat island effect. (*PCTPA, jurisdictions, Caltrans, PCAPCD, SACOG*)
12. Encourage jurisdictions and Caltrans to protect, preserve, and incorporate trees and natural landscaping into transportation projects to provide shade, buffer winds, encourage people to walk, and to sequester CO₂. (*PCTPA, jurisdictions, Caltrans, PCAPCD, SACOG*)

7.8 Air Quality Projects

There are several projects included in the 2035 RTP specifically identified as air quality projects. These are shown in Table 7.6. For the most part, these are projects where PCTPA participates in larger regional programs sponsored by SACOG and the SMAQMD.

**Table 7.6
Air Quality Projects List**

Lead Agency	SACOG Project ID	SACOG MTP	SACOG MTIP	Project Title	Project Description	Year Complete	Status	Current Year (2010) \$	Expenditure Year \$	
City of Auburn Dept. of Public Works	PLA25351	'07-00	11-00	Street Sweeper Replacement	Replace one existing 1992 Ford Tymco 600 sweeper, with a new clean diesel powered street sweeper. (Emissions Reductions in kg/day: NOx 0.08, PM10 0.16)	2011	Programmed	\$282,040	\$293,322	
Sac. Metro Air Quality Management District	VAR56006	07-00	11-00	Regional Spare the Air Driving Reduction Program Phase 2	Sacramento Federal Nonattainment Area: Spare The Air Voluntary Driving Curtailment Program. [Continued from SAC21080, Larger MTP project is VAR56022] (Emission Benefits in kg/day: ROG 0.2, NOx 0.2). Placer County share only.	2013	Programmed	\$263,100	\$295,952	
SACOG	VAR56037	'07-00	09-28	SECAT Program Phase 2	Heavy-Duty NOx control strategies; SECAT program; GIS Transit program (includes bus stop & centralized regional transit information system, & trip planning). Placer County Share only.	2013	Programmed	\$1,315,550	\$1,479,815	
								2010-2015	\$1,860,690	\$2,069,088
								2016-2024	\$0	\$0
								2025-2035	\$0	\$0
								Total	\$1,860,690	\$2,069,088