

# **EXECUTIVE SUMMARY**

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## **Introduction**

**Why Is This Plan Being Prepared?**

**What Is New in This Plan Revision?**

**How Was This Plan Revision Prepared?**

**Is Air Quality Improving?**

**What Are the Applicable Key Federal and State Requirements that  
This Plan Revision Addresses?**

**How Has the Emissions Inventory Changed?**

**Has the Overall Control Strategy Changed Significantly?**

**What Other Requirements Are Addressed in This Plan?**

**What Considerations Have Been Made for the New Federal  
Standards for Particulate Matter and Ozone?**

**What are the Challenges of Attainment?**

**Has the Attainment Projection Changed for Federal or  
State Standards?**

## **INTRODUCTION**

The air we Southern Californians breathe continues to get cleaner, with recent years registering as the cleanest in decades. The remarkable improvement in air quality is the direct result of Southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its Air Quality Management Plan (AQMP). Yet the air in Southern California is far from meeting all federal and state air quality standards and, in fact, is among the worst in the nation. To reach the clean air goal in the few years remaining until Clean Air Act deadlines, Southern California must not only continue its diligence but intensify its pollution reduction efforts.

Continuing the progress toward clean air is a challenging task, not only to recognize and understand complex interactions between emissions and resulting air quality, but also to pursue the most effective possible set of strategies to improve air quality while maintaining a healthy economy. To ensure continued progress toward clean air and comply with state and federal requirements, the South Coast Air Quality Management District (AQMD or District) in conjunction with the California Air Resources Board (CARB), the Southern California Association of Governments (SCAG) and the U.S. Environmental Protection Agency (U.S. EPA) is preparing the 2003 revision to its AQMP (2003 AQMP or 2003 Plan). The 2003 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources and area sources.

The 2003 AQMP updates the demonstration of attainment with the federal standards for ozone and PM<sub>10</sub>; replaces the 1997 attainment demonstration for the federal carbon monoxide (CO) standard and provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the federal nitrogen dioxide (NO<sub>2</sub>) standard that the South Coast Air Basin (Basin) has met since 1992.

The 2003 AQMP proposes policies and measures to achieve federal and state standards for healthful air quality in the Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under District jurisdiction (namely, Coachella Valley). The Coachella Valley PM<sub>10</sub> Plan was recently revised in June 2002 and forwarded to CARB and U.S. EPA for approval.

This revision to the Plan also addresses several state and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. This Plan is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the Ozone SIP for the South Coast Air Basin for the attainment of the federal ozone air quality standard. However, this revision points to the urgent need for additional emission reductions (beyond those incorporated in the 1997/99 Plan) to offset increased emission estimates from mobile sources and meet all

federal criteria pollutant standards within the time frames allowed under the federal Clean Air Act.

This Plan as well as other key supporting information is available electronically and can be downloaded from the District's home page on the Internet (<http://www.aqmd.gov> and click on "Clean Air Plans").

## **WHY IS THIS PLAN BEING PREPARED?**

The California Clean Air Act requires a non-attainment area to update its AQMP triennially to incorporate the most recent available technical information. In addition, U.S. EPA requires that transportation conformity budgets be established based on the most recent planning assumptions (i.e., within the last 5 years). Both the 1997 SIP and the 1999 amendments were based on demographic forecasts of the mid-1990's using 1993 as the base year. Since then, updated demographic data has become available, new air quality episodes have been identified, and the science for estimating motor vehicle emissions and air quality modeling techniques for ozone and PM10 have improved. Therefore, a plan update is necessary to ensure continued progress toward attainment and to avoid a transportation conformity lapse and associated federal funding losses.

On June 2, 2003, EPA published in the Federal Register its "Proposed Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standard," 68 Fed.Reg. 32801-32870. As part of that proposal, EPA solicits comment on a proposal to revoke the present 1-hour ozone standard either in whole or in part one year after EPA designates the 8-hour ozone nonattainment areas. (68 Fed.Reg. 32019.) It is expected that EPA will designate the 8-hour ozone nonattainment areas by April 15, 2004. (68 Fed.Reg. 32808.) EPA is extremely unlikely to finalize this rule before the 2003 AQMP is adopted and submitted to EPA. At present, it is uncertain whether, when, or to what extent EPA will revoke the existing 1-hour ozone standard. Therefore, the 2003 AQMP assumes the 1-hour ozone standard will remain in effect for the foreseeable future.

## **WHAT IS NEW IN THIS PLAN REVISION?**

Each revision of the AQMP represents a snapshot in time, based on the best available information. The 2003 AQMP generally is very similar to the structure of the 1997 Plan and the 1999 amendments to the ozone SIP but like all new editions includes significant enhancements. The key improvements incorporated in the 2003 AQMP are summarized as follows:

- 1) Revised emissions inventory projections using 1997 as the base year, the CARB on-road motor vehicle emissions model EMFAC2002, and SCAG 2001 Regional Transportation Plan (RTP) forecast assumptions;

- 2) Revised control strategy that updates remaining control measures from the 1997/1999 SIP and incorporation of new control measures based on current technology assessments;
- 3) Reliance on 1997 ozone episodes and updated modeling tools for attainment demonstration relative to ozone and PM10; and
- 4) An initial assessment of progress toward the new federal 8-hour ozone and PM2.5 standards.

## **HOW WAS THIS PLAN REVISION PREPARED?**

This AQMP Revision was developed based on input and participation of numerous individuals and groups since the adoption of the 1997 AQMP and the 1999 amendments. In particular, the District Governing Board formed the AQMP Advisory Group and the Scientific, Technical & Modeling Peer Review (STMPR) Advisory Group to review the overall aspects of a draft AQMP and to make recommendations to staff concerning emission inventories, modeling, control measures, and socioeconomic impacts. The AQMP Advisory Group consists of approximately 50 members representing a cross-section of the community, including major businesses, small businesses, academia, local government, ethnic interests, environmental interests, and appropriate governmental agencies. The STMPR Advisory Group consists of approximately 22 members who are experts in the fields of socio-economic modeling, air quality modeling, air quality and meteorological monitoring, atmospheric science and medicine. In addition to the input from the AQMP and STMPR Advisory Groups in selecting the air quality model for the Plan, staff has also solicited and incorporated feedback from additional air quality modeling experts in the field.

To help provide important technical and scientific data to support the update to the PM10 Plan and provide the foundation for future PM2.5 plans, the Governing Board in December 1997 established the PM10 Technical Enhancement Program (TEP), a multi-year cooperative study designed to provide new ambient data for particulates, improved emissions inventories, and improved models to predict future levels of particulates and ozone. This program, which was designed to build upon the findings of its predecessor, PTEP, was jointly funded by the District, U.S. EPA, City of Los Angeles, County Sanitation Districts of Los Angeles, Western States Petroleum Association, Southern California Gas Company, CalMat, and Southern California Rock Products Association, and successfully delivered critical new analytical tools and information which was directly input to this Plan.

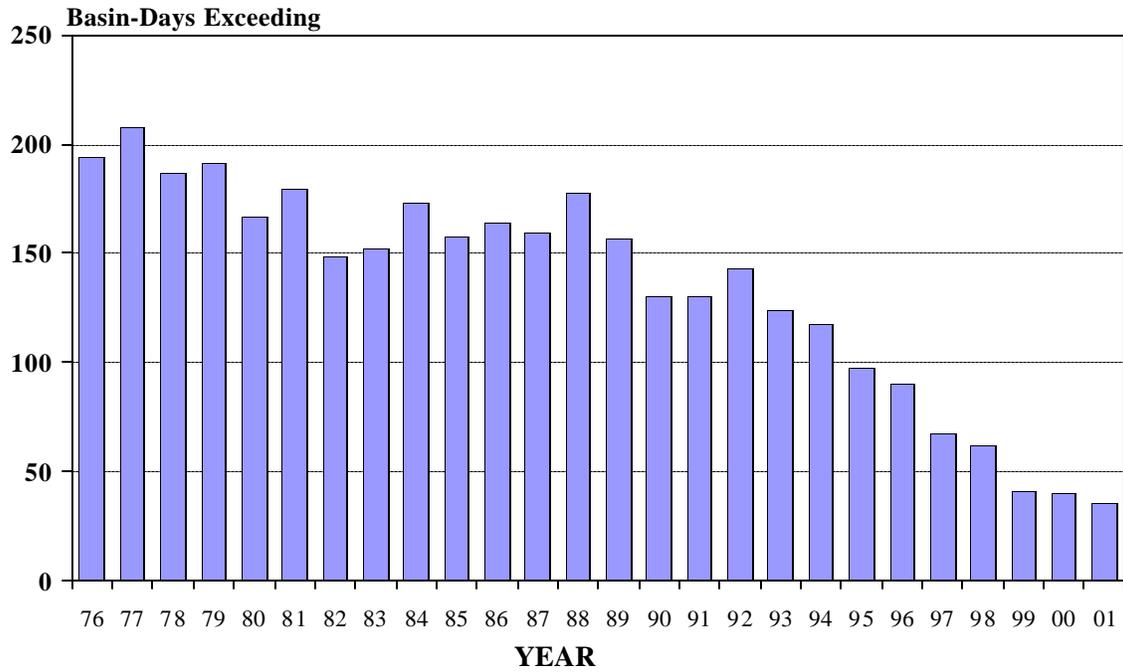
In preparing this Plan, the District coordinated closely with SCAG and the CARB, as well as the U.S. EPA. SCAG has the primary responsibility for providing future growth projections and the development of transportation control measures; ARB has the primary responsibility for the development of mobile source emissions inventories as well as mobile source and consumer product control measures. Their inputs are included in this

Plan. Also, the U.S. EPA participated throughout the plan development process to provide guidance as to federal CAA requirements.

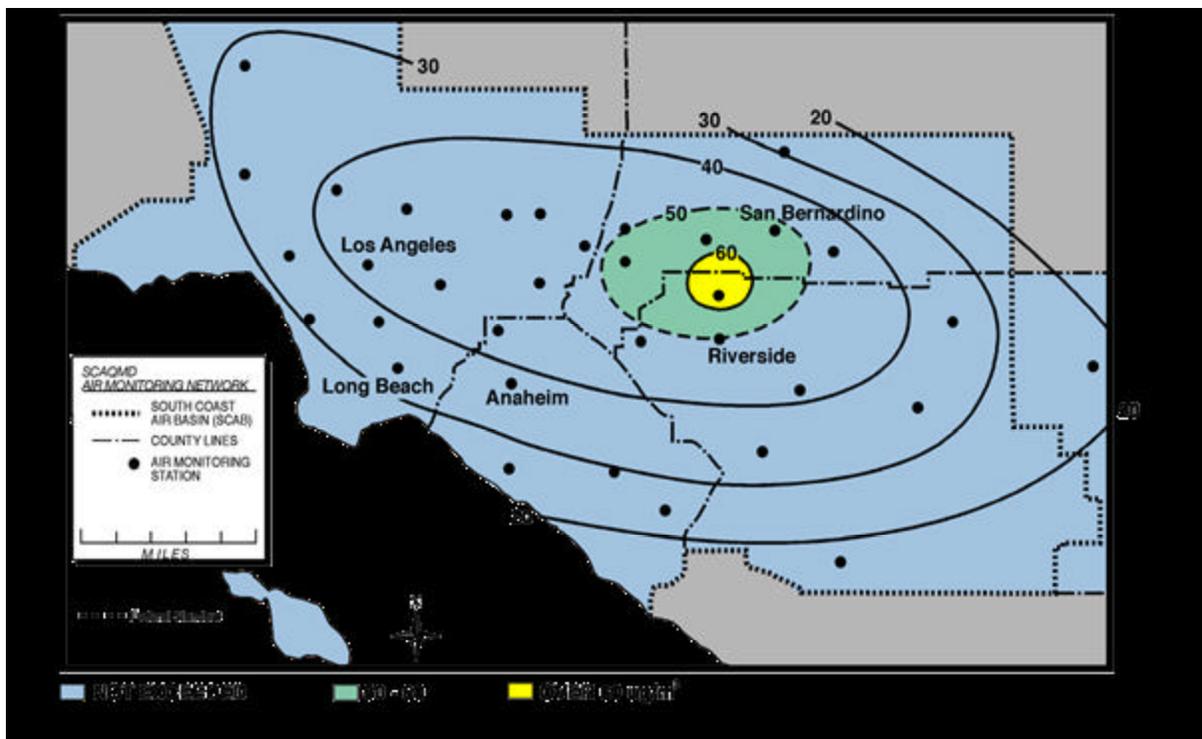
## **IS AIR QUALITY IMPROVING?**

Yes. Over the years, the air quality in the Basin has improved significantly, thanks to the comprehensive control strategies implemented to reduce pollution from mobile and stationary sources. For instance, the total number of days the Basin exceeds the federal 1-hour standard has decreased dramatically over the last two decades from more than 200 days to fewer than 50. However, the Basin still exceeds the federal 1-hour standard more frequently than any other location in the U.S. The Basin is designated as an "extreme" nonattainment area for ozone. Figure ES-1 shows the long-term trend in ambient ozone counts over the last two decades. The figure depicts the number of Basin-days above the federal 1-hour ozone standard, which represents the number of days the standard was exceeded anywhere in the Basin.

In 2001, the Basin exceeded the federal and state standards for PM10, although improvements have been registered on that front as well. Exceedances of the federal annual and 24-hour PM10 standards were confined to Riverside and San Bernardino counties. The more stringent state PM10 standards were exceeded over much larger areas. In 2001, the Basin did not exceed the standards for carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates or lead. Although the 2002 air quality data has not yet been quality assured/quality controlled, the preliminary data confirms the trend of continued progress. Figure ES-2 shows the annual average PM10 concentrations in the Basin in 2001.



**FIGURE ES-1**  
**Total Basin-Days Above the Federal 1-Hour Ozone Standard from 1976-2001**



**FIGURE ES-2**  
**Annual Average PM10 Concentration in 2001**

**WHAT ARE THE APPLICABLE KEY STATE AND FEDERAL REQUIREMENTS THAT THIS PLAN REVISION ADDRESSES?**

The 1988 California Clean Air Act includes the following key requirements that must be addressed in any AQMP revision: apply Best Available Retrofit Control Technology; reduce nonattainment pollutants and their precursors at a rate of five percent per year, or, if this cannot be done, include all feasible measures and an expeditious implementation schedule; reduce population exposure to nonattainment pollutants (i.e. ozone, carbon monoxide, and nitrogen dioxide for the Basin) according to a prescribed schedule; and, rank control measures by cost-effectiveness and implementation priority. Finally, state law requires the plan to provide for attainment of the federal and state ambient air quality standards at the earliest practicable date.

The 1990 federal Clean Air Act Amendments overhauled the federal planning provisions for areas not meeting federal clean air standards. The amendments identified specific emission reduction goals, required both a demonstration of reasonable further progress and attainment by specified dates, and incorporated more stringent sanctions for failure to attain or to meet interim milestones. The 1997, 1999, and 2003 AQMPs were designed to meet applicable state and federal requirements.

**HOW HAS THE EMISSIONS INVENTORY CHANGED?**

For this Plan revision, the 1997 emissions inventory is relied upon to establish baseline and future year projections. The inventories were developed according to procedures stemming from the federal Clean Air Act. To meet state and federal law requirements, updated emission inventories for two pre-1997 years (1990 and 1995) as well as nine future years (1998, 2000, 2002, 2005, 2006, 2007, 2008, 2010 and 2020) are also provided.

The 1997 emissions inventory now represents the most comprehensive emissions inventory ever established for the South Coast Air Basin and reflects all regulations that have been adopted and implemented as of 1997. The 1997 emissions inventory serves as the basis for the development of emission forecasts for future years. These forecasts reflect emission reductions from already adopted rules with post-1997 compliance dates and demographic and economic growth forecasts by SCAG.

In developing the revised inventories for this Plan revision, the most up-to-date inventory methodologies and emission factors were used. In addition, special studies were conducted to better quantify ammonia emissions as well as emissions from aircraft and

marine vessels. The most notable inventory change, however, originated from the category of mobile sources. In 2002, CARB released its first off-road emissions inventory model and revised its on-road emissions inventory model, EMFAC2002, which revealed significantly higher past, present and future emissions from mobile sources than previous inventories.

## **HAS THE OVERALL CONTROL STRATEGY CHANGED SIGNIFICANTLY?**

The basic PM10 control strategy contained in the 1997 Plan, augmented by a few additional PM10 control measures included in this Plan revision, appears to be adequate to demonstrate attainment of the federal PM10 standard. With respect to ozone, however, the basic strategy of the 1997 Plan and the 1999 amendments must be significantly overhauled to address the new realities of higher mobile source emissions and lower carrying capacities for ozone as indicated by new modeling and meteorological episodes. Additional reductions, above and beyond those committed to in the 1997 Plan and 1999 amendments, will be necessary to demonstrate attainment with the federal ozone standard and present a significant challenge.

## **WHAT OTHER REQUIREMENTS ARE ADDRESSED IN THIS PLAN?**

Under federal conformity regulations, all federal or federally funded transportation projects must conform to the SIP, and must not be a cause of impeding progress toward attainment of the federal standards. To establish conformity, emissions from future projects must be accounted for in the future baseline emissions inventories, such that the attainment demonstrations include these future emissions. For transportation projects, planning is now underway out to the year 2030. The Plan establishes conformity budgets for the future years based on the 2006 PM10 and 2010 ozone attainment demonstrations. While ozone precursor emissions are expected to continue to decline in future years, primary PM10 emissions are expected to increase due to the expected growth in mobile vehicle population and vehicle miles traveled. To address this increase in primary PM10 emissions from travel while continuing to provide for attainment after 2006, this plan establishes a mechanism for conformity demonstration purposes based on the implementation of the new control measure, "Transportation Conformity Budget Backstop Control Measure" in which commitments are made to achieve additional primary PM10 reductions from transportation-related PM10 source categories in 2020 and 2030 to offset the increased emissions. This measure will be revised in future SIP revisions to reflect updated PM10 emission inventories and attainment demonstrations.

## **WHAT CONSIDERATIONS HAVE BEEN MADE FOR THE NEW FEDERAL STANDARDS FOR PARTICULATE MATTER AND OZONE?**

In 1997, U.S. EPA promulgated new federal standards for ozone and particulate matter. Specifically, U.S. EPA established an 8-hour ozone standard, and a 24-hour and an annual average standard for fine particulates or PM<sub>2.5</sub>. Although the implementation guidelines for the new standards have not been finalized yet, preliminary feedback for U.S. EPA indicates that the likely attainment dates for the PM<sub>2.5</sub> and ozone standards will be 2014 and 2021, respectively. The State Implementation Plans to demonstrate attainment with the new standards are expected to be due in 2007.

Although, the new standards are not technically required to be addressed in the 2003 Plan revision, the District, cognizant of their importance and ramifications, is providing comparative information regarding the current attainment strategies relative to the potential new standards. Generally, this assessment shows that the new standards are more restrictive than the current standards.

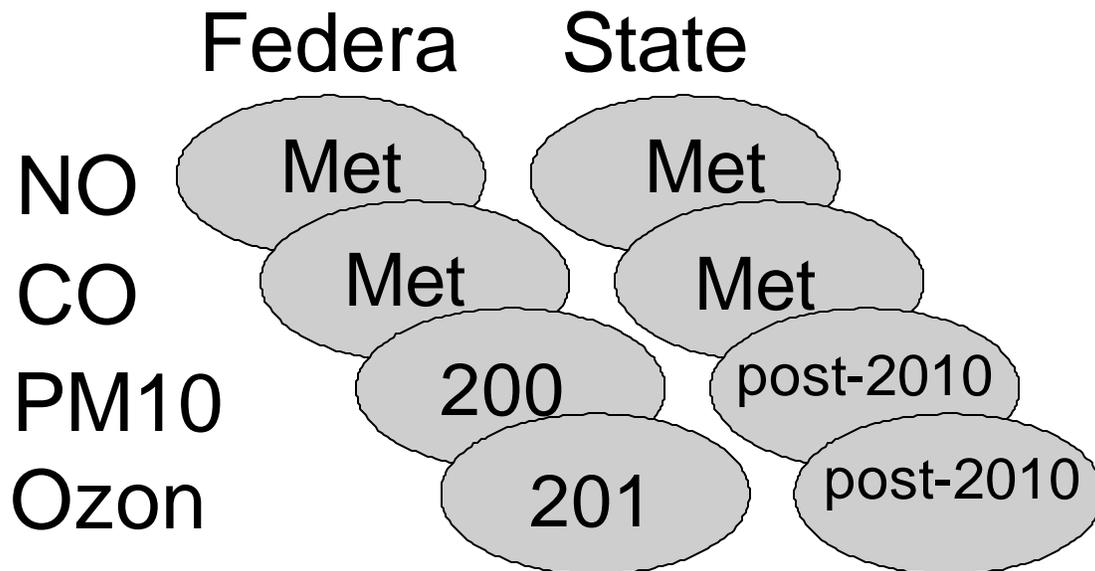
## **WHAT ARE THE CHALLENGES OF ATTAINMENT?**

The improved mobile source inventories significantly increased emission estimates for the past, current, and future, causing more reductions needed to attain the standards. Furthermore, the new episode selected for the 2003 AQMP attainment demonstration is more conducive for ozone formation, resulting in a lower carrying capacity than the last plan. The Basin is required to demonstrate attainment of the federal PM<sub>10</sub> standards by 2006 and the federal 1-hour ozone standard by 2010. Significant improvements in air quality will be necessary to bring the Basin into attainment by federal deadlines, particularly for the federal 1-hour ozone standard. Therefore, the attainment strategy incorporated in the 2003 AQMP ought to reflect the region's utmost effort in reducing emissions from all sources contributing to Basin's air pollution. To that end, the 2003 AQMP builds upon improvements accomplished from the previous plans, and aims to incorporate all feasible control measures while balancing costs and socioeconomic impacts. The few years remaining to meet attainment deadlines afford little margin for error in implementing such a comprehensive control strategy. Further, one has to make sure that the control strategy selected to attain the current federal PM<sub>10</sub> and 1-hour ozone standards will also complement and not significantly conflict with the Basin's future efforts to attain the new federal 8-hour ozone and fine particulate (PM<sub>2.5</sub>) standards. The improved planning tools incorporated in the 2003 AQMP are vital in designing such a control strategy, and allow for its critical and objective evaluation and its realignment, if necessary.

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## HAS THE ATTAINMENT PROJECTION CHANGED FOR FEDERAL OR STATE STANDARDS?

No. The 2003 AQMP proposes to attain the state and federal standards in the same time frame as proposed in the 1997 AQMP. However, the portion of necessary emission reductions categorized as long-term measures has grown significantly and highlights the need for early rule adoption of available controls and the continuing need to foster new clean air technology and strategies. (See Figure ES-3.)



**FIGURE ES-3**

Attainment Target Dates