

**State of California  
AIR RESOURCES BOARD**

**STAFF REPORT**

**PROPOSED 2004 STATE IMPLEMENTATION PLAN  
FOR OZONE  
IN THE SAN JOAQUIN VALLEY**

Release Date: September 28, 2004  
Meeting Date: October 28, 2004

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State of California  
California Environmental Protection Agency  
AIR RESOURCES BOARD

STAFF REPORT

PUBLIC MEETING TO CONSIDER APPROVAL OF THE PROPOSED  
2004 STATE IMPLEMENTATION PLAN FOR OZONE  
IN THE SAN JOAQUIN VALLEY

Air Resources Board Meeting  
Begins October 28, 2004  
9:00 a.m.  
San Joaquin Valley Unified Air Pollution Control District  
1990 E. Gettysburg Avenue  
Fresno, California

Meeting notice available at <http://www.arb.ca.gov/planning/sip/sip.htm>

Prior to the meeting, the public may submit written comments through regular mail, e-mail or fax. To be considered by the Board, written comments not physically submitted at the meeting must be **received no later than 12:00 noon, October 27, 2004** and sent to:

Clerk of the Board  
Air Resources Board  
1001 I Street, 23rd Floor  
Sacramento, California 95814

or by e-mail to [sjvsip04@listserve.arb.ca.gov](mailto:sjvsip04@listserve.arb.ca.gov)

or by facsimile transmission to the Clerk of the Board at (916) 322-3928

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## TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY.....	1
I. BACKGROUND.....	5
A. Profile of the San Joaquin Valley .....	5
B. Historical Air Quality .....	6
C. Central California Ozone Study .....	8
II. AIR QUALITY PLANNING.....	9
A. Ozone Planning Background.....	9
B. 2003 PM10 Plan .....	10
C. 8-Hour Ozone Planning Requirements.....	10
D. PM2.5 Planning Requirements .....	11
E. California Clean Air Act Plans .....	11
III. PLAN EVALUATION .....	12
A. Emission Inventory .....	12
B. Emission Reduction Credits .....	13
C. Air Quality Modeling .....	14
1. Ozone Episode .....	14
2. Air Quality Model .....	14
3. Modeling Performance .....	15
4. Attainment Emissions Target.....	16
5. Peer Review .....	17
D. Control Strategy.....	17
1. Local Measures .....	19
2. State Measures .....	26
3. Federal Measures.....	31
4. Long-Term Measures .....	31
5. Contingency Measures.....	34
E. Attainment Demonstration .....	34
F. Rate-of-Progress Demonstration .....	35
G. Transportation Conformity Budgets .....	37
IV. FUTURE FEDERAL OZONE PLANS .....	38
A. 2007 1-Hour Ozone Plan Update .....	38
B. 8-Hour Ozone Plans .....	38
V. ENVIRONMENTAL IMPACTS.....	39
VI. LEGAL AUTHORITY .....	41
VII. STAFF RECOMMENDATIONS .....	42

## EXECUTIVE SUMMARY

The San Joaquin Valley Unified Air Pollution Control District (District) released the 2004 State Implementation Plan (SIP) for Ozone in the San Joaquin Valley on September 10, 2004 and will consider local adoption at a hearing scheduled for October 8, 2004. Contingent on prior adoption by the District, the Air Resources Board (ARB or Board) will consider approval of the 2004 Ozone SIP at a public meeting on October 28, 2004. If the Board adopts the plan, it will be submitted to the U.S. Environmental Protection Agency (U.S. EPA) for federal approval.

This new plan identifies the clean air strategies needed to bring the Valley into attainment with the federal 1-hour ozone standard by 2010. It builds on already adopted controls and the strategies in the Valley's 2003 SIP for inhalable particulate matter (PM10), then adds new Ozone SIP commitments that provide the last increment of reductions to meet the 1-hour standard.

***Air Quality, Emissions, and Growth.*** The San Joaquin Valley experiences some of the worst ozone and particulate air pollution in the U.S., with both high levels and frequent episodes. Since 1980, pollution controls have cut ozone-forming emissions by nearly 60 percent, even with growth in population, vehicle travel, and the economy. The emission controls have improved the long-term air quality trends, decreasing the number of days over the federal 1-hour ozone standard and the geographic scope of the problem. Based on U.S. EPA's more protective 8-hour ozone standard, Valley residents still breathe unhealthy levels of ozone about a third of the year.

***Attainment Deadline.*** This plan focuses on achieving the federal 1-hour ozone standard by the 2010 deadline established by the federal Clean Air Act for nonattainment areas with a classification of extreme. The 2010 date is the second extension of the San Joaquin Valley's deadline, with each change triggering a new round of air quality planning and control strategy development. The Valley was originally classified as a serious federal ozone nonattainment area with a 1999 deadline, then as a severe area with a 2005 deadline. The District formally requested and was granted a voluntary reclassification (or "bump up") from severe to extreme, requiring tighter emission controls and attainment by 2010. Although U.S. EPA intends to revoke the 1-hour standard in 2005 (and replace it with the 8-hour standard), this plan is necessary to satisfy a legal requirement in U.S. EPA's transition policy for areas like the Valley that don't have an approved 1-hour ozone attainment plan.

***SIP Elements.*** The Proposed SIP includes: air quality data; an emission inventory for 1990 – 2010; air quality modeling to determine the attainment emissions target; a control strategy reflecting the benefits of adopted local, State, and federal regulations, together with local and State commitments for additional emission reductions from new measures; a demonstration of attainment by 2010; a rate-of-progress demonstration through 2010; new motor vehicle emission budgets for transportation conformity; and contingency emission reductions.

**Improved Scientific Tools.** The tools and data used in the 2004 Ozone SIP represent the state-of-the-science and a significant step forward in our collective ability to understand the level of emission controls needed to meet the ozone standards in the Valley. This information and capability is a direct result of the work done under the Central California Ozone Study, a public-private \$18 million program of meteorological and air quality monitoring, emission inventory development, data analysis, and air quality simulation modeling.

**Control Strategy.** The plan shows that the Valley needs to reduce ozone-forming emissions of volatile organic compounds (VOC) and nitrogen oxides (NOx) by a combined 342 tons per day (tpd) between the 2000 starting point and the 2010 attainment date. Table ES-1 shows that 70 percent, or 238 tpd, of the needed 342 tpd reductions come from control measures already adopted and on track for implementation. The next 13 percent of the reductions are from new measures identified in the adopted 2003 Valley PM10 SIP. This plan introduces additional commitments to achieve the last 17 percent of the reductions needed.

**Table ES-1  
Summary of Attainment Strategy for 2004 Ozone SIP  
(San Joaquin Valley, Summer Planning, in tons per day)**

	<b>VOC + NOx</b>	<b>Percent of Total Reductions</b>
2000 Baseline Emissions	1000	
Total Reductions Needed for Attainment	<u>-342</u>	
2010 Attainment Emissions Target	658	
<b>Emission Reductions</b>		
Measures Adopted as of September 2002	-238	70%
New Measures in 2003 Valley PM10 SIP	-46	13%
New Defined Measures in Ozone SIP	-48	14%
New Long-Term Measures in Ozone SIP	-10	3%
<b>Total Reductions Achieved by Ozone SIP</b>	<b>-342</b>	

In this plan, the District introduces Ozone SIP commitments for 12 new defined measures to achieve 23 tpd of reductions -- the most significant new measure would reduce VOC emissions from large concentrated animal feeding operations by over 15 tpd. This plan takes full credit for the VOC and NOx reductions in the 2003 State and Federal Strategy for the California SIP approved by the Board last year. The PM10 SIP included 10 tpd of NOx reductions from new State measures. To provide the additional reductions needed for ozone attainment, this plan increases the State's commitment to a total of 20 tpd NOx and 15 tpd VOC reductions in the San Joaquin Valley by 2010.

Table ES-2 provides a detailed breakdown of the attainment strategy by local, State, and federal jurisdiction.

**Table ES-2**  
**Summary of Attainment Strategy by Jurisdiction**  
(San Joaquin Valley, Summer Planning, in tons per day)

	VOC	NOx	Percent of VOC+NOx by Jurisdiction
<b>2000 Baseline Emissions</b>			
State	209.7	249.4	46%
Local	203.9	161.4	36%
Federal	<u>29.9</u>	<u>146.0</u>	18%
<i>Total</i>	443.5	556.8	
<b>2000-2010 Reductions from Measures Adopted (as of September 2002)</b>			
State	-79.3	-97.2	74%
Local <sup>1</sup>	+8.5	-18.9	4%
Federal	<u>-7.6</u>	<u>-43.9</u>	22%
<i>Total</i>	-78.4	-160.0	
<b>2010 Baseline Emissions with Adopted Measures</b>			
State	130.4	152.2	37%
Local	212.4	142.5	47%
Federal	<u>22.3</u>	<u>102.1</u>	16%
<i>Total</i>	365.1	396.8	
<b>2010 Reductions from Defined New Measures</b>			
State	-15.0	-20.0	37%
Local	-30.7	-28.3	63%
Federal	<u>0</u>	<u>0</u>	0%
<i>Total</i>	-45.7	-48.3	
<b>2010 Reductions from Long-Term Measures</b>			
Local	-5.0	-5.0	100%
<b>2010 Total Reductions from All Measures</b>			
State	-94.3	-117.2	62%
Local	-27.2	-52.2	23%
Federal	<u>-7.6</u>	<u>-43.9</u>	15%
<i>Total</i>	-129.1	-213.3	
<b>2010 Attainment Emissions Target</b>	<b>314.4</b>	<b>343.5</b>	

<sup>1</sup> Baseline District measures reduce NOx by nearly 19 tpd between 2000 and 2010, but allow a net increase of just over 8 tpd in VOC emissions due to projected growth (mainly from livestock operations) over the same timeframe. The District's full rulemaking agenda over the next several years will ensure net reductions in both pollutants in the future.

**Federal 8-Hour Ozone Standard.** U.S. EPA has begun to implement a more stringent 8-hour ozone standard that will replace the current 1-hour standard. In addition to providing the last increment of reductions for the 1-hour standard, the 2004 Ozone SIP lays the groundwork for the 8-hour plan and attainment strategy due June 15, 2007.

***District Clarifications to Proposed Plan.*** District staff indicates it will make technical corrections to the plan at or prior to the October 8, 2004 local hearing. These changes include:

- Clarification of the District's commitment to achieve the aggregate local emission reductions from the defined new measures or from alternative measures in the same timeframe.
- Clarification of the District's intent to adopt the long-term measures.
- Clarification that the District will use the SIP update mechanism for changes to the rule development schedule.
- An update to the rate-of-progress calculations demonstrating the required emission reduction progress based on adopted measures.
- Corrections to the emission inventory and other minor revisions.

***Staff Recommendation.*** The Proposed SIP, with the technical corrections characterized above, satisfies applicable requirements and will reduce ozone levels throughout the San Joaquin Valley to benefit public health. We recommend that the Air Resources Board adopt the 2004 San Joaquin Valley Ozone SIP and direct the Executive Officer to submit the plan to U.S. EPA as a revision to the California SIP.

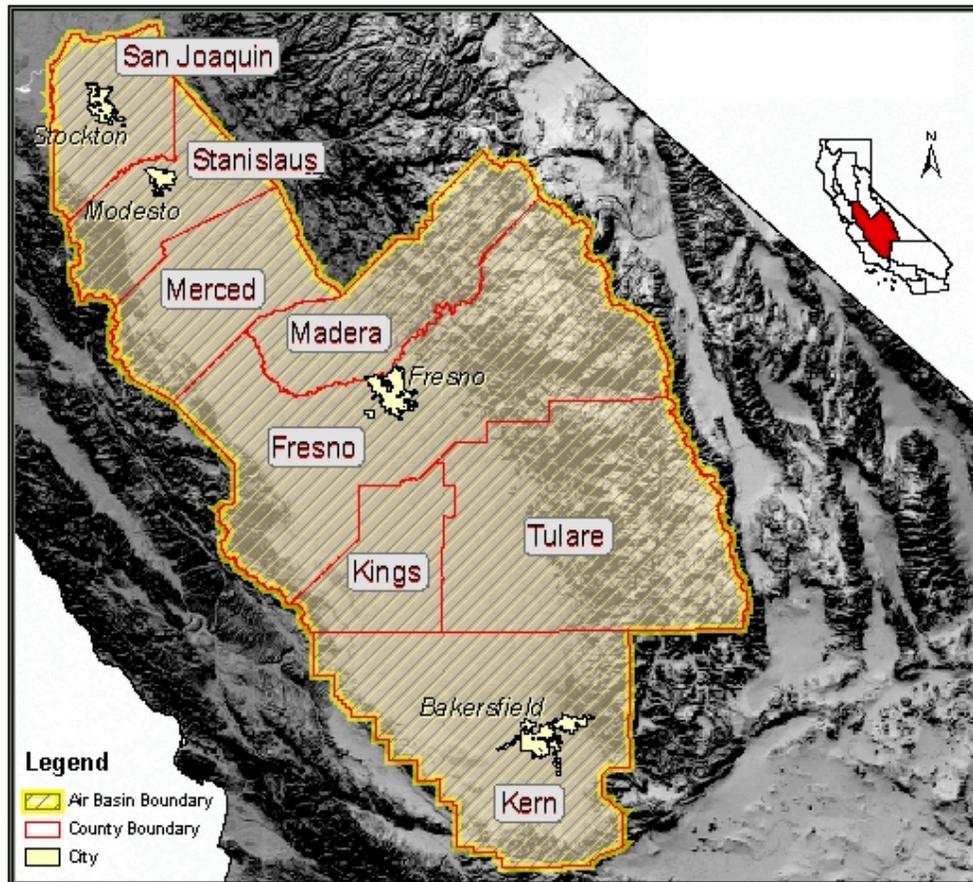
## I. BACKGROUND

This chapter provides an overview of topography, meteorology, and ozone air quality in the San Joaquin Valley. It also briefly describes some of the air quality research used to develop the Valley's 2004 Ozone SIP.

### A. Profile of the San Joaquin Valley

The San Joaquin Valley Air Basin covers San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Western Kern Counties. The San Joaquin Valley comprises nearly 25,000 square miles and covers approximately 16 percent of the geographic area of California. It is a continuous valley approximately 250 miles long and averaging 80 miles wide. Mountains bound the area on the west (Coastal Mountain range), the east (Sierra Nevada range), and the south (Tehachapi Mountains). The San Joaquin Valley has over 3.4 million residents today, with 4 million expected by 2010. The major urban centers are Bakersfield, Fresno, Modesto, and Stockton. The San Joaquin Valley Unified Air Pollution Control District is the local air quality agency responsible for the air basin. Figure I-1 shows the San Joaquin Valley Air Basin.

**Figure I-1**  
**San Joaquin Valley**

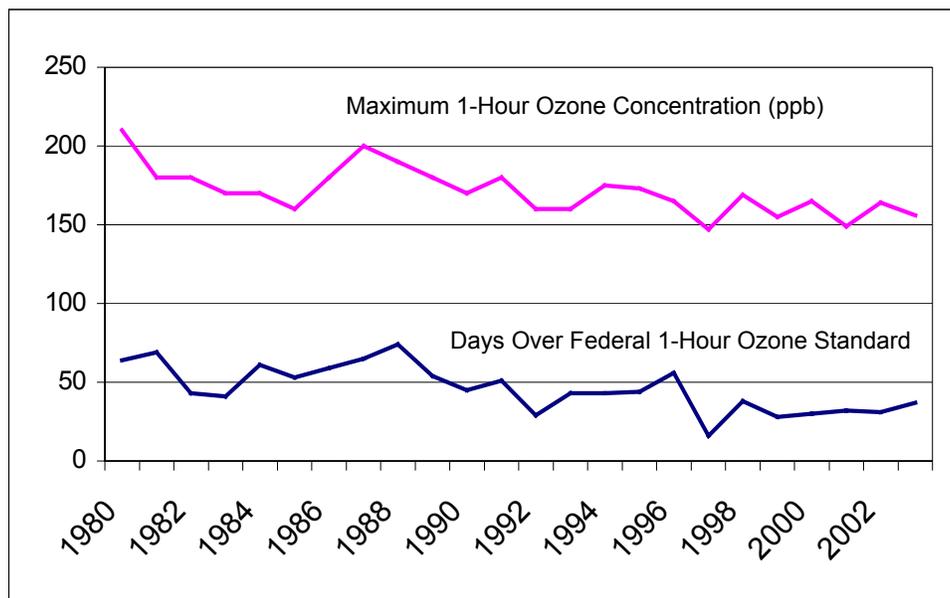


## B. Historical Air Quality

Due to a combination of meteorology and air pollutant emissions, the San Joaquin Valley experiences many days where ozone levels are greater than the federal 1-hour ozone standard. The areas experiencing the greatest number of violations of that standard are southeast and downwind of Fresno and Bakersfield. Ozone peaks generally occur during July through October, with daily maximum concentrations between noon and 6:00 p.m.

The long-term trend in San Joaquin Valley ozone air quality, as measured by the maximum 1-hour ozone concentration in parts per billion (ppb) and the number of days over the federal 1-hour ozone standard, is shown in Figure I-2. As the figure shows, ozone air quality is improving in the Valley over the long-term. Despite fluctuations due to differences in weather each year, the Valley has experienced a gradual decline in both the highest recorded concentrations of ozone, and the number of days on which the federal 1-hour standard is exceeded.

**Figure I-2**  
**Maximum 1-Hour Ozone Concentration and**  
**Days Over Federal 1-Hour Ozone Standard in the San Joaquin Valley**

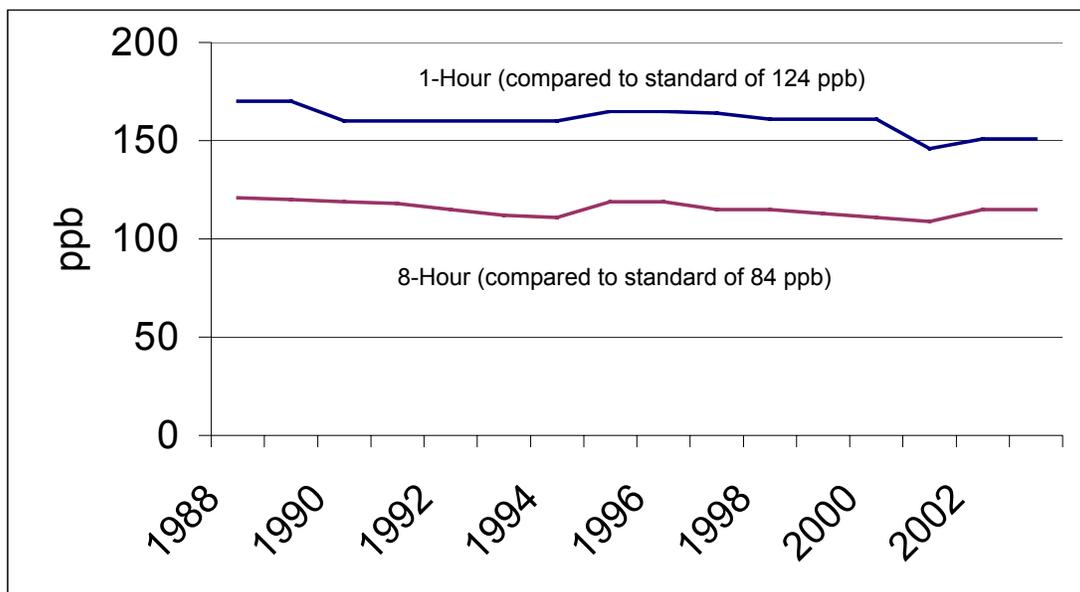


Although the emission reduction progress has been steady, the annual variation in ozone air quality is strongly influenced by differences in weather conditions. Years having more days with severe weather conditions that are conducive to ozone formation (such as 1988, 1996 and 1998) have more days that exceed the standards and higher peak concentrations. These severe weather conditions include hot temperatures, strong inversion layers, and calm conditions. Summers with milder weather conditions (1997, 2004) have better air quality. Preliminary data indicates fewer than 10 federal 1-hour exceedances for the Valley to date in Summer 2004.

The northern region of the Valley – San Joaquin, Stanislaus and Merced Counties—has the cleanest air. The Valley’s peak concentrations have occurred (and continue to occur) at sites in either Fresno or Kern Counties. On average, Fresno and Kern Counties each have historically recorded at least twice as many days above the national 1-hour standard as any of the remaining counties in the Valley.

Figure I-3 shows the Valley’s federal 1-hour design value (the required statistical indicator used to compare to the federal standard). It has improved only slightly over the last 15 years. The San Joaquin Valley also exceeds U.S. EPA’s new 8-hour ozone standard. The Valley trends for 8-hour and 1-hour ozone are similar.

**Figure I-3  
1-Hour and 8-Hour Design Value Trends  
San Joaquin Valley  
1988-2003**



Other indicators of how severe and widespread the ozone problem is in the Valley show appreciable progress over time.

- The number of days over the federal 1-hour standard is dropping for nearly all sites.
- In Kern County, the number of the very worst days (days with ozone over 0.15 ppm) has dropped by about 75 percent, and the number of days with federal 1-hour exceedances by more than 50 percent, over the last 15 years.
- The geographic extent of ozone levels above the federal 1-hour standard is also shrinking over time, meaning that fewer communities are exposed to these unhealthful levels. The Valley’s northern region has not registered any exceedances since Summer 2002. Air quality modeling for 1-hour and 8-hour ozone shows both reduced ozone levels and fewer areas exposed to high ozone over time.

### **C. Central California Ozone Study**

The San Joaquin Valley's last attainment demonstration for the federal 1-hour ozone standard as part of the 1994 Ozone SIP was based on modeling from an ozone episode that occurred during the 1990 San Joaquin Valley Air Quality Study.

A decade later, air quality experts conducted the next generation study, called the Central California Ozone Study (CCOS). CCOS is a public-private \$18 million, multi-year program of meteorological and air quality monitoring, emission inventory development, data analysis, and air quality simulation modeling. CCOS was designed to advance the state-of-the-science and provide modeling capability for all of California north of the Tehachapi Mountains. The CCOS study domain is large, extending from out over the Pacific Ocean to Nevada and from south of the Tehachapies to north of the Oregon border.

Data collected in CCOS, especially for the July-August 2000 intensive ozone episode, provides the basis for the air quality modeling and attainment demonstration in the Valley's 2004 Ozone SIP.

## II. AIR QUALITY PLANNING

This chapter describes recent and future San Joaquin Valley plans and reviews the relevant planning provisions in the federal Clean Air Act (Act).

### A. Ozone Planning Background

The federal Clean Air Act classifies nonattainment areas and sets out specific planning and control requirements based on the severity of each area's air quality. Each of the nonattainment classifications—marginal, moderate, serious, severe, or extreme—is linked to a fixed deadline to attain the federal air quality standard. In 1990, the San Joaquin Valley was designated as nonattainment with a serious classification, which carried an automatic attainment date of 1999.

The San Joaquin Valley did not attain the 1-hour ozone standard in 1999. U.S. EPA found that the area failed to attain by the deadline and reclassified the Valley as a severe ozone nonattainment area on November 8, 2001. (At the same time, U.S. EPA established eastern Kern County, which had been part of the San Joaquin Valley nonattainment area, as its own nonattainment area.) With the reclassification, U.S. EPA set a deadline of May 15, 2002 for the District to submit a severe area plan.

In response to the reclassification, the District adopted a 2002 and 2005 Rate of Progress (ROP) Plan in May 2002. The District later amended this plan in December of the same year to reflect the latest motor vehicle emission estimates projected by EMFAC2002. These plans satisfied all planning requirements for a severe nonattainment area, except for a demonstration of attainment by the 2005 deadline.

Preliminary analysis at that time indicated that to attain the federal standard, the Valley needed to reduce ozone precursor emissions by approximately 30 percent (roughly 300 tons per day) from expected 2005 emission levels. Recognizing the inability to identify sufficient emission reductions from control measures to bring the Valley into attainment by 2005, the District Board voted on December 18, 2003 to request voluntary reclassification to extreme with an associated 2010 attainment deadline. ARB forwarded this request to U.S. EPA. On April 16, 2004, U.S. EPA published a final notice in the Federal Register reclassifying the Valley to extreme effective May 17, 2004 and established the following requirements:

#### Due November 15, 2004

- Demonstrate attainment\* of the 1-hour ozone standard attainment by 2010;
- Demonstrate reasonable progress\* in reducing emissions for years 2008 and 2010;
- Use clean fuels (like natural gas) for boilers as required under section 182(e)(3); and
- Identify contingency measures for progress and attainment.

\* These plans also need to establish motor vehicle emission budgets for transportation conformity in 2008 and 2010.

Due May 16, 2005

- Decrease the emission level that defines a major stationary source from 25 down to 10 tons per year;
- Apply reasonably available control technology (RACT) rules to facilities subject to the new lower major source cutoff; and
- Establish a more stringent New Source Review (NSR) requirement to offset emissions from new or modified major stationary sources – increase the current offset ratio of 1.3 tons of reductions for every ton of increased emissions up to a ratio of 1.5 to 1.

#### **B. 2003 PM10 Plan**

To fulfill its obligations as a serious PM10 nonattainment area, the San Joaquin Valley adopted a new PM10 Plan on June 19, 2003. This plan includes 245 tons per day of reductions in direct PM10 and PM10 precursor emissions (notably NOx) between 1999 and 2010 from a combination of the existing control programs and new commitments, and demonstrates attainment by 2010. U.S. EPA published its final approval of the Valley's 2003 PM10 Plan in the Federal Register on May 26, 2004.

The 2003 PM10 Plan included new State commitments for measures and emission reductions based on a subset of the *Proposed 2003 State and Federal Strategy for the California State Implementation Plan*, as revised by ARB Resolution 03-14.

In adopting the 2003 PM10 Plan, the District committed to reassess the attainment demonstration and update the Plan by March 31, 2006, based on final results from the California Regional Particulate Matter Air Quality Study. This review will include an evaluation of the modeling and the latest technical information to determine whether the level of emission reductions in the 2003 PM10 Plan is sufficient to attain the PM10 standards. If this mid-course review shows a need for control strategy changes, the Plan revision will include the appropriate measures.

#### **C. 8-Hour Ozone Planning Requirements**

On April 15, 2004, U.S. EPA finalized both designations and the first phase of its rule defining requirements for the 8-hour ozone standard. The San Joaquin Valley, as anticipated, is nonattainment for the federal 8-hour standard. Classified serious, the Valley has until 2013 to attain the 8-hour standard.

The Valley will need significant further emission reductions to achieve this more health-protective federal standard. The strategies contained in this 1-hour ozone plan will serve as a down payment on the reductions needed to attain the 8-hour standard.

#### **D. PM2.5 Planning Requirements**

U.S. EPA plans to finalize designations for PM2.5 (particulate matter of diameter 2.5 microns and less) in December 2004. Based on its air quality data, we expect the Valley to be designated nonattainment for both the 24-hour and the annual PM2.5 standards. The Valley's PM2.5 attainment demonstration plan is due to U.S. EPA in early 2008.

The Valley will need significant additional NOx (a precursor to PM2.5) reductions for PM2.5 attainment. Therefore, the strategies for 1-hour ozone, 8-hour ozone, and PM10 are complementary.

#### **E. California Clean Air Act Plans**

The California Clean Air Act (CCAA) requires districts that violate the State 1-hour ozone standard to demonstrate every three years that they are making steady progress towards attainment through a five percent annual reduction in ozone precursors, or implementation of all feasible measures. Thus far, all districts, including the San Joaquin Valley, have relied on the all feasible measures option to show progress. Districts like the San Joaquin Valley that send "overwhelming" pollutant transport to other regions are also required to mitigate their transport contribution.

The District's 2004 Ozone SIP includes elements to address both federal and State ozone planning requirements. This evaluation covers only the federal element; we will assess the CCAA element in a separate, subsequent analysis of all districts' triennial plans.

### **III. PLAN EVALUATION**

This chapter reviews the contents of the Proposed San Joaquin Valley 1-Hour Ozone SIP and provides ARB staff's evaluation of each significant element.

#### **A. Emission Inventory**

California's emission inventory is an estimate of the amounts and types of pollutants emitted from thousands of industrial and commercial facilities, millions of mobile sources, and hundreds of millions of applications of other products such as paint and consumer products. The development and maintenance of the inventory is a multi-agency effort involving ARB, 35 local air pollution control and air quality management districts (districts), metropolitan planning organizations (MPOs), councils of governments (COGs), and the California Department of Transportation (Caltrans). ARB staff compiles the final, statewide emission inventory and maintains this information in a complex electronic database. An inventory reflects the best information available about the emission rate and activity (including projected growth) for each category of sources.

The San Joaquin Valley 1-Hour Ozone SIP utilizes the latest estimates of VOC and NOx for stationary, area-wide, and on-road and off-road mobile sources. These are consistent with emission estimates reflected in the Valley's 2003 PM10 SIP.

The emission analyses in the SIP focus on the years 2000 (the starting point for the air quality modeling analysis) and 2010 (the attainment date). For purposes of assessing emission reduction progress according to the milestones identified in the Act, the SIP also includes inventories for 1990 and 2008. VOC and NOx emissions are projected to decline by 24 percent between 2000 and 2010, on the strength of controls adopted as of 2002. This reflects a net 3 percent decline in emissions from stationary and area-wide sources, a 44 percent decline in emissions from on-road motor vehicles, and a 32 percent decline in emissions from off-road vehicles and equipment. Table III-1 shows the breakdown of VOC and NOx emissions by broad source category in 2000 and 2010, with the benefit of adopted controls. Throughout this report, emissions and reductions are shown in tons per day (tpd), during the summer ozone season planning inventory, for the San Joaquin Valley Air Basin, unless otherwise noted.

We note that the ozone season planning inventory currently includes estimates for VOC, carbon monoxide, and PM10 emissions from range land and forest management prescribed fires. ARB and District staff are working to identify the seasonal NOx emissions for these activities. Since that work was not complete at the time the planning inventory was developed, this inventory does not include estimates of the NOx emissions from prescribed burning. Until the seasonal NOx estimates from prescribed burning are finalized and reflected in a subsequent SIP, evaluation of prescribed burning emissions against the SIP planning inventory should focus on VOC, carbon monoxide, and PM10. This approach does not impact the attainment demonstration because the day-specific emission inventory used for air quality modeling in this plan does include information on fire activity and the associated emissions.

**Table III-1**  
**Baseline Emission Trends with Measures Adopted as of September 2002**  
(San Joaquin Valley, Summer Planning, in tons per day)

Source Category	VOC			NOx			VOC + NOx		
	2000	2010	% Change	2000	2010	% Change	2000	2010	% Change
Stationary & Area-wide	258.9	265.7	+3% <sup>1</sup>	161.5	142.5	-12%	420.4	408.2	-3%
On-Road Motor Vehicles	115.3	57.0 <sup>2</sup>	-51%	223.8	134.2 <sup>2</sup>	-40%	339.1	191.2	-44%
Off-Road Vehicles and Equipment	69.2	42.4 <sup>3</sup>	-39%	171.5	120.1 <sup>3</sup>	-30%	240.7	162.5 <sup>3</sup>	-32%
<b>TOTAL</b>	<b>443.5</b>	<b>365.1</b>	<b>-18%</b>	<b>556.8</b>	<b>396.8</b>	<b>-29%</b>	<b>1,000.3</b>	<b>761.9</b>	<b>-24%</b>

<sup>1</sup> This projected increase comes primarily from expected growth in livestock emissions before the benefits of the proposed control measure are applied.

<sup>2</sup> Reflects ARB staff's external adjustment for geographic expansion of the Smog Check II program (requested by the District in 2001 and implemented by BAR in 2002), which reduces VOC by 2.5 tpd and NOx by 4.9 tpd in 2010. The District Plan refers to these reductions as new State commitments in 2010 associated with the 2003 PM10 Plan.

<sup>3</sup> Includes 1.0 tpd of VOC and 0.1 tpd NOx added to the baseline emission inventory to eliminate double counting for emission reductions from ARB's 2003 lawn and garden regulations, which are reflected in the State's new measures commitment.

## B. Emission Reduction Credits

According to U.S. EPA and ARB policy, emission reduction credits (ERC) banked before a plan's emission inventory baseyear must be explicitly treated as emissions in the air. In other words, the plan must account for ERC use. The District does this by including projected ERC use in the emission inventory growth factor. This plan's projections for ERC use and total growth in stationary source emissions between 2000 and 2010 are shown in Table III-2.

**Table III-2**  
**Projected ERC Use and Stationary Emissions Growth 2000-2010**  
(San Joaquin Valley, Annual Average, in tons per day)

Pollutant	ERC Use (tpd)	Total Growth (tpd)
NOx	12.1	15.8
VOC	8.1	9.7

Projected ERC use is less than total growth for each pollutant. That is the minimum criteria for the District's approach to work. However, projected ERC use is large and accounts for nearly all growth. Consequently, there is very little margin for nonpermitted stationary sources to grow. As we have commented in the past, the District will need to monitor both ERC use and growth in nonpermitted sources to ensure the sum of the two does not exceed total growth.

## **C. Air Quality Modeling**

The Act requires the use of air quality modeling to relate ozone levels to emissions in a region and simulate future air quality based on changes in emissions. Modeling uses day-specific emission inventories, with measurements of meteorology and air quality, to establish this relationship. The performance of the model is determined by comparing the modeled or predicted ozone value to the monitored or observed ozone level. As applied in this SIP, the end result of the modeling is to project the quantity of VOC and NOx emissions that the Valley can accommodate while attaining the standard (known as the attainment emissions target or carrying capacity).

The modeling process involves a number of decisions along the way. These choices include an ozone episode representative of days that exceed the standard and appropriate scientific tools (like the air quality model, the meteorological model, and the atmospheric chemistry mechanism for ozone formation) that can best predict ozone levels. ARB and District staff made these decisions together, aided by input from agency, industry, and scientific peer reviewers.

The tools and data used in the modeling analysis for the 2004 Ozone SIP represent the state-of-the-science and a significant step forward in our collective ability to understand the level of emission controls needed to meet the ozone standards. The modeling results meet the performance criteria established by both U.S. EPA and ARB.

### **1. Ozone Episode**

During Summer 2000, intensive measurements were made during two ozone episodes, which occurred from July 30-August 2, and from September 17-21. In addition, a “training episode” was captured on June 14-15. During the June episode, intensive meteorological measurements were made, although the extensive CCOS air quality monitoring system was not engaged.

The July/August 2000 episode was the only episode with exceedances in all three regions of the San Joaquin Valley. This episode was characterized by localized high ozone concentrations in the San Joaquin Valley, Bay Area, and Sacramento Region. Westerly breezes in the Sacramento River delta occurred on most afternoons along with mid-morning northwest flows in Sacramento.

### **2. Air Quality Model**

ARB staff and modelers with the University of California at Riverside, together with District staff, conducted extensive model performance evaluations with two meteorological models, two air quality models, and two chemical mechanisms within the air quality models. Each of the air quality models -- the Comprehensive Air Quality Model with Extensions (CAMx), and U.S. EPA’s Models 3 – Community Multiscale Air Quality (CMAQ) modeling -- met U.S. EPA model performance guidelines to varying

degrees on different episode days. Of the two air quality models, CAMx was best able to simulate the unpaired peak concentrations during the July/August 2000 episode.

The period July 30 - August 2, 2000 was simulated using the CAMx air quality model, alternatively with Carbon Bond IV and SAPRC99f chemical mechanisms. The meteorological models MM5 and the CALMET/MM5 hybrid were also used to provide inputs to CAMx. Overall model performance of CAMx using the CALMET/MM5 hybrid and SAPRC99f was superior to that resulting from MM5 alone.

The attainment demonstration in this SIP uses the CAMx model, with the CALMET/MM5 hybrid meteorological model, and the SAPRC99f chemical mechanism.

### 3. Modeling Performance

Four of the Valley's ozone monitors recorded 1-hour exceedances during the July/August 2000 episode. Recorded values during the episode are shown in Table III-3 below, with exceedances in bold.

**Table III-3  
Peak Ozone Values at Exceeding Monitors  
July/August 2000 Episode**

Monitor	1-Hour Ozone Maximum Value, ppb			
	July 30	July 31	August 1	August 2
Modesto	84	94	99	<b>131</b>
Turlock	80	105	104	<b>131</b>
Parlier	<b>129</b>	103	105	97
Edison	<b>128</b>	115	113	<b>151</b>

In selecting a day and location within the episode for the attainment demonstration, ARB and District staff focused on the central and southern regions of the Valley, as the District's site with the highest design value (the design site) has historically fluctuated between monitors in Fresno and Kern Counties.

ARB and District staff chose July 30 to determine the reductions needed for attainment because that day had model performance that met acceptance criteria, had minimal fire impacts, had the best match with design values, and provided the most conservative estimates of further reductions needed for attainment. Table III-4 shows the relationship between monitored and modeled values at the two Valley sites with the highest measured ozone on July 30, the modeled 2010 ozone level using baseline inventories that reflect adopted controls, and the maximum ozone level expected in each surrounding county. The model may predict a peak ozone value at a location where there is no monitoring site for comparison.

**Table III-4  
Monitored and Modeled Peaks  
July/August 2000 Episode**

Location	Ozone Peak Values on Episode Days, ppb					
	July 30			August 2		
	2000 Monitor Value	2000 Modeled Value	2010 Modeled Value	2000 Monitor Value	2000 Modeled Value	2010 Modeled Value
Parlier, Fresno County						
Parlier Monitor	129	131	114	97	122	100
Fresno County Modeled Peak	-	144	128	-	137	119
Edison, Kern County						
Edison Monitor	128	128	115	151	136	119
Kern County Modeled Peak	-	149	136	-	140	121

**4. Attainment Emission Target**

The Valley's predicted 2010 peak ozone level based on already adopted controls is 136 ppb. To determine the level of emissions needed to bring this ozone value down to the standard of 124 ppb, the SIP relies on graphical diagrams (called isopleths). ARB staff produced these diagrams based on hundreds of model runs to assess the impact of small incremental changes to VOC emissions, NOx emissions, and VOC plus NOx emissions. The resulting chart shows how each of these incremental changes in VOC and/or NOx emissions is predicted to change ozone levels.

Starting with the 2010 baseline emissions, and using an equal percent reduction in VOC and NOx emissions, District staff determined that a 14.5 percent reduction in each pollutant would reduce the predicted peak ozone level to the federal standard. This corresponds to a 2010 attainment emissions target of 314.4 tpd VOC and 343.5 tpd NOx. Table III-5 summarizes the modeling results.

Based on the modeling, other combinations of VOC and NOx emission reductions could also reduce ozone levels to the federal standard. ARB staff believes that the equal percent reduction option chosen by the District is a scientifically valid and effective approach.

The control strategy identifies the measures that will be used to reach these emission targets and demonstrate attainment of the federal 1-hour ozone standard.

**Table III-5  
Modeling Summary for 2004 San Joaquin Valley Ozone SIP**

Episode	3-Year Design Value <sup>1</sup> (ppb)	Peak Concentration Observed in Episode (ppb)	Peak Concentration Simulated by Model in 2000 <sup>2</sup> (ppb)	Peak Concentration Simulated by Model from 2010 Baseline Emissions <sup>2</sup> (ppb)	Attainment Emissions Target (tpd)	
					VOC	NOx
July 30-August 2 2000	161	151	149	136	314.4	343.5

<sup>1</sup> The design value reflects the fourth highest observed ozone level in an area over the three year period up to and including the year of the primary episode day. A design value of 124 ppb or less equals attainment.

<sup>2</sup> The peak observed and predicted concentrations do not necessarily occur at the same location.

## 5. Peer Review

Peer review of the modeling inputs, technical tools, and results occurred on several levels. There were inventory work groups with representatives from multiple air agencies, transportation agencies, and consultants. The experts on the CCOS Technical Committee reviewed and provided feedback on all aspects of the modeling. Overall, the Technical Committee concurred that the technical approach for the air quality modeling used by ARB and District staff was reasonable. The modeling analysis was circulated in both draft and proposed form for public review and comment.

### D. Control Strategy

The Proposed 2004 Ozone SIP includes a control strategy to attain the federal 1-hour ozone standard based on reductions from existing regulations as well as additional reductions from enforceable commitments to adopt new control measures and clean engine incentive programs. The District has lead responsibility for adopting and implementing most stationary and area source controls; the transportation planning agencies for vehicle activity-related strategies; ARB for most mobile sources, fuels, and consumer products; the Bureau of Automotive Repair for vehicle inspection and maintenance (Smog Check); the California Department of Pesticide Regulation for pesticides; and U.S. EPA for national transportation sources and certain off-road farm and construction equipment.

Table III-6 summarizes the control strategy to reach the attainment emissions target. This section then describes the local, State, and federal measures contributing to attainment. The combined control strategy provides enforceable measures or commitments that meet the applicable requirements for approval. The District, local transportation agencies, and ARB have previously demonstrated in the materials

supporting the 2002/2005 Ozone Rate-of-Progress Plan and the 2003 PM10 SIP that all reasonably available control measures are being implemented or are committed for implementation. The commitments in this plan for additional controls further strengthen the SIP.

**Table III-6**  
**Summary of Control Strategy for 2004 Ozone SIP**  
(San Joaquin Valley, Summer Planning, in tons per day)

	VOC	NOx
<b>EMISSIONS</b>		
2000 baseline emissions	443.5	556.8
2010 baseline emissions <sup>1</sup>	365.1	396.8
2010 attainment emissions target	314.4	343.5
<b>REDUCTIONS BETWEEN 2000-2010</b>		
<b>Total Emission Reductions Needed for Attainment</b>	<b>129.1</b>	<b>213.3</b>
Measures adopted as of September 2002 <sup>1</sup>		
Local	+8.5 <sup>2</sup>	-18.9
State	-79.3	-97.2
Federal	<u>-7.6</u>	<u>-43.9</u>
Total	-78.4	-160.0
<i>Percent of needed reductions from adopted measures</i>	<i>61%</i>	<i>75%</i>
Commitments for new defined measures		
District		
--- Adopted since September 2002	-2.4	-12.2
--- Remaining PM10 SIP commitments	-7.0	-14.2
--- New Ozone SIP commitments	<u>-21.3</u>	<u>-1.9</u>
<i>District Total</i>	<i>-30.7</i>	<i>-28.3</i>
State		
--- PM10 SIP commitments	--	-10.0
--- New Ozone SIP commitments	<u>-15.0</u>	<u>-10.0</u>
<i>State Total</i>	<i>-15.0</i>	<i>-20.0</i>
Total	-45.7	-48.3
<i>Percent of needed reductions from new defined measures</i>	<i>35%</i>	<i>23%</i>
Commitment for long-term measures		
District	-5.0	-5.0
<i>Percent of needed reductions from long-term measures</i>	<i>4%</i>	<i>2%</i>

<sup>1</sup> Reflects ARB staff's external adjustment for geographic expansion of the Smog Check II program (requested by the District in 2001 and implemented by BAR in 2002), which reduces VOC by 2.5 tpd and NOx by 4.9 tpd in 2010. The District Plan refers to these reductions as new State commitments in 2010 associated with the 2003 PM10 Plan.

<sup>2</sup> Indicates a net increase in emissions because the effect of growth (primarily in livestock operations) during this period is greater than the benefits of adopted controls.

## **1. Local Measures**

The 2004 Ozone SIP includes District control measures and incentive programs that contribute to meeting progress and attainment targets. All of the emission reductions from local control programs in the plan come from the District's adopted rules, the District's commitments for new measures, or the District's incentive program for cleaner engines. The sources under District control account for 36 percent of the Valley's inventory of ozone-forming emissions (VOC plus NO<sub>x</sub>) in 2000, rising to 47 percent by 2010 before the benefits of new controls are applied. The Valley 2004 Ozone SIP relies on the District's existing control program and commitments for new measures to provide nearly 80 tpd of VOC plus NO<sub>x</sub> reductions (net of growth), towards the total 340 tpd required for attainment between 2000 and 2010. This local contribution amounts to 23 percent of the emission reduction target. Our evaluation focuses on the District's control strategy.

The plan also contains local transportation-related strategies from Valley COGs and MPOs that are not relied upon to demonstrate progress or attainment. These transportation strategies help document the local approach to planning a transportation system that seeks to lessen the impacts of travel growth on air quality, but the strategies do not have quantified emission reductions associated with them. In the SIP, the District and transportation planning agencies did not specifically identify any of these strategies as transportation control measures or ask that they be considered as such for purposes of transportation conformity.

### **a. Adopted District Measures in Baseline**

The District has adopted prohibitory rules for a wide range of the stationary and areawide sources under its jurisdiction. This plan includes the benefits of local, State, and federal controls adopted through September 2002 as part of the 2010 baseline emission inventory. Rules adopted after that date or with future adoption dates are considered new measures. The September 2002 cutoff for defining what is in the baseline versus what is considered a new measure allows the plan to be consistent with the 2003 Valley PM<sub>10</sub> SIP and ARB's 2003 Statewide Strategy. Baseline District measures reduce NO<sub>x</sub> by about 19 tpd between 2000 and 2010, but allow a net 8 tpd increase in VOC emissions due to projected growth over the same timeframe. The District's full rulemaking agenda over the next several years will ensure net reductions in both pollutants in the future.

**b. New Defined District Measures**

The category of new defined District measures includes those adopted subsequent to the September 2002, remaining 2003 PM10 SIP commitments, and new Ozone SIP commitments the District is proposing as part of this plan.

The District has now adopted some of the PM10 SIP measures and an additional one for lime kilns. The District is also taking credit for NOx emission reductions from its clean engine incentive programs, based on the local portion of the total funding. Table III-7 summarizes the District’s actions on these measures and the resulting benefits.

**Table III-7  
List of District Measures Adopted After September 2002  
(San Joaquin Valley, Summer Planning, in tons per day)**

Rule	Source Category	Adoption Date	Implementation Date	2010 Reductions <sup>1</sup>	
				VOC	NOx
4408	Glycol Dehydration Systems	12/19/02	12/31/03	1.8	--
4313	Lime Kilns	3/27/03	9/27/03	--	0.1
4610	Glass Coating Operations	4/17/03	12/1/02	0.2	--
4306	Boilers, Steam Generators, and Process Heaters	9/18/03	6/1/07	--	7.1
4604	Can and Coil Coatings	1/15/04	2/1/06	0.4	--
	Clean Engine Incentive Programs <sup>2</sup>	-	-	--	5.0
Totals				2.4	12.2

<sup>1</sup> Emission reductions creditable against PM10 SIP commitments are different for some measures because of the shift from annual average or winter season inventory used for PM10 to the summer ozone season planning inventory shown here.

<sup>2</sup> Portion funded by local monies.

As shown in Table III-8, the District’s strategy relies on nine measures that are remaining commitments from the PM10 SIP and that reduce VOC or NOx emissions. The District also proposes to add commitments in this Ozone SIP for 12 new measures (encompassing 21 rules).

Together, the District is committing to reduce emissions by an aggregate 28.3 tpd VOC and 16.1 tpd NOx in 2010, through adoption of all new defined measures between 2004 and 2007, and with implementation beginning between 2005 and 2010. If the District Board later finds one of the defined measures to be infeasible at a noticed public hearing, the District’s SIP commitment requires the District Board to adopt alternative measures sufficient to achieve equivalent aggregate emission reductions in the same timeframe.

**Table III-8**  
**New Defined District Measures for Attainment**  
(San Joaquin Valley, Summer Planning, 2010, in tons per day)

SIP #	Source Category	Adoption Date	Full Implementation Date	VOC		NOx	
				Baseline Emissions	Reductions	Baseline Emissions	Reductions
<b>Remaining PM10 SIP Commitments</b>							
A	Oil and Gas Fugitives	3Q/04	1Q/05	10.2	-4.7	--	--
B	Refinery and Chemical Fugitives	3Q/04	1Q/05	0.5	-0.2	--	--
D	Indirect Source Mitigation	2Q/05	4Q/05 <sup>1</sup>	--	--	N/A	-4.0
E	Small Boilers, Process Heaters, Steam Generators 2–5 MMBtu/hr	4Q/04	4Q/08	--	--	9.0	-1.0
F	Wineries – Fermentation&Storage	4Q/04	4Q/07	2.1	-0.7	--	--
H	Stationary IC Engines	2Q/05	1Q/06 <sup>1</sup>	--	--	20.1	-8.0
I	Commercial Dryers	2Q/05	4Q/09	--	--	9.0	-1.0
N	Water Heaters, 0.075–2.0 Mbtu/hr	3Q/06	2025-2035	--	--	1.4	-0.2
O	Steam-Enhanced Oil Well Vents	3Q/06	4Q/08	12.8	-1.4	--	--
Subtotal					-7.0		-14.2
<b>New Ozone SIP Commitments</b>							
C	Fleet Rule – School Buses	4Q/04	2010-2015	--	--	2.6	-0.1
G	Solid Fuel Boilers, Steam Generators & Process Heaters	4Q/04	1Q/06	--	--	4.4	<-0.05
J	Composting/Biosolids Operations	2Q/05	2010	0.7	-0.1	--	--
K	Automotive Coating	3Q/05	2Q/07	1.6	-0.1	--	--
L	Concentrated Animal Feeding Operations	2Q/06	1Q/07 <sup>1</sup>	63.1	-15.8	--	--
M	– Organic Solvent Degreasing – Organic Solvent Cleaning – Motor Vehicle and Mobile Equipment Coating – Surface Coating of Metal Parts and Products – Can and Coil Operations – Aerospace Assemblies and Component Coating – Wood Products Coating – Graphic Arts – Adhesives – Polyester Resin Operations	2Q/06	4Q/08	5.1	-1.3	--	--
P	Soil Decontamination	4Q/06	2008	<0.05	<-0.05	--	--
Q	Open Burning	1Q/07	2010	5.8	-2.9	2.3	-1.1
R	Polymeric Foam Manufacturing	2Q/07	4Q/09	0.3	-0.1	--	--
S	Stationary Gas Turbines (<10MW, distributed generation)	2Q/07	2010			2.5	-0.6
T	Gasoline Storage & Transfer	3Q/07	2010	3.4	-0.9	--	--
U	Aviation Fuel Transfer, Phase I	3Q/07	2010	0.2	<-0.05	--	--
Subtotal					-21.3		-1.9
<b>TOTAL</b>					<b>-28.3</b>		<b>-16.1</b>

<sup>1</sup> Implementation begins

A summary of each proposed measure is presented below.

**A. Oil and Gas Fugitives.** This measure is committed to in the Valley's 2003 PM10 Plan. It applies to sources involved in the production of crude oil, natural gas, and natural gas liquids. These sources house pipes, valves, flanges, hatches, pumps, compressors, and many other components with the potential to leak fluids or gases, releasing fugitive VOC emissions. Controls could include lowering the permissible gaseous leak threshold of 10,000 ppmv, eliminating some existing exemptions, increasing the frequency of inspection, shortening the repair period for leaking components, and replacing frequently leaking components.

**B. Refinery and Chemical Fugitives.** This measure applies to petroleum refineries and gas-liquids processing facilities, and is a commitment in the Valley's PM10 Plan. These facilities house large numbers of components with the potential to leak fluids or gases, causing fugitive VOC emissions. The measure would set lower leak thresholds, require operators to conduct more frequent inspections of components, implement a rigorous leak detection and repair program, and require Best Available Control Technology (BACT) equipment to replace frequently leaking devices.

**C. Fleet Rule – School Buses.** This measure would reduce NOx and PM10 emissions from bus fleets used for elementary and secondary schools. Reductions would occur by replacing buses with newer, cleaner vehicles, by retrofitting existing buses with cleaner burning engines or emission controls, or by modifying buses to use cleaner-burning fuels. District staff indicates that the intent of this measure is to ensure that bus purchases result in a cleaner fleet, aided by incentives to help school districts finance the cost.

**D. Indirect Source Mitigation Fee.** This proposal, committed to in the Valley's 2003 PM10 Plan, would create a program to mitigate emissions from new development projects that generate vehicle trips and area source emissions from other on-site activities not subject to District permitting. These types of projects are referred to as indirect sources. New development projects could be required to pay a mitigation fee to mitigate a portion of their indirect emissions, or they could provide on-site mitigation. Mitigation funds would be used to purchase cost-effective emission reductions. The District is proposing to adopt this program in three phases. The first phase would apply to residential development projects; the second phase to commercial and institutional development projects; and the third phase to industrial development projects.

**E. Small Boilers, Steam Generators and Process Heaters, from 2-5 MMBtu/hr.** This is a new measure, committed to in the Valley's PM10 Plan, and applicable to small boilers, steam generators, and process heaters, from 2-5 MMBtu/hr. Affected facilities include hotels, hospitals, office buildings, schools, prisons and military facilities. Combustion modifications appropriate for these units include low excess air, low NOx burners, water/steam injection, and flue gas recirculation. Post-combustion treatment of the exhaust stream may include selective catalytic reduction or selective non-catalytic reduction.

**F. Wineries.** This is a new measure, committed to in the Valley's 2003 PM10 Plan, and applicable to winery processes that produce significant VOC emissions via wine fermentation and aging. The District determined that the emissions exceed the de minimus threshold and are subject to Reasonably Available Control Technology (RACT) requirements. The District does not currently regulate wine fermentation and aging. VOC reduction could be achieved with vapor collection and control systems, carbon adsorption, water scrubbers, catalytic incineration, condensation, and additional temperature control. The District has refined the inventory for this category over the last year. The measure anticipates the same control efficiency as in the PM10 Plan, with the lower baseline inventory translating to lower expected reductions.

**G. Solid Fuel Boilers, Steam Generators and Process Heaters.** This measure, committed to in the Valley's 2003 PM10 Plan, would amend an existing rule. This rule applies to facilities combusting biomass, municipal solid waste, tires, or petroleum coke. The rule would be amended to apply to facilities with the potential to emit lower levels of NOx. The District may also set more stringent emission limits.

**H. Stationary IC Engines.** This measure, committed to in the Valley's 2003 PM10 Plan, would upgrade an existing rule that establishes opacity standards. Agriculture irrigation engines are currently exempt from the opacity standards; the District plans to remove the exemption.

**I. Commercial Dryers.** This is a new measure, committed to in the Valley's PM10 Plan that will affect dryers used to remove water from process material by heating. The District determined that these dryers exceed the de minimus threshold and are subject to Best Available Control Measures (BACM) requirements for PM10. These units are currently subject to District permitting requirements, but there is no specific rule. Emission controls appropriate for dryers include Public Utilities Commission-quality natural gas, low excess air, low NOx burners, and flue gas recirculation.

**J. Composting/Biosolid Operations.** This new measure would reduce VOC emissions from the composting of biosolids, including sewage sludge, agricultural waste, and other green waste (such as from residential landscaping). Controls could include vapor collection and control systems, forced aeration, and windrow of materials.

**K. Automotive Coating.** This new measure would reduce VOC emissions from any new or existing operations that apply coatings to automobile parts or accessories. This measure would be amended to align with California Air Pollution Control Officers' Association (CAPCOA) recommendations.

**L. Concentrated Animal Feeding Operations.** The District is proposing to reduce VOC emissions from dairies, cattle feedlots, poultry ranches, and other agricultural operations involving animal husbandry. VOC emissions may be reduced by controlling emissions from feedlots and from supporting operations such as waste treatment lagoons. The measure is intended to comply with California Health and Safety Code Section 40724.6.

**M. Organic Solvents Omnibus Measure.** Ten District solvent rules would be amended to satisfy “all feasible measure” requirements under the California Clean Air Act. The commitment to amend these rules is being included in this SIP because the resulting emission reductions are needed to attain the federal 1-hour ozone standard. Since these rules were last amended, other districts have started requiring lower-VOC solvents at a level of 25 grams of VOC per liter. This new standard would be incorporated into the rules.

**N. Water Heaters 75,000 Btu/hr to 2 MMBtu/hr.** This is a new measure, committed to in the Valley’s PM10 Plan, and applicable to industrial, commercial, and institutional water heaters. These sources are currently not regulated by the District. NOx prohibitory rules may be coupled with a financial incentive program to accelerate the replacement or retrofit of higher-polluting units. While the PM10 Plan committed to an adoption date for this measure in 4Q/04, the Ozone SIP commits to adoption in 3Q/06. The District projects that full implementation of this rule will extend out 20 to 30 years based on the current pace of replacement for existing water heaters.

**O. Steam-Enhanced Crude Oil Production Well Vents.** This is an upgrade to an existing rule, and is a commitment in the Valley’s PM10 Plan. This measure would reduce VOC emissions from steam-enhanced crude oil production wells, and any associated vapor collection and control systems. Emission reductions can be achieved by lowering the rule exemption thresholds.

**P. Soil Decontamination.** This measure is an upgrade to an existing rule designed to reduce VOC emissions created during activities in the remediation of contaminated soils.

**Q. Open Burning.** The District’s open burning rule will be amended pursuant to California Health and Safety Code Section 41855.5(a), which phases out open burning between 2005 and 2010, and exemptions allowed for disease control. The exact reductions achievable by this rule will depend on the extent to which open burning practices can be replaced by cost-effective technologically feasible alternatives.

**R. Polymeric Foam Manufacturing.** This rule amendment would reduce VOC emissions from manufacturing polymeric foam and foam products by specifying material VOC content limits and emission control devices. This rule would be expanded to include VOC emission reduction or control from product curing areas and general product storage, similar to those employed by several of the existing sources. Possible controls for this category include switching to an alternative, non-VOC blowing agent or employing capture and control systems for the VOC emissions.

**S. Stationary Gas Turbines.** This measure would amend the District’s stationary gas turbine rule, which was last amended in 2002. Since then, ARB published emission standards for turbines used in electrical power generation. Turbines rated greater than 10 MW are subject to District requirements similar to the ARB limits. The control

measure would examine the feasibility of ARB NO<sub>x</sub> and carbon monoxide limits for stationary gas turbines, rated <10.0 MW.

**T. Gasoline Storage and Transfer.** This measure would reduce fugitive VOC emissions occurring at gasoline terminals and bulk plants. More stringent rules standards would be set, together with possible control enhancements such as increased inspection and maintenance frequencies, tank seal repair or replacement, and retrofitting old systems with newer technologies.

**U. Aviation Fuel Transfer, Phase I.** The new measure would reduce fugitive VOC emissions created during Phase 1 refueling operations, including filling aviation fuel bulk storage tanks using primary fuel delivery trucks, and filling an airport's fuel delivery trucks from the bulk storage tanks. The measure does not propose to cover the process of filling the aircraft's onboard fuel tanks. Fugitive emissions from storage and delivery can be controlled with pressure-vacuum relief valves on storage tanks, submerged fill tubes to reduce splashing, and vapor recovery or destruction systems similar to those used for Phase I motor vehicle fueling operations.

### **c. Compliance With Other Extreme Area Requirements**

As an extreme nonattainment area, the District must adopt RACT control measures applicable to sources with emissions greater than 10 tons per year of an ozone precursor, rather than the current 25 tons per year cutoff applicable to severe areas. The District must also upgrade its rules for the Title V federal operating permits program and New Source Review to comply with extreme area requirements. All three elements are due for submittal to U.S. EPA by May 16, 2005. The plan includes the District's commitment to meet this deadline.

The District evaluated sources with VOC or NO<sub>x</sub> emissions ranging from 10-25 tons per year, and identified three RACT measures: Dryers and Dehydrators; Flares; and Jet Engines and Test Cells. The District is proposing to address the Dryer and Dehydrator category as a near-term measure. Similarly, sources with emissions from 10-25 tons per year will become subject to the District's existing Flares rule once the District amends its definition of major sources in the District's New Source Review (NSR) rule to reflect its extreme classification. With respect to Jet Engines and Test Cells, the District was unable to identify viable control measures. The District is listing this as a further study measure and will investigate potential controls. Meanwhile, these sources will be brought into the Title V program when the District modifies its NSR rule.

The District states that rules and practices already satisfy the extreme area requirement that clean fuels (like natural gas) be used in boilers (per Act section 182(e)(3)).

## **2. State Measures**

The emission sources under State regulatory jurisdiction (e.g., vehicles, fuels, some off-road equipment, and consumer products) are a significant contributor to the Valley's pollution problems. These sources under State control account for 46 percent of the Valley's inventory of ozone-forming emissions (VOC plus NO<sub>x</sub>) in 2000, becoming a smaller share (37 percent) of the total by 2010 in response to cleaner vehicles and fuels. The Valley 2004 Ozone SIP relies on the State's existing control program and prior commitments for new State measures to provide over 210 tpd of the total 342 tpd emission reductions required for attainment between 2000 and 2010. This State contribution amounts to 62 percent of the emission reduction target.

### **a. Adopted State Measures in Baseline**

ARB regulations on the books as of 2002 are providing 176 tpd of emission reductions – these include the Low-Emission Vehicle Program and California Reformulated Gasoline, together with a series of progressively tighter emission standards for new engines used in big diesel trucks and heavy equipment, forklifts and pumps, lawn and garden equipment, pleasurecraft, and over 100 categories of consumer products. To complement these regulatory programs, the State has contributed over \$60 million since 1998 to fund a variety of District clean engine incentive programs throughout the Valley.

The Bureau of Automotive Repair's (BAR) Smog Check program is also providing essential reductions in the Valley. The District took an important step in 2001 to request that BAR expand the most rigorous form of the program to apply beyond the major urban areas. BAR implemented Smog Check II in six additional Valley cities in 2002. This increased the portion of the Valley's fleet subject to Smog Check II to 95 percent. The benefits of this change are reflected as an external adjustment to the baseline inventory in this report since the expansion was in place by 2002.

### **b. New Defined State Measures**

The Board has previously approved commitments to develop new State measures that will generate further emission reductions in the Valley. State commitments for 10 tons of NO<sub>x</sub> reductions from these measures were already submitted to and approved by U.S. EPA as part of the Valley's 2003 PM<sub>10</sub> SIP. ARB will add 15 tpd VOC and another 10 tpd NO<sub>x</sub> to generate a total combined State commitment of 35 tpd VOC plus NO<sub>x</sub> for this Ozone SIP.

To help achieve the federal health-based air quality standards, ARB adopted the *2003 State and Federal Strategy for the California State Implementation Plan* (Statewide Strategy) on October 23, 2003. ARB submitted the Statewide Strategy to the U.S. EPA for approval as a revision to the California SIP on January 4, 2004.

The Statewide Strategy identifies the Board's near-term regulatory agenda to reduce ozone and particulate matter by developing and adopting new measures from 2002 through 2009, with implementation prior to the 2010 ozone season. It includes:

- Commitments for the Board to consider 19 specific statewide measures.
- BAR's planned improvements to the Smog Check program. The recent repeal of the rolling 30-year exemption for older vehicles will further increase the air quality benefits of the program.
- Continuation of the Department of Pesticide Regulation's approved SIP obligation<sup>1</sup> to reduce volatile emissions from pesticides. For the San Joaquin Valley, this means a pesticide VOC emissions target of 12 percent less than 1990 levels.

The Statewide Strategy also describes a process to identify longer-term solutions to achieve additional reductions from sources under State, federal, and local control.

The defined control measures in the Statewide Strategy cover on-road vehicles, off-road equipment, ports and harborcraft, fuels and refueling, and consumer products. Lower emission standards for new engines and consumer products are complemented by measures to clean up the existing fleet of mobile sources. Other measures would reduce vapor emissions from gasoline storage and refueling. These defined measures are listed in Table III-9. The Statewide Strategy, which includes detailed descriptions of each measure, is available at <http://www.arb.ca.gov/planning/sip/stfed03/stfed03.htm>.

**Public Process.** The 2003 Statewide Strategy relied on an extensive public process. Using feedback from workshops in 2001, staff compiled a list of potential control measures for sources under State, federal, and local control. In 2003, staff participated in eleven public workshops with the local air districts in the South Coast and San Joaquin Valley, as well as an ARB technical workshop in both those regions plus Sacramento, to discuss the draft Statewide Strategy. ARB staff considered the public concerns and suggestions voiced at these workshops and additional stakeholder meetings, as well as over 300 comment letters. Staff incorporated revisions into the proposed Strategy and recommended further changes in response to public comment. In October 2003, the Board held a public hearing and approved the 2003 State and Federal Strategy for the California SIP.

**Current Implementation Status.** ARB is actively working to implement the Statewide Strategy. Several of the measures in the Strategy are comprehensive approaches for the source category, encompassing multiple rulemakings or other actions that will contribute to the total reductions expected. As of September 1, 2004, ARB has taken action on the following measures, which provide benefits towards the State's commitment for emission reductions beyond the 2010 baseline.

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<sup>1</sup> 40 CFR Part 52, Federal Register, January 8, 1997, pages 1150-1187.

- The low sulfur diesel fuel regulation adopted in July 2003 fulfills SIP measure FUEL-2.
- The small off-road engine emission standards adopted in September 2003 fulfill SIP measures SMALL OFF-RD-1 and SMALL OFF-RD-2.
- The particulate matter control measure for diesel-powered solid waste collection vehicles adopted September 2003 fulfills part of SIP measure ON-RD HVY DUTY-3.
- The voluntary emission control software upgrade program for diesel trucks approved in March 2004 fulfills part of SIP measure ON-RD HVY DUTY-3. This voluntary measure includes a regulatory backstop to ensure that the anticipated emission reductions occur by 2010.
- The engine manufacturer diagnostics requirements for new diesel trucks adopted in May 2004 fulfill part of SIP measure ON-RD HVY DUTY-3.
- The consumer products regulation adopted in June 2004 fulfill SIP measure CONS-1.
- The restriction on idling time for commercial diesel trucks and vehicles adopted in July 2004 fulfills part of SIP measure ON-RD HVY DUTY-3.
- By 2004, ARB had begun implementing an expanded community-based inspection program for diesel trucks and buses, fulfilling SIP measure ON-RD HVY DUTY-1.
- In addition to these defined SIP measures, ARB adopted three controls for diesel stationary engines, portable engines, and transportation refrigeration units in February 2004 that will contribute to meeting the State's obligations.

In addition, BAR has implemented two of the three Smog Check improvements (directing more vehicles to Test-Only stations and requiring dynamometer testing for heavier gasoline vehicles up to 9,999 pounds gross vehicle weight rating). These improvements fulfill part of SIP measure LT/MED-DUTY-2.

***State Funding for Incentive Programs.*** The Statewide Strategy discusses the need to obtain continued funding for the Carl Moyer incentive program to supplement regulatory actions requiring clean up of the existing fleet of diesel vehicles and equipment. Governor Schwarzenegger's approval of the current State budget established a permanent source of funding for the Moyer program at \$61 million per year statewide, with the Valley due to receive several million annually. The projects funded with these State monies will provide emission reductions creditable towards the State's obligation.

A coalition of industry, environmental, and government stakeholders has also been working legislatively to secure additional incentive funding to further accelerate cleanup of air pollution sources. On September 23, the Governor signed a bill that authorizes another \$80 million per year of combined State and local monies for a broad range of incentive programs to reduce mobile source pollution. The new local monies are expected to come in response to the authorization for local air districts to raise the motor vehicle registration fee that consumers pay to support air quality programs by \$2 per vehicle per year.

**State Emission Reduction Commitment.** In Resolution No. 03-22, adopting the Statewide Strategy, the Board delegated

“...authority to the Executive Officer to calculate and commit to new emission reductions from implementation of the Final Statewide Strategy that she determines to be appropriate for specific areas violating the NAAQS in California, as attainment SIPs are developed or revised in those areas.”

ARB commits to adopt and implement measures to achieve, at a minimum, 15 tpd VOC and 20 tpd NO<sub>x</sub> emission reductions in the San Joaquin Valley Air Basin by the 2010 ozone season as part of the attainment demonstration for the federal 1-hour ozone standard. Measures to achieve these reductions will be adopted by 2009. ARB may meet this commitment by adopting one or more of the control measures in Table III-9, by adopting one or more alternative control measures, or by implementing incentive program(s), so long as the aggregate emission reduction commitment is achieved. ARB’s prior commitment to achieve 10 tpd of new NO<sub>x</sub> reductions as part of the Valley PM<sub>10</sub> SIP is a subset of the 20 tpd NO<sub>x</sub> discussed here.

**Table III-9  
Defined State Measures from the 2003 Statewide Strategy**

<b>Strategy (Agency)</b>	<b>Name</b>
LT/MED-DUTY-1 (ARB)	Replace or Upgrade Emission Control Systems on Existing Passenger Vehicles
LT/MED-DUTY-2 (BAR)	Improve Smog Check to Reduce Emissions from Existing Passenger & Cargo Vehicles
ON-RD HVY DUTY-1 (ARB)	Augment Truck and Bus Highway Inspections with Community-Based Inspections
ON-RD HVY DUTY-2 (ARB)	Capture and Control Vapors from Gasoline Cargo Tankers
ON-RD HVY DUTY-3 (ARB)	Pursue Approaches to Clean Up the Existing and New Truck/Bus Fleet
OFF-RD CI-1 (ARB)	Pursue Approaches to Clean Up the Existing Heavy-Duty Off-Road Equipment Fleet (Compression Ignition Engines)
OFF-RD CI-2 (ARB)	Implement Registration and Inspection Program for Existing Off-Road Equipment to Detect Excess Emissions (Compression Ignition Engines)
OFF-RD LSI-1 (ARB)	Set Lower Emission Standards for New Off-Road Gas Engines (Spark Ignited Engines 25 hp and Greater)
OFF-RD LSI-2 (ARB)	Clean Up Existing Off-Road Gas Equipment Through Retrofit Controls and New Emission Standards (Spark-Ignition Engines 25 hp and Greater)
SMALL OFF-RD-1 (ARB)	Set Lower Emission Standards for New Handheld Small Engines and Equipment (Spark Ignited Engines Under 25 hp such as Weed Trimmers, Leaf Blowers, and Chainsaws)
SMALL OFF-RD-2 (ARB)	Set Lower Emission Standards for New Non-Handheld Small Engines and Equipment (Spark Ignited Engines Under 25 hp such as Lawnmowers)
MARINE-1 (ARB)	Pursue Approaches to Clean Up the Existing Harbor Craft Fleet –Cleaner Engines and Fuels
MARINE-2 (ARB)	Pursue Approaches to Reduce Land-Based Port Emissions – Alternative Fuels, Cleaner Engines, Retrofit Controls, Electrification, Education Programs, Operational Controls
FUEL-1 (ARB)	Set Additives Standards for Diesel Fuel to Control Engine Deposits
FUEL-2 (ARB)	Set Low-Sulfur Standards for Diesel Fuel for Trucks/Buses, Off-Road Equipment, and Stationary Engines
CONS-1 (ARB)	Set New Consumer Products Limits for 2006
CONS-2 (ARB)	Set New Consumer Products Limits for 2008-2010
FVR-1 (ARB)	Increase Recovery of Fuel Vapors from Aboveground Storage Tanks
FVR-2 (ARB)	Recover Fuel Vapors from Gasoline Dispensing at Marinas
FVR-3 (ARB)	Reduce Fuel Permeation Through Gasoline Dispenser Hoses
PEST-1 (DPR)	Implement Existing Pesticide Strategy

### **3. Federal Measures**

The emission sources under the legal or practical control of the federal government include heavy-duty diesel trucks registered outside California, some new farm and construction equipment, locomotives, and aircraft. These federal sources account for 18 percent of the Valley's inventory of ozone-forming emissions (VOC plus NOx) in 2000. Nationwide regulations promulgated by U.S. EPA achieve over 50 tpd of emission reductions in the Valley between 2000 and 2010, contributing 15 percent of the total reductions needed for attainment in this SIP. There are no additional federal measures included in this plan.

Although U.S. EPA is developing additional rules to reduce emissions from federal sources, the timeline for achieving reductions is beyond the 2010 attainment deadline of this SIP. U.S. EPA recently adopted more stringent emission standards and low-sulfur diesel fuel requirements for new off-road diesel equipment, based on the transfer of emission control technology for on-road engines. The benefits will be critical in the post-2010 timeframe, both to offset growth in goods movement and to make progress toward the federal 8-hour ozone and PM2.5 standards. U.S. EPA also released an advance notice of proposed rulemaking to phase in more stringent emission standards for locomotives and ships nationwide, with implementation beginning post-2010. ARB has provided extensive comments on this proposal, urging the federal government to set the most effective emission standards possible and to accelerate implementation. Such federal action will be essential as the Valley transitions to the 8-hour ozone standard.

In the 2010 timeframe, we need the federal government to focus on funding an incentive program to clean up diesel engines that parallels California's Moyer program. The benefits realized from federal incentives would help deal with the remaining 10 tpd of reductions needed from long-term measures in this plan.

ARB will continue to push U.S. EPA to achieve its fair share of the emission reductions needed to meet health-based air quality standards in the Valley and across California.

### **4. Long-Term Measures**

The federal Clean Air Act recognizes that extreme ozone nonattainment areas, such as the San Joaquin Valley, must rely on evolving technologies to meet attainment goals.

After accounting for the anticipated benefits of both adopted and new defined State and local measures, the 2004 Ozone SIP demonstrates a need for another 5 tpd VOC reductions and 5 tpd NOx reductions from long-term measures. This represents three percent of the total reductions needed for attainment between 2000 and 2010. The District is committing to identify and adopt long-term measures to achieve the last 10 tpd VOC plus NOx reductions. In 2007, the District will reevaluate the 1-hour ozone attainment control strategy using available new information on ozone formation. At that time, the District will add new measures as warranted by the updated assessment.

In this plan, the District has already begun the process of identifying additional strategies via the described “further study measures” and “future study measures.”

#### **a. Further Study Measures**

Further study measures are potential measures from emission categories without adequately developed emission inventories or for which emission control strategies must be further researched and developed. Some of these may be developed into control measures in 2006 or later, yielding emission reductions in the pre-2010 timeframe. Others may be discarded after District evaluation.

The further study measures address the following source categories:

- Portable equipment registration program;
- Asphalt plant dryers/heaters;
- Sumps, pits and wastewater processing equipment;
- Heavy oil stream fugitives;
- Adhesives;
- Graphic arts;
- Cutback asphalt application;
- Under-fired restaurant charbroilers;
- Residential water heaters;
- Furnaces; and
- Brandy production.

ARB staff has comments on three of the further study measures, as described below. Staff has relied on recent rule stringency assessments by the California Air Pollution Control Officers Association (CAPCOA) and four districts in central California. The four Districts -- the Bay Area Air Quality Management District, Sacramento Metropolitan Air Quality Management District, San Joaquin Valley District, and Yolo-Solano Air Quality Management District -- have worked together with ARB to compare the technical requirements of their rules against each other and the best in the State. The goal of this exercise is to identify source categories with potential additional reductions.

**Adhesives:** This measure was identified on both the four District comparison list and CAPCOA’s All Feasible Measures list. ARB staff suggests the District prioritize review of this category when evaluating the further study measures.

**Graphic Arts:** The four District comparison did not find sufficient differences between the Districts’ rules to warrant amendments. However this category was identified in CAPCOA’s All Feasible Measures list. ARB staff suggests the District prioritize review of this category when evaluating the further study measures.

**Portable Engines.** In February 2004, ARB adopted an airborne toxic control measure for portable engines that applies statewide. Districts may choose to adopt their own version, which must be at least as stringent as the State rule. The timeframe for implementation of the ARB toxics measure is compatible with a further study measure for the District. The State measure affects all diesel-fueled portable engines that are larger than 50 horsepower. Included are engines registered under ARB's Portable Equipment Registration Program, engines permitted by the districts, and engines historically exempt from district permits. The measure requires all portable engines to be certified to U.S. EPA /ARB off-road engine standards by 2010. After 2010, it requires all fleets of portable engines to meet diesel PM emission averages that become more stringent in 2013, 2017, and 2020. The measure will also achieve reductions in NOx through expedited engine replacement.

#### **b. Future Study Measures**

Stakeholders at District workshops on the 2004 Ozone SIP have suggested control measure concepts for mobile sources. The District will investigate the feasibility of these additional programs that reduce emissions from mobile sources. The stakeholder suggestions target:

- Detection of gross emitting passenger and heavy-duty vehicles via remote sensing;
- Enforcement of truck speed limits;
- Funding for ARB to increase its heavy-duty vehicle roadside inspections;
- Designation of a no through-truck traffic route along Highway 99;
- Restrictions on truck idling; and
- Revising the vehicle registration fee structure to charge according to emissions rather than value of the vehicle.

In addition, the District also lists as future study measures programs for emissions from non-mobile sources, such as vegetation used for landscaping.

The State is already working on two of these concepts. ARB and BAR are conducting a pilot study to evaluate the effectiveness of remote sensing equipment in identifying gross emitting vehicles. Also, the Bureau is restarting its vehicle retirement program. Eligible consumers whose vehicles fail the Smog Check test can opt to retire their vehicle and receive \$500, based on available funds.

In July 2004, ARB adopted an airborne toxic control measure to limit diesel-fueled commercial motor vehicle idling. The new measure will restrict idling of diesel-fueled commercial motor vehicles with a gross vehicle weight rating greater than 10,000 pounds to no more than five minutes at any location. The Board will consider a companion measure next year that addresses idling in sleeper cabs.

## 5. Contingency Measures

Contingency measures are intended to provide additional reductions in case the control measures identified for attainment and progress do not deliver the expected reductions. Contingency measures are therefore required both for the 2008 progress milestone, the 2010 progress milestone, and the 2010 attainment demonstration.

To meet rate of progress requirements for 2008 and 2010, the District relies on adopted measures, increasing the certainty that the emission reductions will be achieved as expected. Contingency reductions for this plan are provided by the District's commitments for new measures and the growing emission reductions from turnover of the vehicle fleet to cleaner models under ARB's regulations.

The District is subject to a requirement for contingency measures unique to extreme areas. Three years before the proposed implementation date, the District will submit enforceable commitments to develop and adopt contingency measures if the advanced technology measures do not achieve planned reductions. For purposes of U.S. EPA's review under section 110(k) of the Clean Air Act, these measures should be treated in the same way as fully adopted rules because they are fully developed in the manner contemplated by the Act at this point in time. The timing of this requirement dovetails with submittal of the 8-hour ozone SIP in June 2007, and the expected transition to the federal 8-hour standard.

### E. Attainment Demonstration

Table III-10 summarizes the Valley's attainment demonstration for the federal 1-hour ozone standard. The 2010 attainment emission targets are 314.4 tpd VOC and 343.5 tpd NOx. The attainment demonstration relies on a combination of reductions from already adopted local, State, and federal controls, both local and State commitments for new reductions, and finally, reductions from future measures authorized by section 182(e)(5) of the Federal Clean Air Act.

**Table III-10**  
**Control Strategy for 2004 Ozone SIP**  
(San Joaquin Valley, Summer Planning, tons per day)

	VOC	NOx
<b>Emissions</b>		
2000 baseline emissions	443.5	556.8
Emission reductions, 2000-2010		
--- Measures adopted as of September 2002	-78.4	-160.0
--- Commitments for near-term defined measures	-45.7	-48.3
--- Commitment for further reductions from long-term measures	<u>-5.0</u>	<u>-5.0</u>
<i>Total</i>	<i>-129.1</i>	<i>-213.3</i>
Modeled 2010 attainment emissions target	314.4	343.5

## F. Rate-of-Progress Demonstration

In addition to developing an attainment demonstration as part of the San Joaquin Valley's reclassification to extreme, the District is also required to show sufficient emission reductions to achieve the required rate-of-progress (ROP). As a severe area, the District adopted and submitted an ROP Plan for 2002 and 2005. U.S. EPA found adequate for transportation conformity purposes the motor vehicle emission budgets in that plan on July 10, 2003. On September 4, 2003, U.S. EPA found the 2002 and 2005 ROP Plan to be complete.

The purpose of the ROP requirement is to ensure that nonattainment areas make steady progress toward their attainment goals. Areas must reduce their emissions of VOC by three percent per year, averaged over a three-year period. Specifically, the Valley must demonstrate that its VOC emissions in 2008 are 51 percent below the levels in 1990, the baseline year for ROP plans. In addition, 2010 VOC emissions must be shown to be at or below 57 percent of the 1990 levels. NOx reductions may be substituted for VOC reductions on an equivalent basis, to the extent that NOx reductions are necessary for attainment.

U.S. EPA has expressed a policy preference for using reductions from adopted controls, instead of from commitments, in ROP demonstrations.<sup>2,3</sup> The District is revising the ROP demonstration for 2008 and 2010 in the Proposed 2004 Ozone SIP to show that the Valley meets the progress requirements on the strength of adopted measures alone. The District takes credit for reductions from all adopted VOC measures and also relies on substitution of NOx reductions from adopted measures. Table III-11 summarize the key steps in the revised ROP demonstration.

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<sup>2</sup> U.S. EPA, memorandum, Guidance on Issue Related to 15 Percent Rate-of-Progress Plans, August 23, 1993.

<sup>3</sup> U.S. EPA, memorandum, November 1994 Submittal Policy, September 1, 1994.

**Table III-11**  
**Rate of Progress Demonstration with Adopted Measures Only**  
(San Joaquin Valley, Summer Planning, in tons per day)

<b>2008 Milestone</b>		
<b>Line No.</b>	<b>ROP Demonstration Steps</b>	<b>Emissions</b>
1	Adjusted 1990 VOC inventory <sup>1</sup>	553.0
2	VOC reductions required from 1990-2008 (51% of line 1)	282.0
3	VOC reductions from adopted measures, 1990-2008	183.6
4	VOC reduction shortfall in 2008	98.4
5	VOC-equivalent NOx reduction needed <sup>2</sup>	125.1
6	NOx reductions, 1990-2008, from adopted measures available for substitution <sup>3</sup>	291.6
7	NOx reductions used for substitution	125.1
8	NOx emissions remaining after substitution > attainment target?	Yes
9	Rate of Progress Achieved in 2008?	Yes
<b>2010 Milestone</b>		
<b>Line No.</b>	<b>ROP Demonstration Steps</b>	<b>Emissions</b>
1	Adjusted 1990 VOC inventory <sup>1</sup>	548.5
2	VOC reductions required from 1990-2010 (57% of line 1)	312.6
3	VOC reductions from adopted measures, 1990-2010	185.6
4	VOC reduction shortfall in 2010	126.8
5	VOC-equivalent NOx reduction needed <sup>2</sup>	161.2
6	NOx reductions, 1990-2010, from adopted measures available for substitution <sup>3</sup>	192.9
7	NOx used for substitution	161.2
8	NOx emissions remaining after substitution > attainment target?	Yes
9	Rate of Progress Achieved in 2010?	Yes

<sup>1</sup> Baseline inventory of 633.1 tpd is reduced by 80.2 tpd for 2008 milestone, and by 84.7 tpd for 2010 milestone, to account for noncreditable reductions from the federal motor vehicle control program.

<sup>2</sup> Computed by multiplying the VOC shortfall by 1.27 to reflect the VOC/NOx ratio in the baseyear.

<sup>3</sup> After subtracting out NOx reductions used in previous milestone years for substitution.

## G. Transportation Conformity Budgets

This Plan establishes county level on-road motor vehicle emissions transportation conformity budgets for the years 2008 and 2010. The emissions budgets reflect the latest planning assumptions and were developed using ARB's latest on-road mobile source emission factor model EMFAC2002 (approved by U.S. EPA on April 1, 2003). The Valley's 2002/2005 Ozone Rate of Progress Plan contained budgets for 2002 and 2005, which U.S. EPA found adequate, effective August 8, 2003.

The new emissions budget, based on summer planning daily emissions for VOC and NOx, are shown in Table III-12. The budgets are matched to activity data reported by the eight county Councils of Government using ARB's VMT matching methodology. These results are adjusted to account for any baseline emission reductions not included in the model. Finally, the new State and local commitments to reduce on-road vehicle and road construction emissions are subtracted from the adjusted baseline to arrive at the conformity budgets. These budgets would become applicable when U.S. EPA finds the budgets adequate. Conformity assessments for these budgets will use the emission factors in this SIP with updated activity.

**Table III-12**  
**Sub-Area On-Road Motor Vehicle Emission Budgets for Ozone** <sup>1</sup>  
(San Joaquin Valley, Summer Planning, in tons per day)

County	2008		2010	
	VOC	NOx	VOC	NOx
<b>Fresno</b>	15.8	33.7	13.0	27.7
<b>Kern (SJVAB)</b>	11.5	32.7	9.6	27.2
<b>Kings</b>	2.5	6.2	2.1	5.4
<b>Madera</b>	3.9	8.4	3.3	7.2
<b>Merced</b>	5.0	11.4	4.0	9.1
<b>San Joaquin</b>	9.3	22.4	7.7	17.9
<b>Stanislaus</b>	8.5	17.4	7.0	14.0
<b>Tulare</b>	8.5	18.8	6.9	15.3
<b>Total<sup>2</sup></b>	<b>65.0</b>	<b>151.0</b>	<b>53.6</b>	<b>123.8</b>

<sup>1</sup> The District released these revised budget numbers on October 8, 2004.

<sup>2</sup> Total is for informational purposes only.

The emission budgets established in this plan fulfill the requirements of the Act and U.S. EPA regulations to ensure that transportation activities support progress and attainment of the federal 1-hour ozone standard.

#### **IV. FUTURE FEDERAL OZONE PLANS**

The District must develop a new ozone plan in less than three years to meet federal requirements for 8-hour ozone, and satisfy any outstanding requirements applicable to 1-hour ozone planning.

##### **A. 2007 1-Hour Ozone Plan Update**

The 2004 Ozone SIP does not fully define all measures needed for attainment of the federal 1-hour ozone standard in 2010. The District proposes defining and adopting long-term measures in 2007. The District will reassess the emission reductions needed at that time, using the latest information on ozone formation, available control strategies, and precursor inventories. The District will develop and submit a 1-hour SIP update including defined long-term measures in 2007.

##### **B. 8-Hour Ozone Plans**

ARB and the districts across Northern California have kicked off the process of developing 8-hour plans. The Valley must submit two types of 8-hour plans: an 8-hour rate of progress plan and an 8-hour attainment demonstration plan that is due June 2007. As a serious 8-hour ozone nonattainment area, the Valley's 8-hour attainment date is 2013.

Staff from ARB and the 8-hour ozone nonattainment districts in central California have already met several times to discuss development of 8-hour ozone SIPs. This major collaborative undertaking will rely on upcoming emission inventory upgrades, enhancements to CCOS modeling, and will benefit from a joint review of the relative stringency of local controls. Staff is coordinating on sharing resources, and is mapping out schedules for deliverables needed for SIP development.

## V. ENVIRONMENTAL IMPACTS

The California Environmental Quality Act (CEQA) requires that State and local agency projects be assessed for potential significant environmental impacts. Air quality plans are “projects” that are potentially subject to CEQA requirements. In its Notice of Preparation/Initial Study for this plan, the District identified three areas with potential for significant impacts (air quality, utilities/service systems, and water) and therefore warranting evaluation in a Draft Environmental Impact Report (EIR). In the Draft EIR, District staff determined that there were no significant impacts in these areas.

The Draft EIR evaluated all the proposed near-term control measures (Control Measures A through U), all of the further study measures (Further Study Measures A through K), and the future study measures. In addition, the Draft EIR evaluated three feasible alternatives to the 2010 Ozone SIP and found that the SIP approach was environmentally superior.

We reviewed the Draft EIR prepared by the District, and find that it accurately describes the potential environmental impacts of the plan. Staff concurs with the District’s conclusions and finds that the District has met its obligations under CEQA.

The 2003 Statewide Strategy was already subject to a separate environmental review under CEQA prior to adoption by the Board. Our evaluation is presented in the *2003 State and Federal Strategy for the California State Implementation Plan*.

***Environmental Justice.*** In December 2001, ARB adopted a set of policies and associated actions that provide the framework for incorporating environmental justice into ARB’s programs consistent with the directives of State law. The policies and actions are based on State law, which describes “environmental justice” as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” ARB’s environmental justice policies help ensure that we take into account neighborhood impacts as we prioritize and develop controls and pollution-prevention strategies.

The environmental justice policies touch virtually every ARB program, including motor vehicles, air-quality planning, toxics, research, enforcement, and air monitoring. They apply to all communities in California but recognize that extra efforts may be needed in some communities due to historical land-use patterns, limited participation in public processes in the past, and a greater concentration of air pollution sources in these communities.

The 2003 Statewide Strategy included in the Valley’s 2004 Ozone SIP reflects our environmental justice policies. While all of the new State measures would result in better air quality for residents throughout California, we are making measures that cut exposure and risk in communities with high air pollution burdens a high priority for development. ARB has focused on controlling particulate emissions from diesel

engines, the dominant source in California of known risk from air toxics. ARB has already adopted measures to reduce diesel emissions from trash trucks, stationary and portable engines, transportation refrigeration units, and truck idling. Board staff have begun conducting more truck inspections in communities with high truck traffic as well.

ARB staff is committed to working with districts, local governments, and affected communities to improve statewide compliance for all air pollution sources, whether under ARB or district jurisdiction. ARB staff has already begun to incorporate environmental justice perspectives into our program activities. ARB staff is working with districts to assure that all air pollution complaints are promptly investigated and that feedback is provided to the public on the actions taken in response to those complaints. ARB staff is also working with the local air districts to improve accessibility of information regarding enforcement activities, including notices of violations, monetary penalties, and other settlement of violations. ARB is also reviewing its own enforcement activities and redirecting efforts where we can achieve a more direct community benefit.

## VI. LEGAL AUTHORITY

The Clean Air Act Amendments of 1990 (42 U.S.C. section 7401 et seq.) require states such as California to submit to U.S. EPA revisions to the SIP for ozone and PM10 for certain areas. The primary tool to be used in the effort to attain national ambient air quality standards is a plan to be developed by any state with one or more nonattainment areas which provides for implementation, maintenance and enforcement of the standards—the SIP (section 110(a)(1)). Section 110(a)(2)(A) broadly authorizes and directs states to include in their SIPs:

"...enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of the Act."

Pursuant to these statutory provisions, ARB is charged with coordinating State, regional, and local efforts to attain and maintain both State and national ambient air quality standards. The direct statutory link between ARB and the mandates of the Clean Air Act is found in section 39602 of the Health and Safety Code. This provision states:

"The state board is designated the air pollution control agency for all purposes set forth in federal law.

The state board is designated as the state agency responsible for the preparation of the state implementation plan required by the Clean Air Act (42 U.S.C., Sec. 7401, et seq.) and, to this end, shall coordinate the activities of all districts necessary to comply with that act.

Notwithstanding any other provision of this division, the state implementation plan shall only include those provisions necessary to meet the requirements of the Clean Air Act."

## **VII. STAFF RECOMMENDATIONS**

As described in this report, ARB staff has reviewed the Proposed 2004 Valley Ozone SIP and consulted extensively with District staff during this review. District staff indicates it will make technical corrections to the plan at or prior to the October 8, 2004 local hearing. These changes include:

- Clarification of the District's commitment to achieve the aggregate local emission reductions from the defined new measures or from alternative measures in the same timeframe.
- Clarification of the District's intent to adopt the long-term measures.
- Clarification that the District will use the SIP update mechanism for changes to the rule development schedule.
- An update to the rate-of-progress calculations demonstrating the required emission reduction progress based on adopted measures.
- Corrections to the emission inventory and other minor revisions.

ARB staff finds that the Proposed 2004 Ozone SIP, with the technical corrections characterized above, meets applicable requirements. We believe that implementation of this plan would clearly reduce ozone levels throughout the San Joaquin Valley and benefit public health. Therefore, we recommend that the Board take the following actions:

- (1) Adopt the 2004 San Joaquin Valley Ozone SIP as a revision to the California SIP, including the control strategy, emission inventories, progress demonstration, attainment demonstration, and motor vehicle emission budgets.
- (2) Direct the Executive Officer to submit the plan to U.S. EPA as a revision to the California SIP.