

State of California  
AIR RESOURCES BOARD

**STAFF REPORT**

**ANALYSIS OF SACRAMENTO METRO AREA'S  
2009 STATE IMPLEMENTATION PLAN FOR OZONE**

Date of Release: March 12, 2009  
Scheduled for Consideration: March 26, 2009

This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board.



## CALIFORNIA AIR RESOURCES BOARD

### NOTICE OF PUBLIC MEETING TO CONSIDER THE APPROVAL OF THE 2009 SACRAMENTO METRO AREA 8-HOUR OZONE ATTAINMENT PLAN

The Air Resources Board (ARB or the Board) will conduct a public meeting at the time and place noted below to consider the approval of the 2009 Sacramento Metro Area 8-Hour Ozone Attainment Plan.

DATE: March 26, 2009

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency Building  
Byron Sher Auditorium  
1001 I Street  
Sacramento, California 95814

This item will be considered at a meeting of the Board, which will commence at 9:00 a.m., Thursday, March 26, 2009.

If you require special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by Fax at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled board hearing. TTY/TDD Speech to Speech users may dial 711 for the California Relay Service.

#### Background

The federal Clean Air Act (the Act) establishes planning requirements for those areas that routinely exceed the health-based National Ambient Air Quality Standards (NAAQS). These nonattainment areas must develop and implement a State Implementation Plan (SIP) that demonstrates how they will attain the standards by specified dates. Federal law holds each state responsible for implementing the provisions of the Act.

In July 1997, the U.S. Environmental Protection Agency (U.S. EPA) promulgated a new 8-hour NAAQS for ozone. U.S. EPA classified the Sacramento Metro Area as a "serious" nonattainment area with an attainment date of June 2013. The five air districts that comprise the Sacramento Metro Nonattainment Area have requested from U.S. EPA voluntary reclassification to "severe-15." As a "severe-15" area, the Sacramento Metro Area has until June 2019 to attain the 1997 8-hour ozone NAAQS.

The Sacramento Metropolitan, Yolo-Solano, Placer County, El Dorado County and Feather River Air Districts have developed an attainment plan with input from interested

parties. The Sacramento attainment demonstration indicates that the local, State, and federal controls already in place, together with new local measures and reductions from the California 2007 State Strategy will allow the region to attain the ozone standard by the 2018 deadline.

The California Air Resources Board has previously adopted and submitted to U.S. EPA the 2007 State Strategy for emissions benefits from the proposed new State measures to demonstrate attainment. For informational purposes, the table below shows the expected NOx and ROG emission reductions from the proposed new SIP measures for Sacramento for 2018. The total emission reductions necessary to attain the federal standards will be the enforceable State commitment in the SIP upon Board adoption and U.S. EPA approval.

<b>Expected Emission NOx and ROG Reductions from Proposed New SIP Measures (tons per day) Sacramento Metro Area: 2018</b>		
<b>Proposed New SIP Measures</b>	<b>NOx</b>	<b>ROG</b>
<b>Passenger Vehicles</b>	<b>1.7</b>	<b>2.6</b>
Smog Check Improvements (BAR)	1.4	1.3
Expanded Vehicle Retirement	0.3	0.2
Modifications to Reformulated Gasoline Program	--	1.1
<b>Heavy-Duty Trucks</b>	<b>9.5</b>	<b>0.8</b>
Cleaner In-Use Heavy-Duty Trucks	9.5	0.8
<b>Goods Movement Sources</b>	<b>0.2</b>	<b>0.0</b>
Clean Up Existing Harbor Craft	0.2	0.0
<b>Off-Road Equipment</b>	<b>1.9</b>	<b>0.4</b>
Cleaner In-Use Off-Road Equipment (over 25hp)	1.9	0.4
<b>Other Off-Road Sources</b>	<b>0.3</b>	<b>6.1</b>
New Emission Standards for Recreational Boats	0.3	3.0
Expanded Off-Road Rec. Vehicle Emission Standards	0.0	2.7
Additional Evaporative Emission Standards	--	0.4
<b>Areawide Sources</b>	<b>--</b>	<b>1.9</b>
Consumer Products Program	--	1.9
<b>Emission Reductions from Proposed New Measures</b>	<b>13</b>	<b>11</b>

The Plan also contains a Reasonable Further Progress (RFP) demonstration. The RFP demonstration shows that existing local, State, and federal controls are sufficient for the Sacramento Metro Area to achieve the required minimum three percent per year reduction in ozone-precursor emissions.

## Proposed Action

The districts released their draft plan on September 10, 2008 and held public workshops in several locations throughout the region September 22-25, 2008. The governing boards of all five districts approved the plan at duly noticed public hearings on January 22 (Sacramento), February 2 (Feather River), February 10 (El Dorado County), February 11 (Yolo-Solano), and February 19, 2009 (Placer County). The Sacramento Air District has made minor technical corrections to the plan since its adoption by the local boards. The corrections are available at <http://www.airquality.org/notices/CAPUpdate/8hrAPandFEIRHearingsJanFeb2009.shtml>. The corrections do not materially affect any conclusions in the plan.

At the Board meeting, the Board will consider adoption of the 2009 Sacramento Metro Area 8-Hour Ozone Attainment Plan as a revision to the SIP. The Board will also consider an emissions reduction commitment as shown in the table below, providing the reductions that, along with reductions from local and federal measures, will allow the Sacramento area to achieve attainment of the ozone standard by 2018.

<b>Summary of Emission Reduction Commitments – Sacramento</b>		
<b>Year</b>	<b>NOx</b>	<b>ROG</b>
2018	13	11

ARB staff will present a written Staff Report at the meeting. Copies of the report may be obtained from the Board's Public Information Office, 1001 "I" Street, 1<sup>st</sup> Floor, Environmental Services Center, Sacramento, CA 95814, (916) 322-2990, at least ten days prior to the Board meeting. The report may also be obtained from ARB's internet site at that time at <http://www.arb.ca.gov/planning/sip/sip.htm>.

Interested members of the public may also present comments orally or in writing at the meeting, and in writing or by email before the meeting. To be considered by the Board, written comments not physically submitted at the meeting must be received **no later than 12:00 noon, Wednesday, March 25, 2009**, and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board  
1001 I Street, Sacramento, California 95814

Electronic submittal: <http://www.arb.ca.gov/lispub/comm/bclist.php>

Facsimile submittal: (916) 322-3928

The Board requests, but does not require, 30 copies of any written submission. Also, the ARB requests that written and email statements be filed at least 10 days prior to the meeting so that ARB staff and Board members have time to fully consider each comment. Further inquiries regarding this matter should be directed to Laura Lawrence, Air Pollution Specialist, (916) 324-9264, 1001 "I" Street, Sacramento, California, 95814.

CALIFORNIA AIR RESOURCES BOARD

/s/

James N. Goldstene  
Executive Officer

Date: February 24, 2009

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at [www.arb.ca.gov](http://www.arb.ca.gov).*

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## EXECUTIVE SUMMARY

The federal Clean Air Act (the Act) establishes planning requirements for those areas that routinely exceed the health-based National Ambient Air Quality Standards (NAAQS). These nonattainment areas must develop and implement a State Implementation Plan (SIP) that demonstrates how they will attain the standards by specified dates. Federal law holds each state responsible for implementing the provisions of the Act.

In July 1997, U.S. Environmental Protection Agency (U.S. EPA) promulgated a new 8-hour NAAQS for ozone. U.S. EPA classified the Sacramento Metro Area as a “serious” nonattainment area with an attainment date of June 2013. The five air districts that comprise the Sacramento Metro Nonattainment Area have requested from U.S. EPA voluntary reclassification to “severe-15,” with an attainment date of June 2019.

The five air districts in the Sacramento nonattainment area developed the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* with input from interested parties. The region’s attainment demonstration indicates that new State and local measures, together with State, local, and federal controls already in place, will reduce emissions sufficiently by 2018 to allow Sacramento to attain the ozone standard by the June 2019 deadline.

This staff report contains a proposed State commitment for reductions from the measures in the 2007 California State Strategy. These reductions had not been quantified at the time the 2007 State Strategy was adopted in September 2007. Major reductions come from the Heavy-Duty Truck Rule, adopted by ARB in December 2008. Reductions from emissions from construction equipment and future changes in the smog check program are also important.

ARB staff has reviewed the Plan and concluded that it meets applicable federal State Implementation Plan (SIP) requirements. ARB staff also concludes that the implementation of the Plan would reduce ozone levels through the Sacramento area to the benefit of public health and result in attainment of the 8-hour standard by June 2019. ARB staff recommends that the Board approve the December 2008 version of the Plan as a revision to the California SIP and direct the Executive Officer to submit the Plan to U.S. EPA.

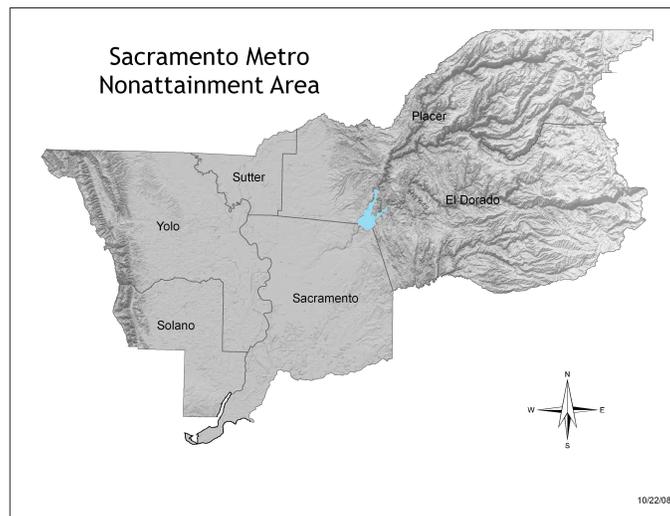
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## I. BACKGROUND

### Profile of Sacramento

The Sacramento federal non-attainment area is comprised of all of Sacramento and Yolo Counties and includes portions of El Dorado, Placer, Solano and Sutter Counties (see Figure 1). On the westernmost edge, it extends to the inland side of the California Coastal Range, and continues to the border of the Lake Tahoe air basin to the east, taking in portions of the Sierra Nevada Mountain Range. It extends southward to the Sacramento Delta Region and northward to include the southern portion of Sutter County; the elevation in the region varies from near sea level to over 7000 feet.

**Figure 1. Sacramento Metro Nonattainment Area**



The area includes mountainous terrain, agricultural land, lakes and rivers, as well as one of California's largest urban areas. While winters in the valley are mild, summer generally brings very hot weather to the valley floor, with temperatures routinely exceeding 100°F. Mountainous areas are considerably cooler in both summer and winter. Air quality in the region is affected by both local emissions and ozone and ozone precursor emissions transported from the San Francisco Bay Area.

### Health Effects of Ozone

Ozone is a highly reactive gas that forms in the atmosphere through complex reactions between chemicals directly emitted from motor vehicles, industrial plants, consumer products and many other sources. Ozone is a secondary gas, formed in the atmosphere by the interaction of reactive organic gases (ROG) and oxides of nitrogen (NOx) in the presence of sunlight.

Considerable research conducted over the past 35 years has shown that ozone can lead to inflammation and irritation of the tissues lining human airways. This causes the muscle cells in the airways to spasm and contract, thus reducing the amount of air that can be inhaled. Symptoms and responses to ozone exposure vary widely, even when the amount inhaled and length of exposure is the same. Typical symptoms include cough, chest tightness, and increased asthma symptoms. Ozone in sufficient doses can also increase the permeability (“leakiness”) of lung cells, making them more susceptible to damage from environmental toxins and infection.

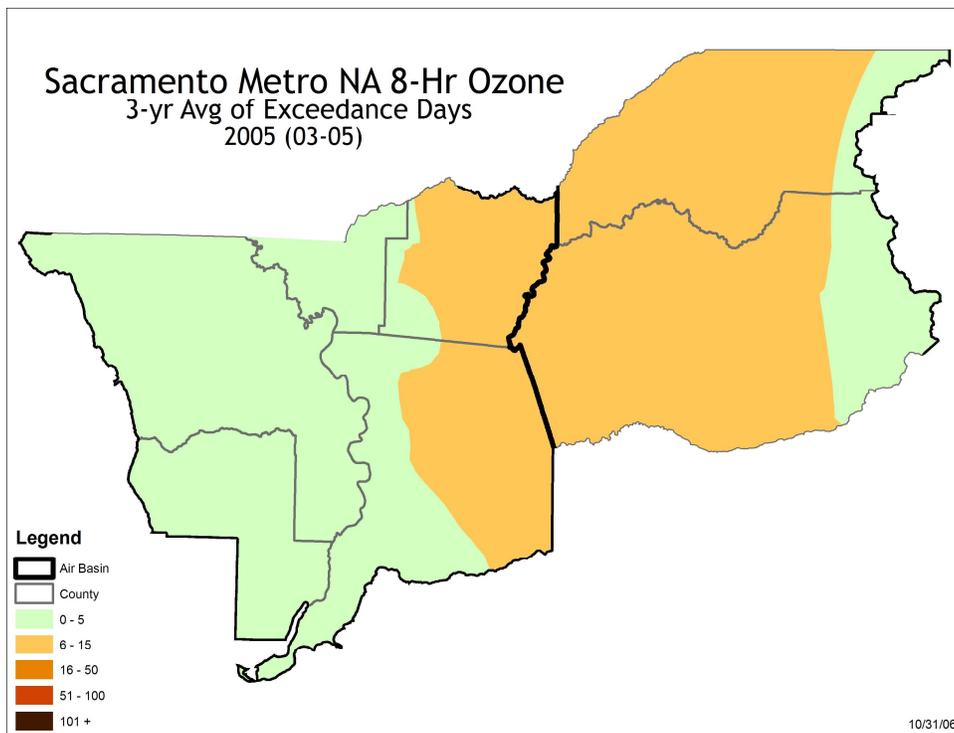
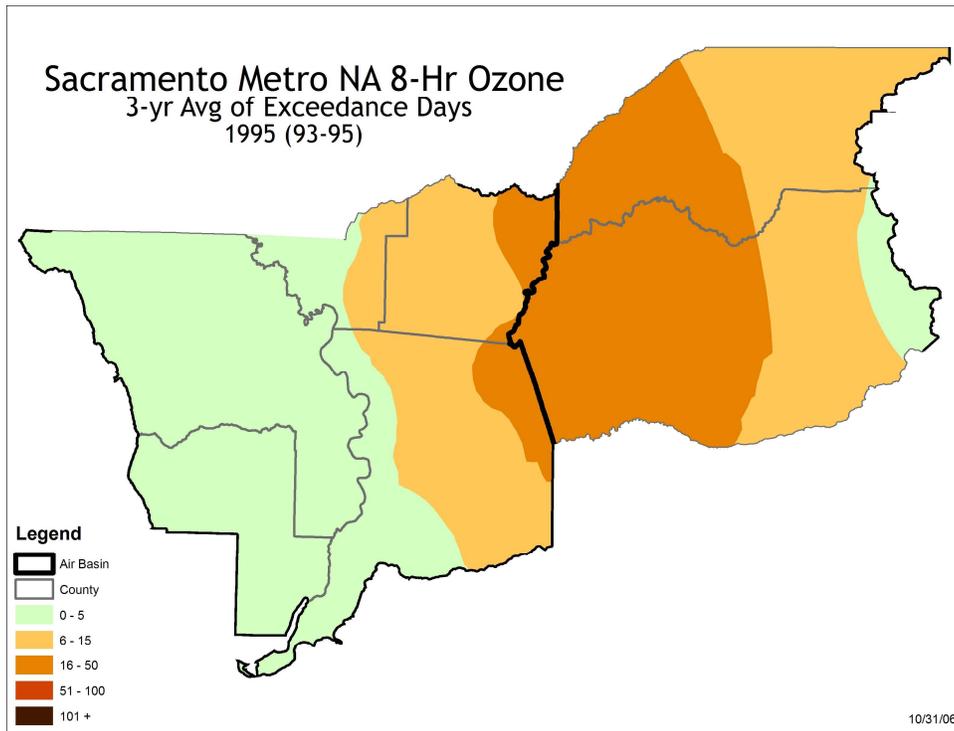
Medical studies of large populations have found that ozone exposure is associated with an increase in hospital admissions and emergency room visits, particularly for lung problems such as asthma and chronic obstructive pulmonary disease. Several studies have also associated exposure to high ozone levels with increased premature mortality in elderly people with chronic diseases of the lungs and circulatory system.

People who exercise or work outdoors are at greater risk of experiencing adverse health effects from ozone exposure because they inhale more ozone. One study in southern California found that children who participated in more sports activities in high ozone areas were more likely to develop asthma than those who participated in fewer sports. Children and adolescents are at increased risk because they are more likely to spend time outdoors engaged in vigorous activities, and because they inhale more ozone per pound of body weight than adults.

### **Historical Air Quality**

The number of days over the standard (exceedance days) is an indication of how frequently the population is exposed to unhealthy air quality. Although some monitoring sites in the region still exceed the 8-hour standard of 0.08 parts per million (ppm), the size of the area that exceeds the standard has dramatically decreased since 1995, as shown in figure 2.

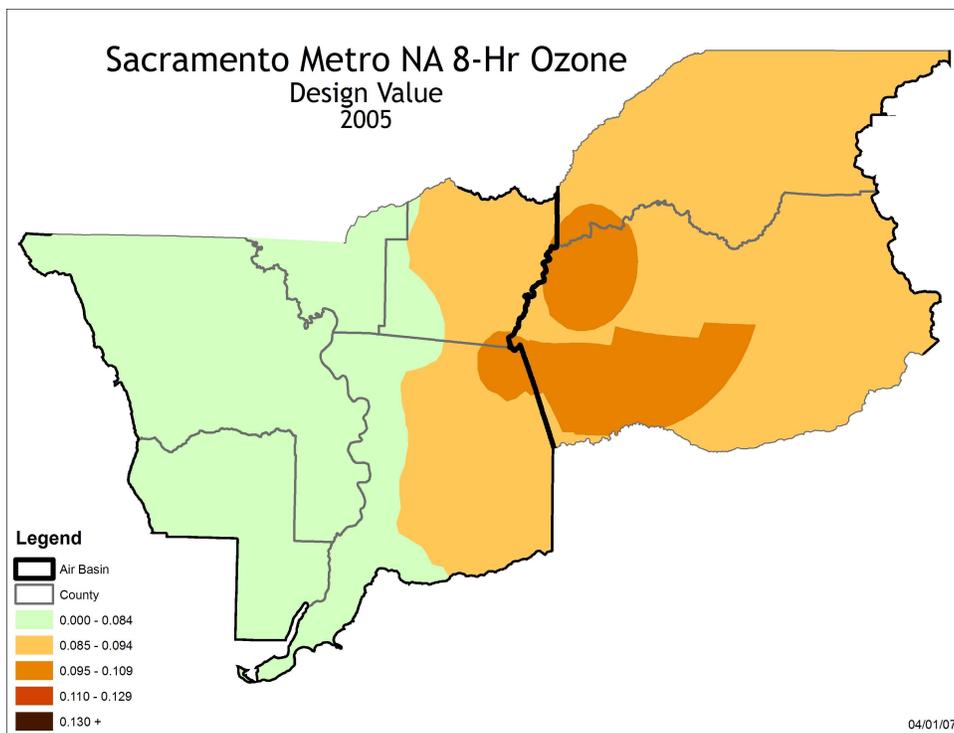
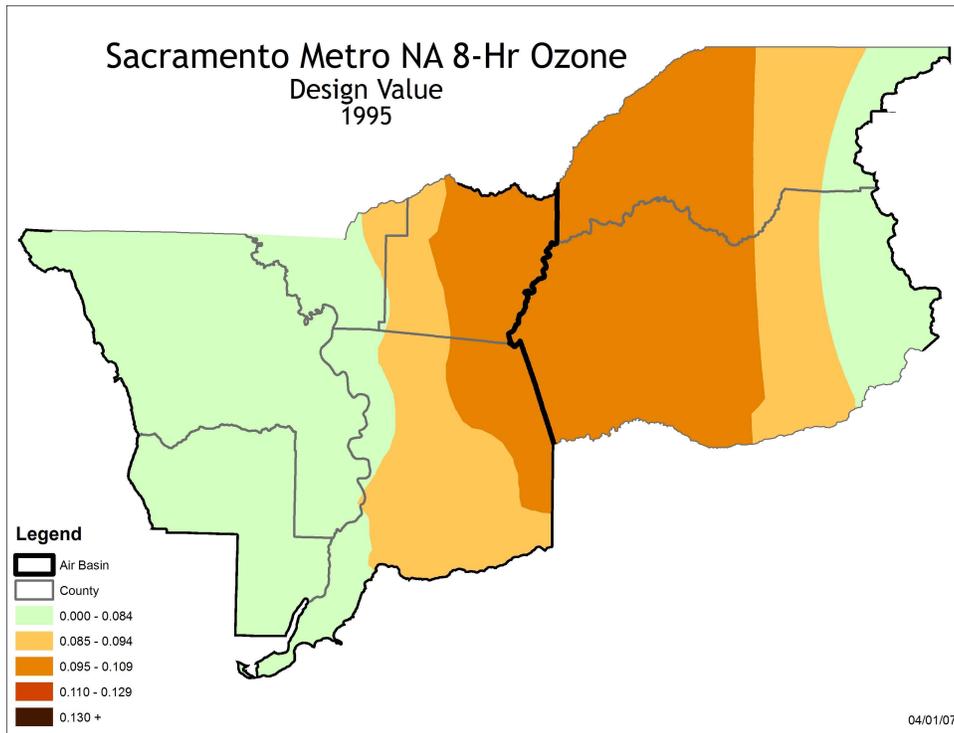
**Figure 2. Sacramento Metro Area 8-Hour Ozone Exceedance Days (1995-2005)**



Ozone “design values” are used to characterize a region’s air quality for SIP planning purposes. The design value is a three-year average of the annual fourth highest daily maximum 8-hour ozone concentrations. The use of the three-year average helps minimize the year-to-year influence of meteorology. Figure 3 shows that, while some areas in the region still have high design values, the design value has decreased markedly in many parts of the region.

The air quality monitors at Cool in El Dorado County and Folsom in Sacramento County have recorded the region’s highest ozone levels for the last ten years. These monitoring sites are both in the eastern portion of the nonattainment area, in the foothills of the Sierra Nevada Mountains, and are impacted by emissions from the urban areas to the west.

**Figure 3. Sacramento Metro Area 8-hour Ozone Design Value (1995-2005)**



## II. AIR QUALITY PLANNING

### Air Quality Planning Background

The federal Clean Air Act (the Act) establishes planning requirements for those areas that routinely exceed the health-based National Ambient Air Quality Standards (NAAQS). These nonattainment areas must develop and enact State Implementation Plans (SIPs) that demonstrate how they will attain the standards by specified dates.

State law<sup>1</sup> designates ARB as the State's air pollution control agency for all purposes set forth in federal law, including the preparation of the SIP. State law further specifies that ARB must adopt the nonattainment area plan approved by a local air district, unless ARB finds, after a public hearing, that the locally adopted plan will not meet the requirements of the Act.<sup>2</sup> California SIP revisions must be submitted to U.S. EPA by ARB. The provisions and commitments in a U.S. EPA-approved SIP are federally enforceable. The Act also allows interested parties to sue U.S. EPA, the state, or local agencies to compel implementation of an approved SIP.

### 8-hour Ozone Planning Requirements

In July 1997, U.S. EPA promulgated a NAAQS for ozone that requires that ozone concentrations not exceed 0.08 ppm over an 8-hour period. In April 2004, U.S. EPA finalized Phase 1 of the ozone implementation rule,<sup>3</sup> which set forth the classification scheme for nonattainment areas. U.S. EPA classified the Sacramento Metro Area as a "serious" nonattainment area with an attainment date of June 2013. The five air districts that comprise the Sacramento Metro Nonattainment Area have requested from U.S. EPA voluntary reclassification to "severe-15." As a "severe-15" area, the Sacramento Metro Area has until June 2019 to attain the 1997 8-hour ozone NAAQS.

On November 9, 2005, U.S. EPA supplemented its Phase 1 implementation rule with a Phase 2 rule.<sup>4</sup> The Phase 2 rule outlines the emission controls and planning elements that nonattainment areas must address in their implementation plans, including:

- air quality modeling that demonstrates attainment of the 8-hour ozone standard;
- a weight-of-evidence analysis;
- adopted control strategies capable of meeting attainment, and contingency reductions in the event the controls fall short of achieving needed reductions;

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<sup>1</sup> California Health and Safety Code (HSC) section 39602.

<sup>2</sup> HSC Section 41650(a).

<sup>3</sup> Federal Register: April 30, 2004 (Volume 69, Number 84, pages 23951-24000)

<sup>4</sup> Federal Register: November 29, 2005 (Volume 70, Number 288, pages 71612-71705)

- demonstration that all reasonably available control technology (RACT) has been applied to existing sources;
- reasonable further progress plans to show ongoing progress toward attainment; and
- transportation conformity emission budgets to ensure transportation plans and projects are consistent with, and will not hinder attainment.

In order to demonstrate attainment of the 8-hour ozone standard by June 2019, all of the emission reductions needed for attainment must be in place by the beginning of the full ozone season in the prior year, 2018.

ARB staff has reviewed the plan and determined that it includes all of the required elements listed above. These various plan elements are summarized in Section III. Staff concurs with the districts' conclusion that the reductions listed in the plan are sufficient to show attainment by the 2018 deadline.

### **III. PLAN EVALUATION**

The 2009 Sacramento 8-Hour Ozone Plan is the latest step in the air quality planning process that over the years has helped define new actions to improve the Sacramento region's air quality. The districts released their draft plan on September 10, 2008 and held public workshops in several locations throughout the region. The governing boards of all five districts approved the plan at duly noticed public hearings on January 22 (Sacramento), February 2 (Feather River), February 10 (El Dorado County), February 11 (Yolo-Solano), and February 19, 2009 (Placer County).

#### **Baseline Emissions Inventory**

Sacramento's main sources of emissions are on-road vehicles, including passenger vehicles and heavy-duty diesel trucks, reflecting the region's large urban and suburban population, as well as its role as a goods movement hub. Though the region does have bus and light rail service, particularly in the downtown Sacramento area, the primary mode of transportation is passenger vehicles.

Other large sources of ozone precursor emissions are off-road agricultural and construction equipment, recreational boats, and consumer products. Emissions from industrial activities make up a much smaller portion of the inventory.

Tables 1 and 2 show the top 25 sources of NO<sub>x</sub> and ROG in the region for 2008 and 2018. The tables demonstrate that emissions of both precursors will decline markedly by the attainment year.

**Table 1. NOx Emissions (tons/day): Summer Season Emissions Inventory  
Sacramento Metro Nonattainment Area**

<b>Source Category</b>	<b>2008</b>	<b>2018</b>
HEAVY DUTY DIESEL TRUCKS	57	25
PASSENGER VEHICLES	29	13
<i>Light Trucks, Minivans and SUVs</i>	13	6
<i>Medium Duty Trucks</i>	5	3
<i>Passenger Cars</i>	11	4
OFF-ROAD EQUIPMENT (CONSTRUCTION AND MINING)	15	8
FARM EQUIPMENT (COMBINES AND TRACTORS)	10	5
LOCOMOTIVES	9	9
OFF-ROAD EQUIPMENT (OTHER)	8	5
AGRICULTURAL IRRIGATION PUMPS	6	4
RECREATIONAL BOATS	6	6
GASOLINE-FUELED COMMERCIAL TRUCKS	6	4
RESIDENTIAL FUEL COMBUSTION	3	3
<i>Cooking</i>	<1	<1
<i>Other (Clothes Dryers, BBQs, Pool Heaters and Fireplaces)</i>	1	1
<i>Space Heating</i>	<1	<1
<i>Water Heating</i>	2	2
MANUFACTURING AND INDUSTRIAL (BOILERS, IC ENGINES)	3	3
SERVICE AND COMMERCIAL (BOILERS, IC ENGINES)	2	3
AIRCRAFT	2	3
SHIPS AND COMMERCIAL BOATS (Includes OCS)	2	1
ELECTRIC UTILITIES	1	2
OTHER (FUEL COMBUSTION)	1	1
MOTORCYCLES	1	1
OFF-ROAD EQUIPMENT (LAWN AND GARDEN)	1	1
PUBLIC TRANSIT BUSES	1	1
SCHOOL BUSES	1	1
MOTOR HOMES	1	<1
COMMERCIAL TRANSIT BUSES	1	<1
MINERAL PROCESSES (MINING, CEMENT MANUFACTURING)	<1	1
OIL AND GAS PRODUCTION (COMBUSTION)	<1	<1
AG BURNING	<1	<1
ALL OTHER SOURCES	<1	1
<b>TOTAL</b>	<b>167</b>	<b>101</b>

<b>Table 2. ROG Emissions (tons/day): Summer Season Emission Inventory</b>		
<b>Sacramento Metro Nonattainment Area</b>		
<b>Source Category</b>	<b>2008</b>	<b>2018</b>
PASSENGER VEHICLES	33	19
<i>Light Trucks, Minivans and SUVs</i>	13	9
<i>Medium Duty Trucks</i>	4	3
<i>Passenger Cars</i>	16	7
RECREATIONAL BOATS	18	16
CONSUMER PRODUCTS	13	15
ARCHITECTURAL COATINGS (PAINTS AND THINNERS)	4	5
OFF-ROAD EQUIPMENT (LAWN AND GARDEN)	6	5
OFF-ROAD RECREATIONAL VEHICLES	5	7
PETROLEUM MARKETING (GASOLINE EVAPORATIVE LOSSES)	4	5
GASOLINE-FUELED COMMERCIAL TRUCKS	4	2
HEAVY DUTY DIESEL TRUCKS	4	2
MOTORCYCLES	4	4
COATINGS (PAINTS AND THINNERS - NON ARCHITECTURAL)	3	4
OFF-ROAD EQUIPMENT (OTHER)	3	2
OFF-ROAD EQUIPMENT (CONSTRUCTION AND MINING)	2	1
CHEMICAL (PROCESS AND STORAGE LOSSES)	2	2
GAS CANS	2	1
PESTICIDES	2	2
DEGREASING	1	2
FARM EQUIPMENT (COMBINES AND TRACTORS)	2	1
LIVESTOCK WASTE (RANGE CATTLE)	1	1
RESIDENTIAL FUEL COMBUSTION	1	1
<i>Cooking</i>	<1	<1
<i>Other (Clothes Dryers, BBQs, Pool Heaters and Fireplaces)</i>	1	1
<i>Space Heating</i>	<1	<1
<i>Water Heating</i>	<1	<1
PRINTING	1	1
OIL AND GAS PRODUCTION (EVAPORATIVE LOSSES/FLARING)	1	1
ASPHALT PAVING / ROOFING	1	1
LIVESTOCK WASTE (DAIRY CATTLE)	1	1
PRESCRIBED BURNING	1	1
ALL OTHER SOURCES	14	15
<b>TOTAL</b>	<b>136</b>	<b>117</b>

Table 3 summarizes the emissions reductions from 2008, the base year for this plan, to 2018, that are the result of State and local emissions reductions programs in place as of 2006. This table does not include reductions from measures in the 2007 California State Strategy. Substantial reductions are projected, especially for the on-road motor vehicles category.

<b>Table 3. Baseline Emissions Trends with Measures Adopted as of 2006 Sacramento Metro Area</b>						
Summer Planning Inventory (tons/day)						
	NOx			ROG		
Source Category	2008	2018 <sup>5</sup>	Percent Change	2008	2018 <sup>6</sup>	Percent Change
Stationary & Areawide	19	20	7%	50	60	20%
On-Road Motor Vehicles	95	45	-53%	45	27	-40%
Off-Road Vehicles and Equipment	53	38	-27%	41	34	-16%
<b>TOTAL</b>	167	104	-38%	136	121	-11%

### Emission Reduction Credits

Federal New Source Review (NSR) rules require new and modified major stationary sources that increase emissions in amounts exceeding specified thresholds to provide emission reduction offsets to mitigate the emission growth. Emission reduction offsets represent either on-site emission reductions or the use of banked emission reduction credits (ERCs). ERCs are voluntary, surplus emission reductions that are registered with the District for future use as offsets.

<b>Table 4. Emission Reduction Credits Sacramento Metro Area (tons/day)</b>	
Pollutant	ERC Total
NOx	2.3
ROG	3.5

<sup>5</sup> Includes 3 tons/day NOx ERC

<sup>6</sup> Includes 4 tons/day ROG ERC

The district added the banked ERCs shown in Table 4 into the 2018 emission inventory used in the modeling demonstration of attainment. This ensures that these ERCs, which could be used to enable growth at major sources at any time, are fully accounted for in the inventories used to demonstrate attainment of the 8-hour ozone standard.

### **Attainment Demonstration**

Sacramento's attainment date under the "severe-15" classification gives it a June 15, 2019 attainment date. In accordance with U.S. EPA modeling guidance, the region needs to demonstrate a design value less than 0.085 ppm for the 2018 ozone season in order to attain the standard.

ARB performed the photochemical modeling on behalf of the districts. That modeling when accounting for reductions from regulations adopted through 2006 predicted a 2018 design value of 0.088 ppm, which exceeds the 0.08 ppm attainment standard. Reductions from additional measures are, therefore, needed for the region to attain the standard by 2018. Further details on the photochemical modeling can be found in Appendix B of the local plan element.

Based on the modeling results, for the region to meet the standard, the districts determined that 2018 NO<sub>x</sub> emissions will need to be reduced by 12.5 percent and 2018 ROG emissions by 3.3 percent beyond the levels that will be achieved with regulations adopted through 2006. Table 5 summarizes how those 12.5 percent and 3.3 percent reductions will be achieved in tons per day. These reductions will come from new local measures and measures in the California 2007 State Strategy. ARB adopted the 2007 State Strategy in September 2007. Since then, ARB has completed rulemaking on many of the measures in the 2007 State Strategy. As a result, measures have been adopted to achieve most of the necessary emission reductions as indicated in Table 5.

<b>Table 5. Emission Reduction Summary for 2018 Attainment Sacramento Metro Area Summer Planning (tons/day)</b>		
	<b>NOx</b>	<b>ROG</b>
<b>Emission Reduction Target in Percent</b>	<b>12.5%</b>	<b>3.3%</b>
<b>Emission Reduction Target in tons/day</b>	<b>13</b>	<b>4</b>
<b>Emissions Reductions from State Measures Adopted since Dec. 2006</b>		
Emissions Reductions from State Measures Adopted since Dec. 2006	11	3
<b>Emissions Reductions from New State Measures</b>		
Emissions Reductions from New State Measures	2	8
<b>Emissions Reductions from Local Measures Adopted since Dec. 2006</b>		
Emissions Reductions from Local Measures Adopted since Dec. 2006	0	1
<b>Emissions Reductions from New Local Measures</b>		
Emissions Reductions from New Local Measures	3	2
<b>Total Reductions from Recently Adopted and New Measures</b>	<b>16</b>	<b>14</b>

### **Weight of Evidence Analysis**

Sacramento's attainment plan incorporates a supplementary weight of evidence analysis as required under U.S. EPA's April 2007 Final Guidance on the Use of Models and Other Analyses for Attainment of Air Quality Goals for Ozone, PM<sub>2.5</sub>, and Regional Haze. The analysis concludes that the evidence indicates the adopted emission controls will reduce ozone concentrations to the level needed to meet the 8-hour ozone standard by the statutory attainment deadline of June 15, 2019.

### **Control Strategy**

#### **Local Strategy**

Local air districts are responsible for controlling emissions from most stationary and areawide sources. Such sources include factories, power plants, gas stations, dry cleaners, residential water heaters, and managed burning. The five districts have adopted a variety of control measures to control emissions from these sources. The local plan element includes commitments to develop and adopt new measures and to amend existing measures to strengthen controls. These measures will target architectural coatings, automotive refinishing products, degreasing and solvent cleaning products, metal parts coatings, natural gas processing, portable asphalt dryers, water heaters and boilers, and stationary internal combustion engines. The new district measures for the five districts are expected to provide an additional 3 tons/day NOx reductions and 3 tons/day ROG reductions.

## **State Strategy**

ARB is responsible for controlling emissions from mobile sources, consumer products, and fuels. ARB's on-going mobile source control program will provide significant NOx and ROG emission reductions in Sacramento. Vehicles and equipment operating in California are subject to the most stringent tailpipe emission standards in the world. ARB's existing on-road vehicle emission control programs in Sacramento will decrease NOx emissions by more than 50 percent and ROG emissions by about 40 percent between 2008 and 2018. New measures in the 2007 California State Strategy, including the Heavy-Duty Truck Rule adopted by the Board in December 2008, will provide additional reductions. The truck rule alone will provide an additional 10 percent reduction in on-road mobile source NOx emissions in Sacramento. For informational purposes, Table 6 shows the expected NOx and ROG emission reductions from measures in the 2007 State Strategy in Sacramento for 2018.

The local plan element Table 7-1 is similar to this document's Table 6. ARB staff's understanding of the emissions reductions from U.S. EPA's line-haul locomotive rule has changed since the districts published the local plan. Staff initially predicted emissions benefits for Sacramento, but we now understand that the rule will have very little impact on Sacramento emissions. Table 6 is updated to reflect this change.

<b>Table 6. Expected Emission NOx and ROG Reductions from 2007 State Strategy Measures (tons/day) Sacramento Metro Area: 2018</b>		
<b>Proposed New SIP Measures</b>	<b>NOx</b>	<b>ROG</b>
<b>Passenger Vehicles</b>	<b>1.7</b>	<b>2.6</b>
Smog Check Improvements (BAR)	1.4	1.3
Expanded Vehicle Retirement	0.3	0.2
Modifications to Reformulated Gasoline Program	--	1.1
<b>Heavy-Duty Trucks</b>	<b>9.5</b>	<b>0.8</b>
Cleaner In-Use Heavy-Duty Trucks	9.5	0.8
<b>Goods Movement Sources</b>	<b>0.2</b>	<b>0.0</b>
Clean Up Existing Harbor Craft	0.2	0.0
<b>Off-Road Equipment</b>	<b>1.9</b>	<b>0.4</b>
Cleaner In-Use Off-Road Equipment (over 25hp) <sup>7</sup>	1.9	0.4
<b>Other Off-Road Sources</b>	<b>0.3</b>	<b>6.1</b>
New Emission Standards for Recreational Boats	0.3	3.0
Expanded Off-Road Rec. Vehicle Emission Standards	0.0	2.7
Additional Evaporative Emission Standards	--	0.4
<b>Areawide Sources</b>	<b>--</b>	<b>1.9</b>
Consumer Products Program	--	1.9
<b>Emission Reductions from Proposed New Measures</b>	<b>13</b>	<b>11</b>

### **Commitment to Reduce Emissions**

Table 7 below describes the emission reduction commitment proposal for Board approval. ARB staff proposes that ARB commit to achieve the emission reductions set forth in this table by 2018. These reductions, along with reductions from local and federal measures, will allow the Sacramento area to achieve attainment of the ozone standard by 2018.

**Table 7**

<b>Summary of Emission Reduction Commitments – Sacramento</b>		
<b>Year</b>	<b>NOx</b>	<b>ROG</b>
2018	13	11

<sup>7</sup> Benefits from rule as adopted by ARB. Does not reflect February 2009 budget agreement impacts.

## **Reasonably Available Control Technology**

U.S. EPA has issued a variety of Control Techniques Guidelines (CTGs) describing stationary-source control standards required to meet the Reasonably Available Control Technology (RACT) requirements in the CAA. Each district is responsible for evaluating their rules to determine compliance with RACT. Each of the five districts submitted initial RACT SIPs to U.S. EPA in 2007 (Yolo-Solano Air District in January 2007; El Dorado County, Feather River, Placer County and Sacramento Air Districts in July 2007). Districts are in the process of amending or adopting new rules, as necessary, to meet their RACT SIP commitments.

U.S. EPA issued additional CTGs after the July 2007 RACT SIP submittals. Sacramento Air District submitted an update to their RACT SIP to address these additional CTGs in January 2009. Feather River Air District intends to submit a RACT SIP update by mid-2009. Yolo-Solano Air District, whose original RACT SIP submittal was disapproved by U.S. EPA, plans to submit a revision to address approvability issues as well as the additional CTGs later this year. Placer County and El Dorado County Air Districts plan to submit RACT SIP updates after 2009.

## **Transportation Control Measures**

U.S. EPA has identified Transportation Control Measures (TCMs) that must be evaluated as part of a Reasonably Available Control Measure Analysis. TCMs include options for reducing vehicle use or for reducing conditions that lead to higher vehicle emissions. The adopted local plan includes a variety of TCMs, including transit fleet acquisitions, park and ride lots for transit, bicycle and pedestrian funding projects and transportation demand management funding programs. The Board of Directors of the Sacramento Area Council of Governments (SACOG), the area's Metropolitan Planning Organization, approved the TCMs for inclusion in the plan during their August 2008 Board meeting.

## **Contingency Strategy**

U.S. EPA requires each plan to identify contingency emission reductions that will take effect should an area fail to attain by the attainment date specified in its SIP. U.S. EPA also requires in the SIP a demonstration that additional contingency emission reductions are available for each milestone year, should they be needed. These reductions must come from measures that will take effect without further action. U.S. EPA has interpreted this to mean that the contingency reductions must come from measures that have already been adopted.

Sacramento's plan relies on the existing State mobile source control measures to satisfy contingency requirements. These measures will continue to be implemented, and to reduce motor vehicle emissions, regardless of the region's attainment status in 2019.

The additional reductions the existing motor vehicle program will yield in 2019 serve as contingency in case the region does not attain the ozone standard on time.

### **Reasonable Further Progress**

To ensure that nonattainment areas make consistent progress towards attainment of the ozone standard, nonattainment areas are required to show a three percent per year reduction in both ROG and NOx emissions, averaged over a three-year period, up to the attainment year. Since the region has previously submitted to U.S. EPA a 2008 Reasonable Further Progress demonstration, the current plan includes demonstrations for the 2011, 2014 and 2017 milestone years as well as the 2018 attainment year. The demonstration is summarized in Table 8.

<b>Table 8. Reasonable Further Progress Sacramento Metro Area Summer Planning Inventory (tons/day)</b>				
	<b>2011</b>	<b>2014</b>	<b>2017</b>	<b>2018</b>
Required percent change since 2002 (ROG or NOx)	27%	36%	45%	48%
Three percent required for contingency	3%	3%	3%	3%
<b>Total percent reduction required</b>	<b>30%</b>	<b>39%</b>	<b>48%</b>	<b>51%</b>
Percent ROG reduction since 2002	17%	20%	21%	21%
Percent NOx reduction since 2002	19%	26%	32%	33%
<b>Total percent reduction</b>	<b>36%</b>	<b>46%</b>	<b>53%</b>	<b>55%</b>
<b>RFP met?</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>Contingency provision satisfied?</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>

### **Transportation Conformity Budgets**

Sacramento's plan establishes on-road motor vehicle emissions transportation conformity budgets for 2011, 2014, 2017, and 2018 for the Sacramento nonattainment area. The emission budgets reflect the latest planning assumptions and were developed using ARB's latest on-road mobile source emission factor model EMFAC2007.

The new emission budgets, based on summer planning daily emissions for ROG and NOx, are shown in Table 9. The budgets were developed from activity data provided by the SACOG, and are consistent with the latest Metropolitan Transportation Plan, MTP 2035. ARB incorporated the SACOG activity data into the EMFAC2007 motor vehicle emission model. EMFAC outputs were also adjusted to account for baseline emission reductions not reflected in EMFAC2007.

The emission budgets established in this plan fulfill the requirements of the Act and U.S. EPA regulations to ensure that transportation projects will not interfere with progress towards, and attainment of, the national 8-hour ozone standard.

<b>Table 9. Motor Vehicle Emissions Budgets Sacramento Metro Area</b>				
Summer Planning Inventory (tons/day)				
	<b>2011</b>	<b>2014</b>	<b>2017</b>	<b>2018</b>
<b>NOx</b>	78	61	48	34
<b>VOC</b>	38	32	29	24

#### **IV. 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. The Sacramento Metropolitan Air District contracted with an environmental consultant to prepare an Environmental Impact Report (EIR) for this plan. The EIR, which is available through the Sacramento Air District, identified and analyzed the possible environmental effects of the plan. The EIR concluded that the impacts of the plan on air quality and hazards/hazardous materials would be less than significant. Furthermore, the plan found no potentially significant adverse affects for other environmental indicators studied. ARB staff has reviewed the EIR and concurs that the plan will have less than significant environmental impacts.

#### **V. LEGAL AUTHORITY**

The Act requires states to provide for the attainment of national ambient air quality standards. The primary tool to be used in the effort to attain national ambient air quality standards is a plan that any state with one or more nonattainment areas must develop, which provides for implementation, maintenance and enforcement of the standards—the State Implementation Plan (section 110(a)(1)). Section 110(a)(2)(A) of the Act 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 emission rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of the Act.”

State law charges the ARB 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 (HSC). 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.”

## **VI. STAFF RECOMMENDATIONS**

As described in this report, ARB staff has reviewed the 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan, and consulted extensively with the staff at the local air districts during this review.

ARB staff finds that the 2009 Sacramento Regional 8-hour Ozone Attainment and Reasonable Further Progress Plan meets applicable requirements. Staff further concludes that the implementation of this plan would reduce ozone levels throughout the Sacramento area, benefit public health, and result in attainment of the 1997 8-hour ozone standard by June 15, 2019. Therefore, we recommend that the Board take the following actions:

1. Adopt the 2007 Sacramento Regional 8-hour Ozone Attainment and Reasonable Further Progress Plan as a revision to the California SIP, including the control strategy, emission inventories, attainment demonstration, reasonable further progress demonstration, and motor vehicle emission budgets.
2. Commit to achieve emission reductions of 13 tons/day NO<sub>x</sub> and 11 tons/day ROG by 2018.
3. Direct the Executive Officer to submit the plan to U.S. EPA as a revision to the California SIP.
4. Direct the Executive Officer to submit to U.S. EPA the districts' RACT SIP elements, as the districts adopt those elements.