

LOCATION:

Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814
<http://www.calepa.ca.gov/EPAbldg/location.htm>

PUBLIC MEETING AGENDA

Thursday, November 21, 2013

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**TO SUBMIT WRITTEN COMMENTS ON AN
AGENDA ITEM IN ADVANCE OF THE MEETING GO
TO: <http://www.arb.ca.gov/lispub/comm/bclist.php>**

November 21, 2013

9:00 a.m.

CONSENT CALENDAR:

The following items on the consent calendar will be presented to the Board immediately after the start of the public meeting, unless removed from the consent calendar either upon a Board member's request or if someone in the audience wishes to speak on it. Attached are the Proposed Resolutions the Board will consider for consent items listed below.

Consent Item #

13-10-1: Public Meeting to Consider Greenhouse Gas Quantification Determination for the Santa Barbara County Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy

The Board will consider acceptance of the Santa Barbara County Association of Governments' determination that implementation of its 2013 Sustainable Communities Strategy would meet the region's 2020 and 2035 per capita greenhouse gas emissions reduction targets set by the Air Resources Board.

13-10-2: Public Hearing to Consider Updates to the 2009 Sacramento Metropolitan Federal Ozone Nonattainment Area State Implementation Plan for the 1997 8-Hour Ozone Standard

The Board will consider approving proposed updates to the 2009 Sacramento Metropolitan Federal Ozone Nonattainment Area 8-hour Ozone State Implementation Plan (SIP) for submission to the United States Environmental Protection Agency (U.S. EPA) as a revision to the California SIP. These updates incorporate new emissions inventory data that reflect rules and regulations adopted since 2009 and address U.S. EPA "Vehicle Miles Traveled Offset" guidance issued since 2009.

13-10-3: Public Meeting to Consider A Research Proposal

Staff will seek Board approval of a research proposal that was developed to support the Advanced Clean Cars program and to investigate potential emissions reduction opportunities for passenger cars.

13-10-5: Public Meeting to Hear PM2.5 Area Designation Recommendations for the Revised Federal PM2.5 Annual Standard

The Board will consider recommendations for initial nonattainment areas for the 2012 Revised Annual PM2.5 National Ambient Air Quality Standard to be submitted to the United States Environmental Protection Agency.

DISCUSSION ITEMS:

Note: The following agenda items may be heard in a different order at the Board meeting.

Agenda Item #**13-10-6: Public Meeting to Consider Approval of the San Joaquin Valley 2013 Plan for the Federal 1-hour Ozone Standard**

The Board will consider approving the San Joaquin Valley's 2013 Plan for the 1-hour Ozone Standard as a revision to the California State Implementation Plan. This plan demonstrates the San Joaquin Valley will attain the federal 1-hour ozone standard by 2017.

13-10-7: Public Meeting to Hear a 2013 Legislative Update

The Air Resources Board's Legislative Director will present a review of air quality and climate change legislation from the first year of the 2013-2014 Legislative Session.

13-10-8: Update to the Board on the Enhanced Fleet Modernization Program

Staff will present to the Board a summary of the Enhanced Fleet Modernization Program, including staff's recent assessment of the program's performance, identifying the components that are working well and those in need of improvement.

CLOSED SESSION

The Board will hold a closed session, as authorized by Government Code section 11126(e), to confer with, and receive advice from, its legal counsel regarding the following pending or potential litigation, and as authorized by Government Code section 11126(a):

POET, LLC, et al. v. Goldstene, et al., Superior Court of California (Fresno County), Case No. 09CECG04850; plaintiffs' appeal, California Court of Appeal, Fifth District, Case No. F064045; California Supreme Court, Case No. S213394.

Rocky Mountain Farmers Union, et al. v. Corey, U.S. District Court (E.D. Cal. Fresno), Case No. 1:09-CV-02234-LJO-DLB; interlocutory appeal, U.S. Court of Appeals, Ninth Circuit, Case Nos. 09-CV-02234 and 10-CV-00163.

American Fuels and Petrochemical Manufacturing Associations, et al. v. Corey, et al., U.S. District Court (E.D. Cal. Fresno), Case No. 1:10-CV-00163-AWI-GSA; interlocutory appeal, U.S. Court of Appeals, Ninth Circuit, Case Nos. 09-CV-02234 and 10-CV-00163.

Association of Irrigated Residents, et al. v. United States Environmental Protection Agency, 2011 WL 310357 (C.A.9), (Feb. 2, 2011).

California Dump Truck Owners Association v. Nichols, U.S. District Court (E.D. Cal. Sacramento), Case No. 2:11-CV-00384-MCE-GGH; plaintiffs' appeal, U.S. Court of Appeals, Ninth Circuit, Case No. 13-15175.

California Construction Trucking Association v. United States Environmental Protection Agency, U.S. Court of Appeals, Ninth Circuit, Case No. 13-70562.

Engine Manufacturers Association v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2010-00082774; defendant's appeal, California Court of Appeal, Third District, Case No. C071891.

Truck and Engine Manufacturers Association v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2013-00150733.

Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board, San Francisco Superior Court, Case No. CGC-12-519554, plaintiffs' appeal, California Court of Appeal, First District, Case No. A138830.

California Chamber of Commerce et al. v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2012-80001313.

Morning Star Packing Company, et al. v. California Air Resources Board, et al., Sacramento Superior Court, Case No. 34-2013-800001464.

Delta Construction Company, et al. v. United States Environmental Protection Agency, U.S. Court of Appeals, District of Columbia Circuit, Case No. 11-1428.

City of Los Angeles through Department of Water and Power v. California Air Resources Board, et al., Los Angeles Superior Court, Case No. BS140620 (transferred to Sacramento Superior Court, Case No. 34-2013-80001451-CU-WM-GDS).

OPPORTUNITY FOR MEMBERS OF THE BOARD TO COMMENT ON MATTERS OF INTEREST

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but that do not specifically appear on the agenda. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

TO ELECTRONICALLY SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO:

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

(Note: not all agenda items are available for electronic submittals of written comments.)

ONLINE SIGN-UP:

You can sign up online in advance to speak at the Board meeting when you submit an electronic Board item comment. For more information go to:

<http://www.arb.ca.gov/board/online-signup.htm>

(Note: not all agenda items are available for online sign-up.)

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT THE CLERK OF THE BOARD:

1001 I Street, 23rd Floor, Sacramento, California 95814

(916) 322-5594

ARB Homepage: www.arb.ca.gov

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 7 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

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- Documentos disponibles en un formato alterno u otro idioma
- Una acomodación razonable relacionados con una incapacidad

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 7 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

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November 21, 2013

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PROPOSED

State of California
AIR RESOURCES BOARD

**ACCEPTANCE OF GREENHOUSE GAS QUANTIFICATION DETERMINATION FOR
THE SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS' SB 375
SUSTAINABLE COMMUNITIES STRATEGY**

Resolution 13-40

November 21, 2013

Agenda Item No.: 13-10-1

WHEREAS, SB 375 (Steinberg, Chapter 728, Statutes of 2008), also known as the Sustainable Communities and Climate Protection Act, aims to reduce greenhouse gas (GHG) emissions from passenger vehicle travel through improved transportation and land use planning at the regional scale;

WHEREAS, SB 375 requires each of the State's 18 federally-designated Metropolitan Planning Organizations (MPO), including the Santa Barbara County Association of Governments, to develop a Sustainable Communities Strategy (SCS), or an Alternative Planning Strategy (APS) that meets the regional GHG emission reduction targets for passenger vehicles set by the Air Resources Board (ARB or Board);

WHEREAS, on September 23, 2010, the Board approved GHG reduction targets for 2020 and 2035, expressed as a per capita percentage reduction relative to 2005 levels, for each of the State's MPOs;

WHEREAS, the targets established for the Santa Barbara County Association of Governments (SBCAG) region are a zero percent decrease in 2020 and a zero percent decrease in 2035 relative to 2005 levels;

WHEREAS, SBCAG staff engaged the public by holding public workshops throughout three phases of public involvement between November 2011 and March 2013;

WHEREAS, in April 2013, SBCAG published a draft Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for 2013-2040 that stated it would achieve a 10.5 percent per capita reduction from 2005 levels in 2020 and a 15.4 percent per capita reduction from 2005 levels in 2035;

WHEREAS, ARB staff performed a technical evaluation of the draft SCS using ARB's methodology, published in July 2011 for review of GHG emission calculation procedures for SCS plans;

WHEREAS, ARB staff's evaluation found that SBCAG used technical methodologies that would accurately quantify GHG reductions from the draft SCS;

WHEREAS, the SBCAG Board of Directors adopted the final SCS at its public meeting held on August 15, 2013;

WHEREAS, as required by California Government Code section 65080(b)(2)(J)(ii), SBCAG submitted the final RTP/SCS to ARB on August 26, 2013 for review of its GHG quantification determination of 10.5 percent per capita reduction by 2020 and a 15.4 percent per capita reduction by 2035;

WHEREAS, section 65080(b)(2)(J)(ii) of the California Government Code calls for ARB to accept or reject an MPO's determination that its submitted strategy would, if implemented, achieve the GHG emission reduction targets established by the Board;

WHEREAS, ARB staff's technical evaluation of SBCAG's GHG reduction quantification is contained in Attachment A, "Technical Evaluation of Greenhouse Gas Emission Reduction Quantification for the Santa Barbara County Association of Governments' Sustainable Communities Strategies," dated November 2013; and

WHEREAS, ARB staff's evaluation affirms that SBCAG's adopted 2013-2040 SCS would, if implemented, achieve more reductions than the GHG targets that the Board established for the region for 2020 and 2035.

NOW, THEREFORE, BE IT RESOLVED that pursuant to section 65080(b)(2)(J)(ii) of the California Government Code, the Board hereby accepts SBCAG's quantification of the GHG emission reductions from the final SCS adopted by the SBCAG Board of Directors on August 15, 2013, and the MPO's determination that the SCS would, if implemented, achieve a 10.5 percent per capita GHG reduction from 2005 levels in 2020 and a 15.4 percent per capita GHG reduction from 2005 levels in 2035.

NOW, THEREFORE, IT IS ORDERED that ARB staff forward this Resolution to the SBCAG Board of Directors and Executive Director.

Resolution 13-40

November 21, 2013

Identification of Attachments to the Board Resolution

Attachment A: Technical Evaluation of Greenhouse Gas Emission Reduction Quantification for the Santa Barbara County Association of Governments' Sustainable Communities Strategies, dated November 2013.

CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO CONSIDER APPROVAL OF UPDATES TO THE 2009 SACRAMENTO METROPOLITAN OZONE NONATTAINMENT AREA STATE IMPLEMENTATION PLAN FOR THE 1997 8-HOUR OZONE STANDARD

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to consider approval of updates to the 2009 Sacramento Metropolitan Ozone Nonattainment Area State Implementation Plan for the 1997 8-Hour Ozone Standard (2013 Update). If approved by the Board, ARB will submit the 2013 Update to the United States Environmental Protection Agency (U.S. EPA) as a revision to the California State Implementation Plan (SIP).

DATE: November 21, 2013

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., November 21, 2013. This item is scheduled to be heard on the Board's Consent Calendar. All items on the consent calendar can be voted on by the Board immediately after the start of the public meeting. An item will be removed from the consent calendar at the request of a Board member or if someone in the audience would like to speak on that item.

BACKGROUND

The federal Clean Air Act (CAA) establishes planning requirements for areas that exceed a health-based National Ambient Air Quality Standard (standard). These nonattainment areas must adopt and implement a SIP demonstrating that they will attain the standard by specified CAA deadlines.

The U.S. EPA has designated the greater Sacramento area as a nonattainment area for the 8-hour ozone standard established in 1997. The Sacramento Metropolitan Nonattainment Area (SMNA) includes all of Sacramento and Yolo counties, and portions of El Dorado, Placer, Solano and Sutter counties. The SMNA encompasses all or part of five air pollution control or air quality management districts (districts). The Sacramento Metropolitan, Feather River, El Dorado, Yolo-Solano, and Placer County districts each adopted the 2009 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2009 Plan) in early 2009. ARB approved the 2009 Plan as a revision to California's SIP in March 2009 and submitted it to U.S. EPA in April 2009.

The 2009 Plan included a request that the area be re-classified from "Serious" to "Severe" as provided for in the CAA. The EPA finalized the reclassification on May 5, 2010, thereby changing the SMNA's attainment deadline to June, 2019. Because attainment of the standard is determined by air quality in a complete calendar year, the SIP must effectively demonstrate that the area will attain the standard in 2018.

The Board will consider approval of updates to the 2009 Plan that were locally adopted in September, 2013. The 2013 Update uses revised emission inventories that account for the implementation of recently adopted control measures, the effects of the recession, and updated transportation activity projections provided by the Sacramento Area Organization of Governments. It also includes locally approved revisions to district control strategies and transportation conformity budgets. The 2013 Update addresses CAA ozone nonattainment area planning requirements: it demonstrates attainment of the standard in 2018; includes a comprehensive, accurate, current inventory of emissions data; meets Reasonably Available Control Measures and Reasonably Available Control Technologies requirements; demonstrates that the SMNA will meet the required reasonable further progress milestones; demonstrates that adopted measures will provide sufficient emission reductions beyond 2018 to meet contingency requirements; establishes transportation conformity emission budgets; and includes a vehicle miles traveled emissions offset demonstration.

PROPOSED ACTION

Staff has reviewed the locally adopted 2013 Update and has concluded that it meets the requirements in the CAA. Staff recommends that the Board approve the Proposed 8-Hour Ozone State Implementation Plan Revisions for the Sacramento Metropolitan 1997 8-Hour Ozone Nonattainment Area as a revision to the California SIP.

AVAILABILITY OF DOCUMENTS

ARB staff has prepared a written Staff Report. Copies of the report may be obtained from ARB's Public Information Office, 1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, (916) 322-2990, at least 30 days prior to the scheduled meeting on November 21, 2013. The report may also be obtained from ARB's website at <http://www.arb.ca.gov/planning/sip/planarea/sacsip/sacmetsip.htm>.

SUBMITTAL OF COMMENTS

Interested members of the public may present comments orally or in writing at the meeting and may provide comments by postal mail or by electronic submittal 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, November 20, 2013,** 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>

You can sign up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information go to:
<http://www.arb.ca.gov/board/online-signup.htm>.

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and verbal comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

ARB requests that written and email statements on this item be filed at least 10 days prior to the meeting so that ARB staff and Board members have sufficient time to consider each comment. Further inquiries regarding this matter should be directed to Sylvia Oey, Manager, Land Use and Sustainability Planning Section, at (916) 322-8279; or Jeremy Herbert, Air Resources Engineer, at (916) 322-1718.

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

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CALIFORNIA AIR RESOURCES BOARD


Richard W. Corey
Executive Officer

Date: October 21, 2013

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.

**Staff Report
on
Proposed Revisions to the 8-Hour Ozone
State Implementation Plan for the
Sacramento Federal Nonattainment Area**

Release Date: October 22, 2013

Hearing Date: November 21, 2013



Electronic copies of this document can be found on ARB's website at <http://www.arb.ca.gov/planning/sip/sip.htm>. Alternatively, paper copies may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, 1st Floor, Sacramento, California 95814, (916) 322-2990.

For individuals with sensory disabilities, this document is available in Braille, large print, audiocassette, or computer disk. Please contact ARB's Disability Coordinator at (916) 323-4916 by voice or through the California Relay Services at 711, to place your request for disability services. If you are a person with limited English and would like to request interpreter services, please contact ARB's Bilingual Manager at (916) 323-7053.

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**Proposed 8-Hour Ozone State Implementation Plan Revisions
for the Sacramento Metropolitan
1997 8-Hour Ozone Federal Nonattainment Area**

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Executive Summary

Purpose

This 2013 State Implementation Plan (SIP) Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 Update) updates the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan State Implementation Plan that was adopted and submitted the U.S. Environmental Protection Agency (U.S. EPA) as a SIP revision in 2009 (2009 Plan). The 2009 Plan outlines a strategy for achieving the 1997 8-Hour Ozone National Ambient Air Quality Standard (NAAQS or 8-hour standard) in the Sacramento Metropolitan's 8-Hour Ozone Nonattainment Area (Sacramento Nonattainment Area). The 2013 Update incorporates updated emission inventories, regulations, and the effects of the recession not included in the 2009 Plan.

Staff's analysis indicates that actions taken by the local air districts and California's Air Resources Board (ARB or Board) since the 2009 Plan was submitted will provide the reductions needed to attain the ozone standard by the 2018 deadline. This update provides information needed to support U.S. EPA approval of the Sacramento region's plan for attainment of the 1997 8-hour ozone standard.

Attainment Demonstration and Other Requirements

State law assigns ARB the primary responsibility to ensure California's compliance with the federal Clean Air Act (CAA or Act). Traditionally, ARB shares that responsibility with local air districts through regulatory actions, incentive programs, and defined SIP commitments for further action to achieve emission reductions necessary for attainment. The State also has an expectation that the federal government will provide necessary emission reductions from sources under U.S. EPA's authority.

ARB and the five local air districts that make up the Sacramento Nonattainment Area made SIP commitments necessary to demonstrate attainment of the 8-hour ozone standard in the ARB 2007 State Strategy and in local SIP revisions. The 2013 Revision to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan shows that the regulations that have been adopted and submitted to U.S. EPA will, in 2018, provide the emission reductions called for in the 2013 updated attainment demonstration. The updated attainment demonstration allows fewer emissions in 2018.

The 2013 Update addresses several CAA planning requirements. The revised summer planning emission inventories account for the implementation of recently adopted control measures, the effects of the recession, and updated transportation activity projections provided by the Sacramento Area Organization of Governments (SACOG). The 2013 Update demonstrates attainment of the 8-hour ozone standard, by 2018, using these updated inventories. An updated reasonable further progress (RFP)

analysis uses the updated inventories. The updated, locally approved transportation conformity budgets incorporate the updated emission estimates and include conformity safety margins. An ozone vehicle miles traveled (VMT) offset demonstration included in this update is based on guidance issued by U.S. EPA in August, 2012. The update also includes an updated reasonable available control measure (RACM) analysis.

Staff Recommendation

Staff recommends that the Board adopt the Proposed Revisions to the "Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan 2013 SIP Revisions" as a revision to California's SIP.

1. Implementing the 2009 Plan

The 2013 Update is a revision to the 2009 Plan. The 2009 Plan was adopted by the five districts that make up the Sacramento Nonattainment Area: the Sacramento Metropolitan Air Quality Management District (SMAQMD); the El Dorado Air Quality Management District (EDAQMD); the Feather River Air Quality Management District (FRAQMD); the Yolo-Solano Air Quality Management District (YSAQMD); and the Placer County Air Pollution Control District (PCAPCD). ARB adopted the 2009 Plan as a revision to the SIP and submitted it to U.S. EPA. The 2009 Plan included a request for the Sacramento Nonattainment Area to be reclassified from "Serious" to "Severe-15." U.S. EPA finalized the reclassification, changing the attainment deadline from June 2013 to June 2019. However, U.S. EPA has not yet acted on the overall attainment demonstration, pending submittal of updated information. The 2013 Update incorporates the information necessary for U.S. EPA approval.

2007 State Strategy Implementation

The 2009 Plan relied in part on control measures and control measure commitments identified in ARB's 2007 State Strategy for California's SIP. ARB has adopted all but one of the 2007 State Strategy measures included in the 2009 Plan. Table A1 in Appendix A lists ARB measures adopted since 2007 and sent to U.S. EPA as revisions to the SIP, as requests for waivers under Clean Air Act (CAA) section 209(b), or for authorizations under CAA section 209(e)(2).

The Sacramento region's ozone attainment strategy relies on reductions of both oxides of nitrogen (NOx) and volatile organic compounds (VOC) to meet the 8-hour ozone standards. Because mobile sources are the largest contributors to ozone-forming emissions, reducing emissions from passenger vehicles, trucks, and a variety of off-road engines is key to attaining the ozone standards. In developing the Sacramento Area SIP for meeting the 8-hour standard by 2018, the biggest challenge was cleaning up the existing fleets of diesel engines. This challenge was addressed by the adoption of ARB's in-use fleet rules for on-road trucks and off-road equipment.

Tables 1 and 2 shows the impact of adopted State measures on projected 2018 emissions in the Sacramento Nonattainment Area. As a result of these adopted controls, 2018 emissions are now projected to be at or below the level needed to demonstrate attainment, as discussed in Section 2. This section describes the adopted measures and programs that are providing these reductions.

**Table 1: Analysis of ARB's Implemented Regulations using
Calendar Year 2018 NOx Summer Season Emissions (tpd)**

Statewide SIP Measures	2009 SIP Summary			Current Estimate
	2018 Baseline	Expected Reductions	Remaining Emissions	Remaining Emissions
Passenger Vehicles	22.2	1.7	20.5	16.7
Smog Check Improvements (BAR)		1.4		
Expanded Vehicle Retirement	22.2	0.3	20.5	16.7
Modifications to Reformulated Gasoline Program		0.0		
Heavy-Duty Trucks	22.4	9.5	12.9	12.6
Cleaner In-Use Heavy-Duty Trucks	22.4	9.5	12.9	12.6
Goods Movement Sources	10.3	2.1	8.2	7.0
Accelerated Intro. Of Cleaner Line-Haul Locomotives	9.4	1.9	7.5	6.2
Clean Up Existing Harbor Craft	0.9	0.2	0.7	0.9
Off-Road Equipment	13.4	1.9	11.5	7.0
Cleaner In-Use Off-Road Equipment (over 25hp)	13.4	1.9	11.5	7.0
Other Off-road Sources	6.1	0.3	5.8	2.3
New Emission Standards for Recreational Boats	5.9	0.3	5.6	2.3
Expanded Off-Road Rec. Vehicle Emission Standards	0.1	0.0	0.1	0.1
Additional Evaporative Emission Standards	--	--	--	--
Areawide Sources	0.0	0.0	0.0	0.0
Consumer Products Program	0.0	0.0	0.0	0.0
2018 NOx Totals				
State SIP Measure Sources ¹	74	16	59	46
All Other State/Federal Source Categories ²	9	--	9	13
District Source Categories	17	2	15	12
Total Inventory	101	18	83	71
Emission Reduction Credits ²	3	--	3	3
Motor Vehicle Emission Budget Safety Margin	--	--	--	3
Total Inventory for the 2013 Update	104	18	86	77

¹ State SIP Measure Sources un-truncated. 2013 Plan uses truncated numbers.

² For the purposes of this table, ERCs are shown separately.

Table 2: Analysis of ARB's Implemented Regulations using Calendar Year 2018 VOC Summer Season Emissions (tpd)

Statewide SIP Measures	2009 SIP Summary			Current Estimate
	2018 Baseline	Expected Reductions	Remaining Emissions	Remaining Emissions
Passenger Vehicles	24.9	2.6	22.3	16.3
Smog Check Improvements (BAR)		1.3		
Expanded Vehicle Retirement	24.9	0.2	22.3	16.3
Modifications to Reformulated Gasoline Program		1.1		
Heavy-Duty Trucks	1.9	0.8	1.1	0.8
Cleaner In-Use Heavy-Duty Trucks	1.9	0.8	1.1	0.8
Goods Movement Sources	0.7	0.1	0.6	0.4
Accelerated Intro. Of Cleaner Line-Haul Locomotives	0.6	0.1	0.5	0.3
Clean Up Existing Harbor Craft	0.1	0.0	0.1	0.1
Off-Road Equipment	7.5	0.4	7.1	6.5
Cleaner In-Use Off-Road Equipment (over 25hp)	7.5	0.4	7.1	6.5
Other Off-road Sources	22.8	3.0	16.7	14.4
New Emission Standards for Recreational Boats		3.0		
Expanded Off-Road Rec. Vehicle Emission Standards	22.8	2.7	16.7	14.4
Additional Evaporative Emission Standards		0.4		
Areawide Sources	15.1	1.9	13.2	13.2
Consumer Products Program	15.1	1.9	13.2	13.2
2018 VOC Totals				
State SIP Measure Sources ¹	73	12	61	52
All Other State/Federal Source Categories	5	--	5	3
District Source Categories	40	3	36	39
Total Inventory	117	15	102	94
Emission Reduction Credits ²	4	--	4	4
Motor Vehicle Emission Budget Safety Margin	--	--	--	1
Total Inventory for the 2013 Update	121	15	106	99

¹ State SIP Measure Sources un-truncated. 2013 Plan uses truncated numbers.

² For the purposes of this table, ERCs are shown separately.

Clean New and In-Use Heavy-Duty Trucks

Increasingly stringent standards for new trucks are a central element of ARB's emission reduction strategy. New heavy-duty trucks sold since 2010 emit 98 percent less NO_x and fine particulates (PM_{2.5}) than new trucks sold in 1986. However, older, higher-emitting trucks with long service lives can stay on the road for many years. Because of this, emissions from existing "in-use" trucks must also be reduced in order to meet near-term air quality standards.

To address this, ARB developed the Cleaner In-Use Heavy-Duty Truck Regulation. This measure leverages the benefits provided by new truck emission standards by accelerating introduction of the cleanest trucks. The "Truck and Bus Regulation" was adopted in December 2008, and amended in December 2010 to account for the reduced emissions resulting from the economic effects of the recession. The rule represents a multi-year effort to retrofit or replace engines in the older part of the fleet with the cleanest technology available.

Cleaner In-Use Off-Road Equipment

ARB has also adopted increasingly stringent standards for engines used in new off-road diesel equipment. As a result of these standards, new construction, mining, industrial and oil drilling equipment will become progressively cleaner. However, large diesel off-road equipment typically remains in use for many years, if not decades. As with heavy-duty trucks, this long life means that newer, lower-emitting engines would be introduced into fleets relatively slowly, making the emission reductions and associated health benefits from these cleaner engines would also be fairly slow to materialize.

To address this, the State Strategy for California's 2007 SIP included the Cleaner In-use Off-road Equipment Regulation, the "Off-Road Regulation." First approved in 2007, the Off-Road Regulation was amended in 2010 in light of the impacts of the economic recession. The off-road equipment affected by this regulation is used in construction, manufacturing, the rental industry, road maintenance, airport ground support, and landscaping. In December 2011, the Off-Road Regulation was modified to include on-road trucks with two diesel engines.

Advanced Clean Cars

ARB's Advanced Clean Cars (ACC) Program, approved in January 2012, is a set of pioneering regulations that address both ambient air quality needs and climate change. The ACC program combines the control of smog, soot causing pollutants, and greenhouse gas emissions into a single coordinated set of requirements for model years 2015 through 2025. The program assures the development of environmentally superior cars that will continue to deliver the performance, utility, and safety vehicle owners have come to expect.

The ACC Program will produce increasing benefits over time as new cleaner cars enter the fleet, displacing older and dirtier vehicles. Increasingly stringent fleet average composite emission standards for model years 2015 to 2025 ensure that the program

will continue to provide benefits, beyond the Sacramento Nonattainment Area's 2018 attainment deadline, as vehicles meeting the new standards replace older, higher-emitting vehicles.

Expanded Passenger Vehicle Retirement

Voluntary accelerated vehicle retirement or "car scrap" programs give vehicle owners monetary incentives to retire older, more polluting vehicles. California's updated voluntary vehicle retirement program is administered by the Bureau of Automotive Repair (BAR) and provides \$1,000 per vehicle and \$1,500 for low-income consumers for unwanted vehicles that have failed their last Smog Check test and meet eligibility guidelines.

Improvements and Enhancements to California's Smog Check Program

The following requirements were added to improve and enhance the Smog Check Program, and to include additional passenger vehicle categories:

- Low pressure evaporative test;
- More stringent pass/fail cutpoints;
- Visible smoke test; and
- Inspection of light- and medium-duty diesel vehicles.

AB 2289, adopted in October 2010, restructured California's Smog Check Program by streamlining and strengthening inspections, increasing penalties for technicians that conduct improper Smog Checks, and reducing costs to motorists. This new law takes advantage of diagnostic software installed on all vehicles manufactured since 2000 and directs vehicles without this equipment to high-performing stations to ensure compliance with current emission standards.

Accelerated Introduction of Cleaner Line-Haul Locomotives

California leads the nation with the most extensive efforts to reduce locomotive and rail yard emissions. The Union Pacific (UP) rail yard located in Roseville has benefitted from numerous programs targeting NOx and PM2.5 emissions. ARB utilized Proposition 1B funding for 15 Tier 2 "regional" line haul locomotives. UP also operates six ultra-low emitting genset switch locomotives within the Roseville rail yards. The UP 9900, an experimental Tier 3+ locomotive (Tier 4 PM, and Tier 3+ NOx), has been assigned to UP Roseville and operates primarily in Northern California.

Consumer Products

Under State law, ARB has regulatory responsibility for reducing VOC emissions from consumer products. ARB approved amendments to the Consumer Products regulations that established lower VOC emission limits for a wide variety of products, including

household cleaning and degreasing products, home and garden pesticides, aerosol paints, personal care products, and automotive maintenance products.

Local Strategy Implementation

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 that make up the Sacramento Nonattainment Area have adopted a variety of control measures to control emissions from these sources. The local plan element includes implemented control measures and commitments to develop and adopt new measures. These measures 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. These district measures are expected to provide a total of 2.8 tons per day additional VOC reductions and 1.1 tons per day additional NO_x reductions.

In coordination with local metropolitan planning organizations (MPO), the local air districts have also adopted several transportation control measures (TCM). Sacramento Emergency Clean Air & Transportation grant program (SECAT) is a joint project between SMAQMD and SACOG that provides grant funds to replace on-road heavy-duty diesel vehicles that have 1998–2006 model year engines with cleaner emission vehicles.

U.S. EPA has not yet acted on the 2009 Plan attainment strategy. In 2011, the local districts withdrew some of the local strategy commitments submitted as part of the 2009 Plan in light of the new information and cost estimates. This submittal contains the most recently adopted local strategy for approval by the U.S. EPA.

The emission inventories used in this update were developed in part for use in the Northern California regional air quality model. Because emission reduction credits are modeled as actual emissions for attainment demonstration purposes, the emission reduction credits that have been banked with the Sacramento Nonattainment Area districts were allocated across the stationary and area-wide source categories in the modeling inventory. For the purpose of the attainment, contingency and reasonable further progress demonstrations in this update, the credits are subtracted from the inventory outputs for those categories and shown as separate line items as they were in the original plan.

2. Attainment Demonstration

The 2009 Plan used photochemical modeling to demonstrate that the proposed emission reduction strategy would allow the Sacramento Nonattainment Area to attain the 1997 8-hour ozone standard by 2018, the attainment deadline for severe nonattainment areas. The 2013 Update uses more current inventories with significantly different estimates of both baseline and attainment year emission. An analysis of the attainment demonstration using the revised inventories confirms the original finding that the 2013 Update demonstrates attainment by 2018, and shows that the area has made significant progress towards meeting that goal because of adopted control. This section also addresses U.S. EPA requirements for ensuring that the plan will result in attainment throughout the nonattainment area.

SIP Emissions Targets

An attainment demonstration plan identifies emission targets, or “carrying capacities,” that represent the maximum emission levels that the nonattainment area can accommodate while attaining the standard. Air quality modeling is used to determine these emission targets. The modeling conducted for the 2009 Plan used the base and future year emission inventories that were available when the modeling for that plan started. The 2009 Plan showed that the 2018 emissions targets would be met through a combination of adopted measures and new SIP measures.

The 2013 Update confirms that the Sacramento Nonattainment Area will attain the 1997 8-hour ozone standard by 2018.

This update uses new emission inventories as described in Section 3. Developing new SIP modeling that utilizes these new inventories in order to revisit the adopted attainment demonstration would be a multi-year process. Instead, the existing modeling results were updated using an analytical approach, described in this section, to demonstrate that the emission reductions achieved by the 2009 Plan, as updated in the 2013 SIP Revision, will result in attainment of the 8-hour ozone standard by 2018 deadline.

Updated Attainment Demonstration

The 2009 Plan used a photochemical air quality modeling to identify attainment goals. The air quality modeling, described in Appendix B of the 2009 Plan, used 2002 as the base year. It projected air quality in 2018 using forecasted emissions that include activity growth factors and the benefits of adopted controls, but no new SIP measures. In the Sacramento Nonattainment Area this projected ozone level was above the 8-hour ozone standard, indicating additional emission reductions were needed, beyond those that would result from the existing control program. To provide these additional reductions, the 2009 SIP included commitments for future actions by ARB and the air districts.

The revised inventories used in the 2013 Update, which include new growth forecasts and the reductions from actions taken since 2009, project emissions in 2018 that are below those needed for attainment. However the revised inventories changed both the base year and attainment year emission estimates. To be conservative, the 2013 Update attainment analysis re-calculates the attainment target by applying the percentage of NOx and VOC emission reductions needed in the 2009 Plan to the updated inventory, resulting in new NOx and VOC emission targets, expressed as tons per day. Those targets are then compared to the updated inventory, which includes the effects of rules adopted to date, to assess current progress toward attainment of the standard. The analysis is summarized in Table 3 and detailed in Appendix B. It shows that adopted controls will provide the new NOx reductions needed, from 2002 levels, to attain the standard. The analysis shows that in 2018, existing rules will provide 108 percent of the needed VOC emission reductions. The 2013 Update also identifies additional control measures under development that will provide future NOx reductions beyond those needed for attainment.

The air quality modeling prepared for the 2009 Plan and described in Appendix B of that plan supports the conclusion that adopted and committed controls will result in attainment by 2018. The modeling also suggested that as overall NOx emissions decrease, each new ton of NOx reductions will have an incrementally greater ozone benefit and cause ozone concentrations to decrease more rapidly, also supporting this revised attainment demonstration.

U.S. EPA requires that attainment demonstrations submitted as part of a SIP include an unmonitored area analysis. This analysis is intended to identify areas without routine air monitoring sites where future year design values may be greater than the standard. The unmonitored area analysis prepared for the 2013 update indicates that there will be no areas in 2018 where ozone concentrations exceed those predicted for the monitoring sites. A detailed discussion of the Sacramento Nonattainment Area unmonitored area analysis is included in Appendix F.

Table 3: Attainment Demonstration Summary (tpd)

2009 Attainment and RFP Plan Inventory (CEFS 1.06¹)	NOx	VOC
A. 2002 Total Emissions	196	160
B. SIP Attainment Target	91	117
C. Attainment Emission Reductions Required from 2002 Baseline in tons/day [A-B]	105	43
D. Attainment Emission Reductions Required from 2002 Baseline in % [C/A]	54%	27%
2013 Inventory (adjusted CEPAM 2012²)	NOx	VOC
E. 2002 Updated Emissions Inventory	165	147
F. Attainment Reductions Required in %	54%	27%
G. Attainment Emission Reduction in tons/day [E*F]	88	40
H. Updated Attainment Demonstration Target [E-G]	77	107
I. 2018 Emissions with Adopted Rules	77	99
Updated Inventory (adjusted CEPAM 2012²)	NOx	VOC
J. Attainment Demonstration in % [H/I]	100%	109%

¹ California Emission Forecasting System

² California Emissions Projection Analysis Model

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3. Other Clean Air Act Planning Requirements

This section provides an overview of the revisions reflected in the emission inventories used in the 2013 Update. Several CAA requirements rely on the emission inventories and must be updated to reflect the revised inventories; this section also summarizes revisions to the reasonable further progress demonstration, transportation control conformity budgets, and a Reasonably Available Control Measure (RACM) analysis. In addition, a 2011 court ruling necessitated the adoption of a revised Vehicle Miles Traveled (VMT) offset demonstration that is also summarized in this section.

Emission Inventory

An emissions inventory is a critical tool used to develop air pollution control strategies and to evaluate progress in implementing adopted strategies. The emissions inventory is a systematic listing of the sources of air pollutants along with the amount of pollutants emitted from each source or category of sources over a given time period. The emission inventories used in the ozone plan are summer season inventories that reflect the activity levels and conditions present when higher ozone levels occur in Sacramento Nonattainment Area.

The air districts within the Sacramento Nonattainment Area initially adopted the 2009 Plan in February 2009. The inventories used in the 2009 Plan reflected the most up-to-date and accurate estimates of emission available at that time.

Since the 2009 Plan was adopted, both ARB and the Sacramento Nonattainment Area districts have continued to evaluate and update emission estimates for source categories under their respective authority. Several significant changes are reflected in the inventories used in this update:

- The inventories reflect effects of new local, State and federal regulations.
- The inventories reflect new information about activity and emission levels gained as ARB developed its mobile source regulations.
- Changes in growth and activity factors for some sectors reflect the impacts of the recession.
- The inventories use the most current SACOG transportation activity forecasts.
- The inventories reflect other improvements identified by the Sacramento Nonattainment Area districts.

The 2013 Update emission inventory is derived from California Emissions Projection Analysis Model (CEPAM). CEPAM 2012 uses a 2005 baseline inventory; the inventory was calibrated to 2005 emissions and activity levels, and inventories for other years are back-cast or forecast from that base inventory. The 2009 Plan used a 2002 base-year inventory.

CEPAM 2013 incorporates the results of a thorough review of the off-road mobile source inventory methodology, and updated many key factors used in estimating

emissions from off-road vehicles. This included new population and activity data reported to ARB, as well as new published studies and other data that evaluated emissions from off-road vehicles. Staff also evaluated new data that showed that the previous inventory overestimated certain off-road mobile source emissions. The resulting emission estimates show a 33 percent reduction in off-road baseline NOx emissions and a 17 percent reduction in off-road baseline VOC emissions as compared to the inventory used in the 2009 Plan.

The Sacramento Nonattainment Area districts' improvements include the use of the most recent transportation activity data provided by SACOG and updates to several local source categories subject to recent local rulemaking. SMAQMD identified several new facilities whose emissions are included in the updated inventory. The updated inventories also account for a transportation safety margin that provides room for unanticipated growth in on-road emissions.

Appendix C provides a detailed review of the emission inventory used in this update. In aggregate, the updated emission estimates show a 16 percent reduction in baseline NOx emissions and 9 percent reduction in regional baseline VOC emissions for 2002.

The emission reduction commitments in the 2007 State Strategy are based on estimates of reductions achieved from individual new measures. However, it is important to note that the overall commitment is to provide for attainment of the federal standards through aggregate emission reductions resulting from the implementation of the State Strategy. If an individual measure does not result in the expected emission reduction, the State still commits to attainment through other measures emission reductions. Likewise, if an individual measure results in greater than expected reductions, those additional reductions may be counted towards the State's aggregate emission reduction commitment.

Emission Reduction Credits

The inventory used in this update was developed in part for use in the Northern California regional air quality model. Because banked emission reduction credits are modeled as actual emissions for attainment demonstration purposes, the emission reduction credits were allocated across the stationary and area-wide source categories for the modeling inventory. For the purpose of the attainment, contingency and reasonable further progress demonstrations in this update, the credits are subtracted from the inventory outputs for those categories and shown as separate line items as they were in the original plan

Reasonable Further Progress Demonstration

To ensure that nonattainment areas make consistent progress towards attainment of the ozone standard, SIPs for these areas are required to show a three percent per year reduction in both VOC and NOx emissions, averaged over a three year period, up to the attainment year. The last milestone year for the Sacramento Nonattainment Area's reasonable further progress (RFP) demonstration is 2014. This milestone year is 12

years after the finalized amendment of the 1997 8-Hour Ozone standard, so a 36% reduction in VOC emissions is needed to demonstrate RFP.

The Sacramento Nonattainment Area is forecasting a shortfall of 9.9% VOC emission reductions in 2014. Section 182 (c)(2)(C) of the CAA provides the ability to substitute surplus NOx emission reductions to mitigate any VOC emission reduction shortfalls.

The RFP analysis shows sufficient NOx emission reductions to accommodate the VOC shortfall, and to provide a 3% contingency in each milestone year as required under sections 172(c)(9) and 182(c)(9) of the CAA.

The complete RFP analysis is provided in Appendix D.

Transportation Conformity Budgets

Under section 176(c) of the Act, transportation projects must be fully consistent with the SIP to receive federal funding or approval. U.S. EPA's transportation conformity rule details requirements for establishing motor vehicle emission budgets in SIPs for the purpose of addressing whether transportation plans and programs conform to the SIP.

The 2013 Update establishes on-road motor vehicle emission budgets for the 8-hour ozone standard. The on-road mobile inventories and the transportation conformity budgets are estimated using California's CEPAM2012 and EMFAC2011 on-road mobile emissions model. EMFAC2011 was approved by U.S. EPA on March 6, 2013. The latest activity from SACOG was used as inputs into the EMFAC 2011 model for this inventory. In Appendix C, Tables C1 and C2 shows all adjustments made to the default CEPAM2012 output used to develop the transportation conformity budgets.

Appendix E provides Sacramento's motor vehicle emission budgets for the upcoming milestone years of 2014, 2017 and 2018. The motor vehicle emission budgets are generated from EMFAC2011 using SACOG's 2013 MTIP activity data as described above.

A locally adopted safety margin is included in each of the updated conformity budgets to allow for unanticipated growth in on-road emissions.

Reasonably Available Control Measures Analysis

The CAA requires SIPs to provide for the implementation of all reasonable available control measures (RACM) as expeditiously as practicable, including at minimum reasonably available control technology (RACT). U.S. EPA interprets RACM to be those measures that are technologically and economically feasible, that when considered in aggregate would advance the attainment date by at least one year.

The District RACM/RACT demonstration includes a comparison of stationary source measures the District has implemented, or plans to implement, with measures implemented by other agencies within and outside of the State. For the majority of

stationary and area source categories, the District rules are the most stringent in California.

Based U.S. EPA guidance, the District concluded the 2013 Update meets the RACM/RACT requirements of the CAA. These requirements include a demonstration that no additional feasible measures could be identified that could, in aggregate, accelerate attainment by one year. The complete RACM and RACT for stationary and area-wide sources assessments are provided in Appendix H of the District's 2013 Update. The RACM analysis for TCM's is provided in Appendix A-2 of the District's 2013 Update.

California's comprehensive mobile source program continues to be RACM as it expands and further reduces emissions. Given the significant emission reductions needed for attainment in California, ARB has adopted the most stringent control measures nationwide for on-road and off-road mobile sources and the fuels that power them. These measures provide a significant portion of emission reductions needed for the Sacramento Nonattainment Area to attain the 8-hour ozone standard.

Ozone VMT Offset Demonstration

Section 182(d)(1)(A) of the Act requires that SIPs for areas classified as Severe and above include a demonstration that "identifies specific enforceable transportation control strategies and transportation control measures to offset any growth in emissions from growth in such area...." The 2009 Plan demonstrated this requirement was met, using a methodology that had been used in other SIPs approved by U.S. EPA. However, this methodology was subsequently invalidated in a 2011 ruling by the Ninth Circuit Court of Appeals. The 2013 Update includes a "Vehicle Miles Travelled Offset Demonstration" that complies with guidance U.S. EPA published in August 2012 in response to the court's ruling. The 2013 Update demonstrates that emission increases due to VMT growth are appropriately offset by transportation control strategies and transportation control measures using two alternative methodologies.

Staff Recommendations

ARB staff recommends that the Board approve the 2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan as a revision to the California SIP. Staff further recommends that the Board direct the Executive Officer to submit the 2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan to U.S. EPA as a revision to the California SIP.

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Appendix A

ARB Rulemaking

Table A1: CARB Measures Adopted

Measure	Date of Adoption	Date Sent to U.S. EPA
Modifications to Reformulated Gasoline	Jun. 14, 2007	Feb. 03, 2009
Vapor Recovery for Above-Ground Storage Tanks	Jun. 21, 2007	Jun. 12, 2008
Clean Up Existing Harbor Craft	Nov. 15, 2007	Apr. 12, 2010
Ship Auxiliary Engine Cold Ironing and Clean Technology	Dec. 06, 2007	Aug. 02, 2010
Consumer Products Program		
--2008 amendment	Jun. 26, 2008	Feb. 16, 2010
--2009 amendment	Sep. 24, 2009	Jan. 28, 2011
Additional Evaporative Emission Standards	Sep. 25, 2008	May 02, 2011
Portable Outboard Marine Tanks	Sep. 25, 2008	May 02, 2011
Smog Check Improvements	Aug. 31, 2009	Oct. 28, 2009
Pesticides Element	Oct. 12, 2009	Aug. 02, 2011
Cleaner In-Use Heavy-Duty Trucks	Dec. 16, 2010	Sep. 21, 2011
Cleaner In-Use Off-Road Equipment	Dec. 17, 2010	Sep. 21, 2011
Port Truck Modernization	Dec. 17, 2010	Sep. 21, 2011
Cleaner Main Ship Engines and Fuel for Ocean-Going Vessels	Jun. 23, 2011	Sep. 21, 2011
Offroad Recreational Vehicles ¹	Jul. 25, 2013	Pending

¹ Benefits are not yet incorporated in the Emission Inventory

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Appendix B

Attainment Demonstration Analysis

This Appendix provides the analytic procedures used, in lieu of modeling, to assess the Sacramento Nonattainment Area attainment demonstration submitted as part of the original 2009 Plan in light of the revised emission inventories submitted as part of the 2013 Update. Table 3 presents the updated attainment demonstration. The emission reductions in the updated attainment demonstration result from adopted measures that have been submitted to the U.S. EPA. The 2013 Update also identifies additional control measures under development that will provide further reductions beyond those needed for attainment.

The inventories used in this update are derived from ARB's CEPAM 2012, with mobile source emissions estimated using ARB's EMFAC 2011 model and activity data provided by SACOG on January 23, 2013. However, ARB and the local districts identified additional refinements needed to bring these baseline inventories up to date for the purposes of assessing the attainment demonstration and progress towards attainment. The CEPAM 2012 inventory and baseline adjustments are summarized in Appendix C.

Synopsis of Attainment Demonstration in the 2009 Attainment and RFP Plan – Table B1

Table B1 presents the emission inventory in the 2009 Plan to calculate the percent reductions required from the 2002 Baseline to attain the ozone standard.

2013 Updated Attainment Demonstration Target – Table B2

Table B2 calculates the updated attainment demonstration target by applying the percent reductions required for attainment determined in Table B1 to the 2013 Update's emission inventory, following the procedures described in Chapter 2

2013 Updated Attainment Demonstration – Table B3

The 2013 Update's 2018 projected emission inventories are compared to the updated attainment demonstration target in Table B3. This demonstrates that adopted measures provide the emission reductions necessary to demonstrate attainment.

Attainment Contingency Measures Reductions – Table B4

Table B4 compares the updated 2019 emission inventory to the attainment target calculated in Table B2. Table B4 demonstrates that in aggregate already adopted measures reflected in the 2013 Update provide for at least three percent emission reductions in 2019, beyond those needed for attainment, as required by the Act's section 182(c)(9) contingency requirement. Please refer to Appendix C in the 2013 Update for additional details.

Additional Measures – Table B5

Table B5 lists State and local control measure commitments identified in the 2009 Plan that are under development and therefore are not yet reflected in the updated inventory, and the associated expected emission reductions. These additional measures are not necessary for attainment, reasonable further progress, or contingency, but will provide continuing emission reductions.

**Table B1: Synopsis of Attainment Demonstration
in the 2009 Attainment and RFP Plan (tpd)**

2009 Attainment and RFP Plan Inventory (CFS 1.06)	NOx	VOC
A. 2002 Total Emissions ¹	196	160
B. 2018 Total Emissions ¹	101	117
C. Emission Reduction Credits ²	3	4
D. Adjusted 2018 Total Emissions [B+C]	104	121
Baseline Attainment Emission Target	NOx	VOC
E. Attainment Emission Reductions in 2018 in % ³	12.5%	3.3%
F. Attainment Emission Reduction in tons/day [D*E]	13	4
G. SIP Attainment Demonstration Target [D-F]	91	117
Baseline Attainment Ratio	NOx	VOC
H. Attainment Emission Reductions Required from 2002 Baseline in tons/day [A-G]	105	43
I. Percent Emission Reductions Required from 2002 Baseline for Attainment [H/A]	54%	27%

¹ 2009 Plan - Tables 5-2 and 5-3.

² 2009 Plan - Tables A6-1 and A6-2.

³ 2009 Plan - Appendix B.

Table B2. 2013 Updated Attainment Demonstration Target (tpd)

Revised Inventory (adjusted CEPAM 2012)	NOx	VOC
A. 2002 Updated Emissions Inventory ¹	165	147
B. Reductions Required for Attainment in % ²	54%	27%
C. Attainment Emission Reduction in tons/day [A*B]	88	40
D. Adjusted SIP Emission Target [A-C]	77	107

¹ Table C1 and Table C2.

² Table B1.

Table B3. 2013 Updated Attainment Demonstration (tpd)

Revised Inventory (adjusted CEPAM 2012)	NOx	VOC
A. Adjusted 2018 Emission Inventory ¹	77	99
B. Updated Attainment Demonstration Target ²	77	107
C. Updated Attainment Demonstration in % [B/A]	100%	109%

¹ Table C1 and C2.

² Table B2.

Table B4: Attainment Contingency Measures Reductions (tpd)

Revised Inventory (adjusted CEPAM 2012)	NOx	VOC
A. Updated Attainment Demonstration Target ¹	77	107
B. Adjusted 2019 Emissions ²	74	100
2019 Total Reductions (tpd)	NOx	VOC
C. 2019 Reductions From Emission Target [A-B]	2	7
D. Percent Reduction from SIP Emission Target [C/A]	3%	7%

¹ Table B2.

² Table C1 and Table C2.

Table B5: Additional Measures (tpd)¹

Statewide	NOx	VOC
A. Statewide Measure	0.3	3.0
New Emission Standards for Recreational Boats	0.3	3.0
Local Non-Regulatory Measures	NOx	VOC
T. Total Local Non-Regulatory Measures	0.6	0.1
Regional Mobile Incentive Program - Onroad	0.5	0.0 ²
Regional Mobile Incentive Program - Offroad	0.0	0.0 ²
Spare the Air Program	0.0 ²	0.1
SMAQMD	NOx	VOC
M. Total SMAQMD Measures	0.0	1.1
442 - Architectural Coatings	0.0	0.9
459 - Automotive Refinishing	0.0	0.1
461 - Natural Gas Production and Processing	0.0	0.1
EDCAQMD	NOx	VOC
T. Total EDCAQMD Measures	0.0²	0.2
215 - Architectural Coatings	0.0	0.2
239 - Large Water Heaters and Small Boilers	0.0 ²	0.0
FRAQMD	NOx	VOC
U. Total FRAQMD Measures	0.0²	0.0²
3.15 - Architectural Coatings	0.0	0.0 ²
3.19 - Automotive Refinishing	0.0	0.0 ²
3.14 - Solvent Degreasing	0.0	0.0 ²
3.22 - Stationary Internal Combustion Engines (Non-Agricultural)	0.0 ²	0.0
3.23 - Large Water heaters and Small Boilers	0.0 ²	0.0
PCAPCD	NOx	VOC
V. Total PCAPCD Measures	0.0²	0.3
218 - Architectural Coatings	0.0	0.2
234 - Automotive Refinishing	0.0	0.0 ²
CM2 - Large Water Heaters and Small Boilers	0.0 ²	0.0
CM3 - Miscellaneous Metal Parts and Products	0.0	0.0 ²

YSAQMD	NOx	VOC
W. Total YSAQMD Measures	0.5	1.0
2.14 - Architectural Coatings	0.0	0.2
2.26 - Automotive Refinishing	0.0	0.1
2.24/2.31 - General Surface Preparation/Cleanup and Degreasing	0.0	0.8
2.29 - Graphic Arts	0.0 ³	0.0 ³
2.27 - Boilers, Steam Generators, and Process Heaters	0.3	0.0
2.37 - Large Water Heaters and Small Boilers	0.2	0.0

¹ These additional measures are under development. The emission reductions associated with these measures go beyond those needed for the attainment demonstration.

² Emissions <0.05 tpd.

³ No current estimate on emission reduction.

Appendix C

Emission Inventory Update

Revised Emission Inventory

This appendix provides the unadjusted inventory that is derived from CEPAM2012. Tables C1 and C2 summarize the summer planning emission inventories for the Sacramento 8-Hour Federal Nonattainment Area (Sacramento Nonattainment Area).

This Appendix provides more detail about the emission inventories used in the 2013 Update, including a summary of the baseline inventory and subsequent refinements.

Baseline Inventory

CEPAM2012 is used for the baseline inventory for Stationary, Area-Wide and Off-Road Mobile sources. EMFAC2011 was used in January 2013, using the activity data provided by SACOG, to provide the On-Road Mobile sources.

Emission Inventory Adjustments

The emission inventories in C1 and C2 are adjusted to reflect updated stationary sources, new transportation activity data provided from SACOG, and the inclusion of the transportation conformity safety margin. These adjustments are detailed and summated in Tables C3 and C4.

Emission Reduction Credits

The emission reduction credits banked with the districts in the Sacramento Nonattainment Area are included in the unadjusted output of CEPAM2012. Table C5 identifies the ERCs within CEPAM, as well as ERC updates provided by the Sacramento Nonattainment Area districts.

**Table C1: Summer Planning Emissions Inventory for
Nitrogen Oxides (NOx) in tons per day
Sacramento Nonattainment Area**

Stationary Sources	2002	2014	2017	2018	2019
ELECTRIC UTILITIES	1.115	2.878	3.071	3.118	3.164
COGENERATION	0.011	0.009	0.010	0.010	0.011
OIL AND GAS PRODUCTION (COMBUSTION)	0.274	0.215	0.202	0.197	0.195
MANUFACTURING AND INDUSTRIAL	3.070	2.079	2.052	2.042	2.052
FOOD AND AGRICULTURAL PROCESSING	4.024	2.585	1.442	1.374	1.341
SERVICE AND COMMERCIAL	2.165	2.642	2.652	2.651	2.670
OTHER (FUEL COMBUSTION)	0.765	0.746	0.616	0.616	0.623
SEWAGE TREATMENT	0.012	0.021	0.022	0.022	0.022
LANDFILLS	0.037	0.066	0.067	0.067	0.068
INCINERATORS	0.019	0.020	0.021	0.021	0.022
SOIL REMEDIATION	0.003	0.005	0.005	0.005	0.005
OTHER (WASTE DISPOSAL)	0.000	0.000	0.000	0.000	0.000
LAUNDERING	0.000	0.000	0.000	0.000	0.000
DEGREASING	0.000	0.000	0.000	0.000	0.000
COATINGS AND RELATED PROCESS SOLVENTS	0.007	0.020	0.021	0.021	0.022
PRINTING	0.014	0.016	0.017	0.018	0.018
ADHESIVES AND SEALANTS	0.000	0.000	0.000	0.000	0.000
OTHER (CLEANING AND SURFACE COATINGS)	0.000	0.000	0.000	0.000	0.000
OIL AND GAS PRODUCTION	0.008	0.000	0.000	0.000	0.000
PETROLEUM REFINING	0.000	0.006	0.006	0.006	0.006
PETROLEUM MARKETING	0.020	0.032	0.034	0.035	0.037
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.000	0.000	0.000	0.000	0.000
CHEMICAL	0.160	0.291	0.325	0.337	0.353
FOOD AND AGRICULTURE	0.018	0.044	0.047	0.048	0.050
MINERAL PROCESSES	0.435	0.240	0.267	0.278	0.285
METAL PROCESSES	0.000	0.005	0.005	0.005	0.005
WOOD AND PAPER	0.056	0.045	0.047	0.047	0.047
ELECTRONICS	0.000	0.000	0.000	0.000	0.000
OTHER (INDUSTRIAL PROCESSES)	0.002	0.005	0.007	0.008	0.008
Stationary Sources Subtotal	12.212	11.969	10.935	10.924	11.000
Area-Wide Sources	2002	2014	2017	2018	2019
CONSUMER PRODUCTS	0.00	0.00	0.00	0.00	0.00
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.00	0.00	0.00	0.00	0.00
PESTICIDES/FERTILIZERS	0.00	0.00	0.00	0.00	0.00
ASPHALT PAVING / ROOFING	0.00	0.00	0.00	0.00	0.00
RESIDENTIAL FUEL COMBUSTION	2.53	2.74	2.56	2.50	2.45
FARMING OPERATIONS	0.00	0.00	0.00	0.00	0.00
CONSTRUCTION AND DEMOLITION	0.00	0.00	0.00	0.00	0.00
PAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00
UNPAVED ROAD DUST	0.00	0.00	0.00	0.00	0.00
FUGITIVE WINDBLOWN DUST	0.00	0.00	0.00	0.00	0.00
FIRES	0.01	0.02	0.02	0.02	0.02
MANAGED BURNING AND DISPOSAL	0.53	0.58	0.57	0.57	0.57
COOKING	0.00	0.00	0.00	0.00	0.00
OTHER (MISCELLANEOUS PROCESSES)	0.00	0.00	0.00	0.00	0.00
Area-Wide Sources Subtotal	3.065	3.331	3.149	3.087	3.037

On-Road Mobile Sources	2002	2014	2017	2018	2019
LIGHT DUTY PASSENGER (LDA)	18.29	5.23	3.80	3.44	3.14
LIGHT DUTY TRUCKS - 1 (LDT1)	5.84	1.58	1.24	1.13	1.05
LIGHT DUTY TRUCKS - 2 (LDT2)	11.74	3.47	2.46	2.21	2.00
MEDIUM DUTY TRUCKS (MDV)	7.28	5.10	4.15	3.87	3.60
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	1.30	2.49	2.27	2.20	2.12
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.36	0.17	0.15	0.14	0.14
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.89	0.44	0.34	0.32	0.29
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.51	0.27	0.27	0.27	0.27
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	3.12	6.93	5.70	5.31	4.94
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	2.04	1.39	1.16	1.09	1.02
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	12.79	6.22	4.38	3.95	3.55
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	30.47	14.13	10.54	9.79	9.21
MOTORCYCLES (MCY)	0.32	0.58	0.59	0.60	0.60
HEAVY DUTY DIESEL URBAN BUSES (UB)	1.38	1.00	0.98	0.97	0.96
HEAVY DUTY GAS URBAN BUSES (UB)	0.12	0.11	0.11	0.10	0.10
SCHOOL BUSES - GAS (SBG)	0.06	0.03	0.03	0.03	0.03
SCHOOL BUSES - DIESEL (SBD)	0.52	0.37	0.37	0.34	0.33
OTHER BUSES - GAS (OBG)	0.17	0.18	0.15	0.15	0.14
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.73	0.36	0.24	0.21	0.19
ALL OTHER BUSES - DIESEL (OBD)	0.44	0.27	0.19	0.18	0.17
MOTOR HOMES (MH)	0.71	0.41	0.36	0.34	0.33
On-Road Mobile Sources Subtotal	99.062	50.756	39.486	36.642	34.172
Other Mobile Sources	2002	2014	2017	2018	2019
AIRCRAFT	1.68	2.50	2.79	2.85	2.90
TRAINS	12.10	7.21	7.20	7.09	7.00
OCEAN GOING VESSELS	0.15	0.08	0.08	0.08	0.07
COMMERCIAL HARBOR CRAFT	2.04	1.30	0.88	0.86	0.85
RECREATIONAL BOATS	2.36	2.30	2.29	2.28	2.28
OFF-ROAD RECREATIONAL VEHICLES	0.04	0.08	0.09	0.10	0.10
OFF-ROAD EQUIPMENT	19.08	8.90	7.96	7.30	6.86
FARM EQUIPMENT	12.98	7.33	5.80	5.32	4.88
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00
Other Mobile Sources Subtotal	50.436	29.710	27.097	25.871	24.934
	2002	2014	2017	2018	2019
Grand Total	164.776	95.766	80.666	76.524	73.143

Base Year: 2005

Sacramento Ozone Nonattainment Area Ver. 1.02

Migration ID: 2012_SIP_V102_SAC_O3

AF Migration Table: AF_MASTER_SIP12SNOZ

**Table C2: Summer Planning Emissions Inventory for
Volatile Organic Compounds (VOC) in tons per day
Sacramento Nonattainment Area**

Stationary Sources	2002	2014	2017	2018	2019
ELECTRIC UTILITIES	0.168	0.402	0.420	0.425	0.426
COGENERATION	0.003	0.000	0.000	0.000	0.000
OIL AND GAS PRODUCTION (COMBUSTION)	0.154	0.083	0.078	0.076	0.075
MANUFACTURING AND INDUSTRIAL	0.070	0.123	0.123	0.123	0.122
FOOD AND AGRICULTURAL PROCESSING	0.355	0.195	0.115	0.110	0.106
SERVICE AND COMMERCIAL	0.221	0.262	0.266	0.266	0.266
OTHER (FUEL COMBUSTION)	0.089	0.044	0.033	0.033	0.033
SEWAGE TREATMENT	0.030	0.057	0.058	0.060	0.061
LANDFILLS	0.362	0.547	0.570	0.582	0.588
INCINERATORS	0.006	0.004	0.004	0.004	0.004
SOIL REMEDIATION	0.081	0.113	0.120	0.122	0.123
OTHER (WASTE DISPOSAL)	0.213	0.293	0.303	0.308	0.310
LAUNDERING	0.047	0.061	0.064	0.065	0.066
DEGREASING	2.464	2.133	2.197	2.217	2.231
COATINGS AND RELATED PROCESS SOLVENTS	3.019	4.102	4.309	4.397	4.453
PRINTING	1.219	1.494	1.573	1.599	1.620
ADHESIVES AND SEALANTS	0.827	0.889	0.884	0.880	0.877
OTHER (CLEANING AND SURFACE COATINGS)	0.003	0.018	0.019	0.019	0.019
OIL AND GAS PRODUCTION	0.799	0.568	0.531	0.519	0.507
PETROLEUM REFINING	0.000	0.000	0.000	0.000	0.000
PETROLEUM MARKETING	3.855	5.603	5.890	5.985	6.031
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.000	0.005	0.006	0.006	0.008
CHEMICAL	2.052	2.697	3.024	3.141	3.221
FOOD AND AGRICULTURE	0.518	0.581	0.617	0.630	0.641
MINERAL PROCESSES	0.218	0.181	0.201	0.209	0.212
METAL PROCESSES	0.000	0.000	0.000	0.000	0.000
WOOD AND PAPER	0.696	0.649	0.677	0.687	0.687
ELECTRONICS	0.006	0.023	0.025	0.025	0.027
OTHER (INDUSTRIAL PROCESSES)	0.002	0.049	0.070	0.080	0.083
Stationary Sources Subtotal	17.475	21.176	22.176	22.569	22.793
Area-Wide Sources	2002	2014	2017	2018	2019
CONSUMER PRODUCTS	14.760	12.575	12.999	13.160	13.281
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	8.449	8.827	9.176	9.291	9.380
PESTICIDES/FERTILIZERS	1.799	1.176	1.171	1.169	1.165
ASPHALT PAVING / ROOFING	0.821	0.908	0.917	0.920	0.921
RESIDENTIAL FUEL COMBUSTION	2.893	2.062	2.053	2.049	2.038
FARMING OPERATIONS	2.620	2.763	2.763	2.763	2.756
CONSTRUCTION AND DEMOLITION	0.000	0.000	0.000	0.000	0.000
PAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000
UNPAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000
FUGITIVE WINDBLOWN DUST	0.000	0.000	0.000	0.000	0.000
FIRES	0.036	0.046	0.048	0.049	0.049
MANAGED BURNING AND DISPOSAL	0.981	1.018	1.003	0.998	0.990
COOKING	0.111	0.137	0.142	0.143	0.144
OTHER (MISCELLANEOUS PROCESSES)	0.000	0.000	0.000	0.000	0.000
Area-Wide Sources Subtotal	32.470	29.511	30.271	30.541	30.722

On-Road Mobile Sources	2002	2014	2017	2018	2019
LIGHT DUTY PASSENGER (LDA)	22.904	6.956	4.805	4.260	3.851
LIGHT DUTY TRUCKS - 1 (LDT1)	7.561	2.566	1.989	1.840	1.748
LIGHT DUTY TRUCKS - 2 (LDT2)	8.342	3.250	2.533	2.361	2.230
MEDIUM DUTY TRUCKS (MDV)	3.988	3.757	3.461	3.375	3.269
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	1.040	1.532	1.360	1.309	1.260
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.718	0.100	0.078	0.071	0.066
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	1.256	0.323	0.214	0.182	0.162
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.458	0.104	0.068	0.057	0.052
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.126	0.418	0.371	0.355	0.339
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.080	0.081	0.075	0.073	0.070
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.712	0.324	0.228	0.216	0.205
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	1.610	0.683	0.627	0.639	0.651
MOTORCYCLES (MCY)	2.409	2.204	2.161	2.172	2.180
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.060	0.046	0.046	0.045	0.045
HEAVY DUTY GAS URBAN BUSES (UB)	0.079	0.042	0.040	0.040	0.040
SCHOOL BUSES - GAS (SBG)	0.084	0.034	0.028	0.027	0.026
SCHOOL BUSES - DIESEL (SBD)	0.038	0.008	0.008	0.006	0.006
OTHER BUSES - GAS (OBG)	0.127	0.070	0.064	0.061	0.059
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.037	0.011	0.010	0.011	0.011
ALL OTHER BUSES - DIESEL (OBD)	0.034	0.013	0.006	0.006	0.006
MOTOR HOMES (MH)	0.281	0.058	0.040	0.035	0.032
On-Road Sources Subtotal	51.944	22.580	18.210	17.140	16.327
Other Mobile Sources	2002	2014	2017	2018	2019
AIRCRAFT	0.543	0.653	0.614	0.622	0.630
TRAINS	0.636	0.402	0.357	0.340	0.325
OCEAN GOING VESSELS	0.006	0.004	0.003	0.003	0.003
COMMERCIAL HARBOR CRAFT	0.132	0.105	0.093	0.093	0.093
RECREATIONAL BOATS	20.284	13.742	12.325	11.888	11.464
OFF-ROAD RECREATIONAL VEHICLES	2.430	2.543	2.535	2.540	2.547
OFF-ROAD EQUIPMENT	10.877	7.499	6.792	6.589	6.437
FARM EQUIPMENT	2.672	1.410	1.086	0.987	0.902
FUEL STORAGE AND HANDLING	3.078	1.564	1.409	1.372	1.337
Other Mobile Sources Subtotal	40.658	27.923	25.213	24.433	23.737
	2002	2014	2017	2018	2019
Grand Total	142.547	101.190	95.869	94.683	93.580

Base Year: 2005

Sacramento Ozone Nonattainment Area Ver. 1.02

Migration ID: 2012_SIP_V102_SAC_O3

AF Migration Table: AF_MASTER_SIP12SNOZ

**Table C3: Emissions Inventory Adjustments for
Nitrogen Oxides (NOx) in tons per day
Sacramento Nonattainment Area**

CEPAM 2012	2002	2014	2017	2018	2019
A. Unadjusted Emission Inventory	164.78	95.77	80.67	76.52	73.14
Updated Stationary/Area-Wide Sources	2002	2014	2017	2018	2019
B. Total Stationary/Area-Wide Source Adjustment	0.00	-0.03	-0.03	-0.03	-0.02
C. Implementation of PCAPCD 242 ¹	0.00	-0.03	-0.03	-0.03	-0.02
Updated On-Road Mobile Inventory	2002	2014	2017	2018	2019
D. Total On-Road Mobile Inventory Adjustment	0.00	-2.21	-0.97	0.03	0.96
E. Updated EMFAC2011 Emissions ²	0.00	-5.21	-2.97	-2.97	-2.04 ³
F. Transportation Safety Margin ⁴	0.00	3.00	2.00	3.00	3.00
Updated Incentives	2002	2014	2017	2018	2019
G. Total Incentive Adjustment	0.00	-1.71	-0.45	-0.49	-0.54
H. Carl Moyer	0.00	-1.64	-0.38	-0.42	-0.47
I. Prop 1-B	0.00	-0.07	-0.07	-0.07	-0.07
Updated Emission Reduction Credits	2002	2014	2017	2018	2019
J. Total Emission Reduction Credit Adjustment	0.00	0.73	0.81	0.81	0.82
K. 2008 Emission Reduction Credits	0.00	2.27	2.19	2.19	2.18
L. Current Emission Reduction Credits ⁵	0.00	3.00	3.00	3.00	3.00
Emission Inventory Adjustment	2002	2014	2017	2018	2019
M. Total [A+B+D+G+K]	164.78	92.55	80.02	76.86	74.36

¹ Appendix F - Table F5

² Emissions updated using SACOG's 2013 MTIP and Solano's MTC Activity data received 11/30/12.

³ The EMFAC 2011 output for 2019 emissions are not adjusted for emission reductions from the Carl Moyer and Prop1B incentive programs, or the regulatory programs of RFG, Smog Check, AB1493 or ACC.

⁴ Data provided by SMAQMD, Brigitte Tollstrup e-mail 12-05-12.

⁵ Appendix C - Table C3 Line A and B

**Table C4: Emissions Inventory Adjustments for Volatile Organic
Compounds (VOC) in tons per day
Sacramento Nonattainment Area**

CEPAM 2012	2002	2014	2017	2018	2019
A. Unadjusted Emission Inventory	142.55	101.19	95.87	94.68	93.58
Updated Stationary/Area-Wide Sources	2002	2014	2017	2018	2019
B. Total Stationary/Area-Wide Source Adjustment	4.11	4.01	3.99	3.99	3.98
C. Added Heritage Dairy (Yolo-Solano) ¹	0.00	0.11	0.11	0.11	0.11
D. Added Jepson Composting (Yolo-Solano) ¹	4.11	4.11	4.11	4.11	4.11
E. Implementation of FRAQMD 3.20	0.00	0.00	0.00	0.00	0.00
F. Implementation of PCAPCD 243 ¹	0.00	-0.21	-0.22	-0.23	-0.23
Updated On-Road Mobile Inventory	2002	2014	2017	2018	2019
G. Total On-Road Mobile Inventory Adjustment	0.00	0.22	-0.61	-0.65	1.50
H. Updated EMFAC2011 Emissions ²	0.00	-1.78	-1.61	-1.65	0.50 ³
I. Transportation Safety Margin ⁴	0.00	2.00	1.00	1.00	1.00
Updated Incentives	2002	2014	2017	2018	2019
J. Total Incentive Adjustment	0.00	-0.19	-0.03	-0.01	0.00
K. Carl Moyer	0.00	-0.19	-0.03	-0.01	0.00
Updated Emission Reduction Credits	2002	2014	2017	2018	2019
L. Total Emission Reduction Credit Adjustment	0.00	0.74	0.72	0.71	0.70
M. 2008 Emission Reduction Credits	0.00	3.26	3.28	3.29	3.30
N. Current Emission Reduction Credits ⁵	0.00	4.00	4.00	4.00	4.00
Emission Inventory Adjustment	2002	2014	2017	2018	2019
O. Total [A+B+G+J+L]	146.66	105.96	99.94	98.72	99.77

¹ Appendix F - Table F5

² Emissions updated using SACOG's 2013 MTIP and Solano's MTC Activity data received 11/30/12.

³ The EMFAC 2011 output for 2019 emissions are not adjusted for emission reductions from the Carl Moyer and Prop1B incentive programs, or the regulatory programs of RFG, Smog Check, AB1493 or ACC.

⁴ Data provided by SMAQMD, Brigitte Tollstrup e-mail 12-05-12.

⁵ Appendix C - Table C3 Line A and B

**Table C5: Emission Reduction Credits Added to the
Emission Inventory Forecasts**

Updated NOx ERC Emissions in tons/day ¹		2002	2014	2017	2018	2019
A.	Total Sacramento Nonattainment Area NOx ERCs	0.00	3.00	3.00	3.00	3.00
CEPAM 2012 NOx ERC Emissions in tons/day		2002	2014	2017	2018	2019
B.	Total ERCs	0.00	2.27	2.19	2.19	2.18
	El Dorado	0.000	0.000	0.000	0.000	0.000
	Placer County	0.000	0.403	0.403	0.403	0.404
	Sacramento	0.000	1.188	1.153	1.146	1.140
	Sutter	0.000	0.071	0.058	0.057	0.056
	Yolo/Solano	0.000	0.610	0.581	0.579	0.578
ERC NOx Correction		2002	2014	2017	2018	2019
C.	ERC Correction Value [A-B]	0.00	0.73	0.81	0.81	0.82
Updated VOC ERC Emissions in tons/day ¹		2002	2014	2017	2018	2019
A.	Total Sacramento Nonattainment Area VOC ERCs	0.00	4.00	4.00	4.00	4.00
CEPAM 2012 VOC ERC Emissions in tons/day		2002	2014	2017	2018	2019
B.	Total ERCs	0.00	3.26	3.28	3.29	3.30
	El Dorado	0.000	0.000	0.000	0.000	0.000
	Placer County	0.000	0.541	0.544	0.545	0.546
	Sacramento	0.000	2.139	2.154	2.160	2.165
	Sutter	0.000	0.061	0.060	0.060	0.060
	Yolo/Solano	0.000	0.523	0.524	0.525	0.526
ERC VOC Correction		2002	2014	2017	2018	2019
C.	ERC Correction Value [A-B]	0.00	0.74	0.72	0.71	0.70

¹ ERCs as of 09/19/2013, provided by SMAQMD

Appendix D

Reasonable Further Progress

**Table D1: Sacramento Nonattainment Area
Reasonable Further Progress Demonstration**

	2002	2014	2017	2018
Baseline ROG	146.7	106.0	100.0	98.7
CA MVCP/RVP Adjustment	0.0	10.9	11.9	12.2
RACT Corrections	0	0	0	0
Adjusted 2002 Baseline ROG in milestone year	146.7	135.8	134.8	134.4
RFP commitment for ROG reductions from new measures	0	0	0	0
Future Year ROG with existing and proposed measures		106.0	100.0	98.7
Required % change since previous milestone year (ROG or NOx) compared to 2002		9%	9%	3%
Target ROG levels		91.4	82.3	79.5
Apparent shortfall in ROG		14.5	17.7	19.3
Apparent shortfall in ROG, %		10.7%	13.1%	14.3%
ROG shortfall previously provided by NOx substitution, %		0.0%	10.7%	13.1%
Actual ROG shortfall, %		10.7%	2.4%	1.2%
Baseline NOx	164.8	92.6	80.0	76.9
CA MVCP Adjustment	0.0	10.4	11.0	11.2
Adjusted 2002 Baseline NOx in milestone year	164.8	154.3	153.7	153.5
RFP commitment for NOx reductions from new measures	0	0	0	0.0
Change in NOx since 2002		61.8	73.7	76.7
Change in NOx since 2002, %		40.0%	47.9%	49.9%
NOx reductions since 2002 already used for RFP substitution and contingency through last milestone year, %		0.0%	13.7%	16.1%
NOx reductions since 2002 available for RFP substitution and contingency in this milestone year, %		40.0%	34.2%	33.8%
Change in NOx since 2002 used for ROG substitution in this milestone year, %		10.7%	2.4%	1.2%
Change in NOx since 2002 available for contingency in this milestone year, %		3.0%	3.0%	3.0%
Change in NOx since 2002 surplus after meeting substitution and contingency needs in this milestone year, %		26.3%	31.8%	32.6%
RFP shortfall, if any		0.0%	0.0%	0.0%
RFP Met?		YES	YES	YES
Contingency Met?		YES	YES	YES

Note: ROG and NOx baseline emissions have been rounded to 1 decimal point.

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Appendix E

Transportation Conformity Budgets

**Table E1: Sacramento Nonattainment Area NOx Motor
Vehicle Emissions Budgets in tons per day**

	2014	2017	2018
Baseline EMFAC2011	47.70	37.12	34.34
RFG	0.00	0.00	0.00
Prop 1B	-1.70	0.00	0.00
Moyer	-0.08	-0.04	-0.05
AB1493	-0.01	-0.01	-0.01
Smog Check	-0.37	-0.37	-0.33
ACC	0.00	-0.18	-0.28
Safety Margin	3.00	2.00	3.00
Total	48.55	38.51	36.67
Rounded Total	49	39	37

**Table E2: Sacramento Nonattainment Area VOC Motor
Vehicle Emissions Budgets in tons per day**

	2014	2017	2018
Baseline EMFAC2011	23.43	18.98	17.75
RFG	-1.87	-1.47	-1.31
Prop 1B	0.00	0.00	0.00
Moyer	0.00	0.00	0.00
AB1493	-0.11	-0.21	-0.25
Smog Check	-0.64	-0.57	-0.55
ACC	0.00	-0.12	-0.15
Safety Margin	2.00	1.00	1.00
Total	22.80	17.60	16.49
Rounded Total	23	18	17

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Appendix F

Unmonitored Area Analysis

Unmonitored Area Analysis for Ozone in Sacramento Nonattainment Area

Overview

The U.S. Environmental Protection Agency (U.S. EPA) requires that attainment demonstrations submitted as part of a State Implementation Plan (SIP) include an unmonitored area analysis (UAA). The UAA is intended to identify unmonitored areas where future year design values may be greater than the national ambient air quality standard (NAAQS). Since a simple spatial interpolation of observational data cannot identify unmonitored areas with concentrations higher than those measured at monitors, the U.S. EPA recommends a UAA that combines both observations and modeling. Although modeling is only as accurate as the emissions, meteorology, and representation of chemistry in the chemical mechanism, the model does explicitly account for the transport and formation of ozone over the entire modeling domain. Consequently, modeling can provide information about ozone concentration gradients between monitors that would not be accounted for in an analysis that includes only observational data.

Summary of Results

The monitoring network within the Sacramento 8-Hour Ozone Federal Nonattainment Area (Sacramento Nonattainment Area) was found to adequately capture elevated ozone levels within a 15-km radius of the monitors, and no peak concentrations were found outside of the network's spatial coverage. Therefore, the UAA has identified no unmonitored areas with concentrations higher than those predicted at the monitors in the nonattainment year. Please note that a valid ozone design value in Solano County was not available for this analysis.

Methodology

Following U.S. EPA guidance, this analysis used the Modeled Attainment Test Software (MATS), developed by the U.S. EPA, in the UAA. For this analysis, MATS was used with the default configuration. The default configuration in MATS involves using at least 5 days that have model-simulated, reference year ozone concentrations greater than or equal to 70 ppb in each grid cell in order to calculate the RRF for each grid cell. If the model simulation does not produce concentrations of 70ppb or higher in a certain grid cell, then the RRF and the concentration in that grid cell are both set to -9 (plotted as white color in Figure 3 and Figure 4).

Using MATS, the UAA is comprised of four steps:

1. Interpolate ambient design value data to create a set of spatial fields.

Ambient 8-hour Ozone Design Value (DV) concentrations from within the modeling domain are input into MATS, which creates a gridded set of DV spatial fields based on ambient data. The same design values that were used in the monitor based model attainment test are used for the UAA (DVs for years 2000-2002, 2001-2003, and 2002-2004). Note that these three datasets are centered on the 2002 reference year for modeling and RRF development.

2. Adjust the spatial fields using 2002 reference year gridded model output gradients (2002, reference year values).

For the 2007 SV 8-hr ozone SIP, two five-day 'base case' ozone episodes were simulated (Base case episode days: July 9 – July 13, 1999 and July 29 – August 2, 2000). Reference year (2002) modeling was conducted using a projected 2002 emissions inventory along with episode-specific, base case meteorology for both of these episodes. The daily maximum 8-hr ozone concentration for 2002 was calculated for each day and each model grid cell, resulting in a total of ten daily spatial gradient distributions, each representing the daily maximum 8-hr ozone field for the respective modeled day. Eight days of data that met base case model performance criteria were then input into MATS to generate a single gradient- adjusted DV spatial field.

3. Apply gridded RRFs to the gradient adjusted spatial fields.

In addition to the DVs and reference year simulated ozone, MATS requires future year simulated ozone. The methodology of calculating the daily maximum 8-hr ozone for the reference year (Step 2) was also used in this step to calculate a total of eight daily spatial gradient distributions for the future year, 2018. The MATS software uses the reference year (2002) and future year (2018) simulated ozone in each grid cell to calculate an average RRF for each grid cell. The future year gradient adjusted concentration is then calculated as the product of the RRF and base year gradient adjusted concentration.

4. Determine if any unmonitored areas are predicted to exceed the NAAQS in the future.

Results from Step 3 are analyzed to determine if any unmonitored regions are in violation of the NAAQS based on the future year gradient adjusted concentration.

Results

Results associated with each step of the UAA method described above are presented below (Figures 1-4). By default in the MATS analysis, a 'monitored area' is defined as a 7-by-7 grid of 4km grid cells surrounding a monitoring station. This is intended to be consistent with the 15km radius of representativeness for ambient monitoring stations that is used in the modeled attainment test.

An analysis of the gradient adjusted future year concentrations for 2018 (Figure 4) shows that the monitoring network in the SV provides adequate coverage over the regions which experience elevated ozone levels within the valley. In particular, the network adequately captures elevated ozone levels within a 15-km radius of the monitors and no peak concentrations are found outside of the network's spatial coverage. Therefore, the UAA has identified no unmonitored areas with concentrations higher than those predicted to occur at the monitors in the attainment year.

1. Interpolate reference year ambient data to create a set of spatial fields.

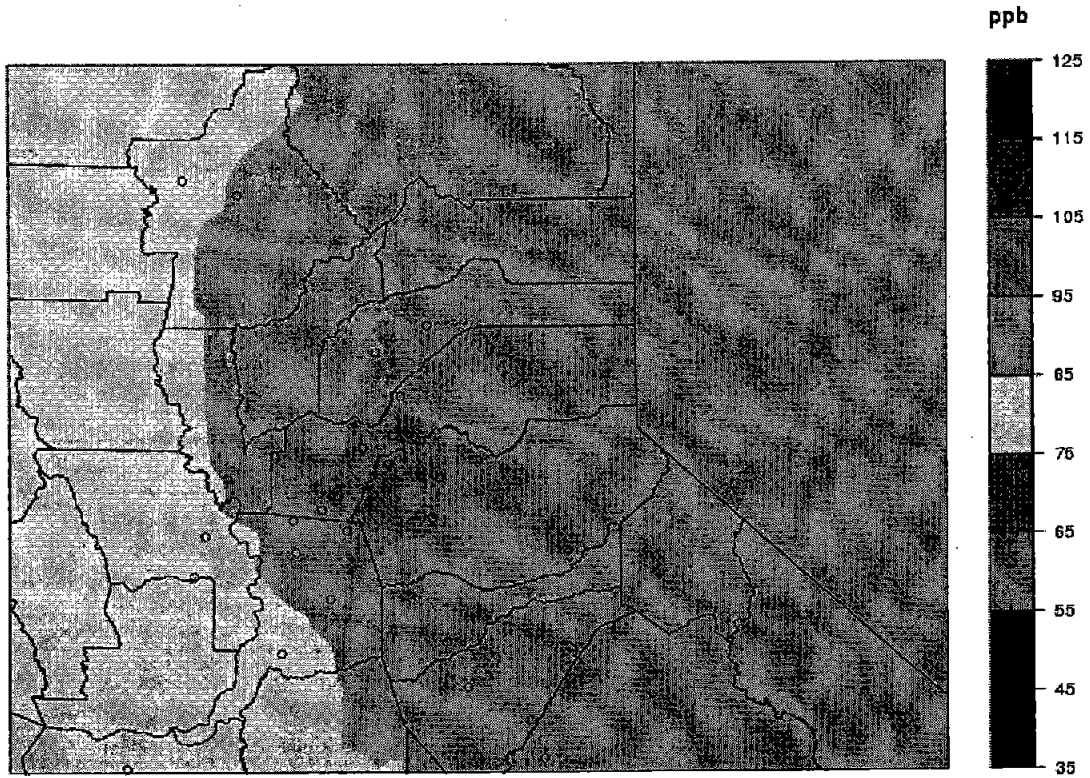


Figure 1 - Interpolated ambient concentrations (DV) from MATS for 2002.

2. Adjust the spatial fields using gridded model output gradients (reference year values).

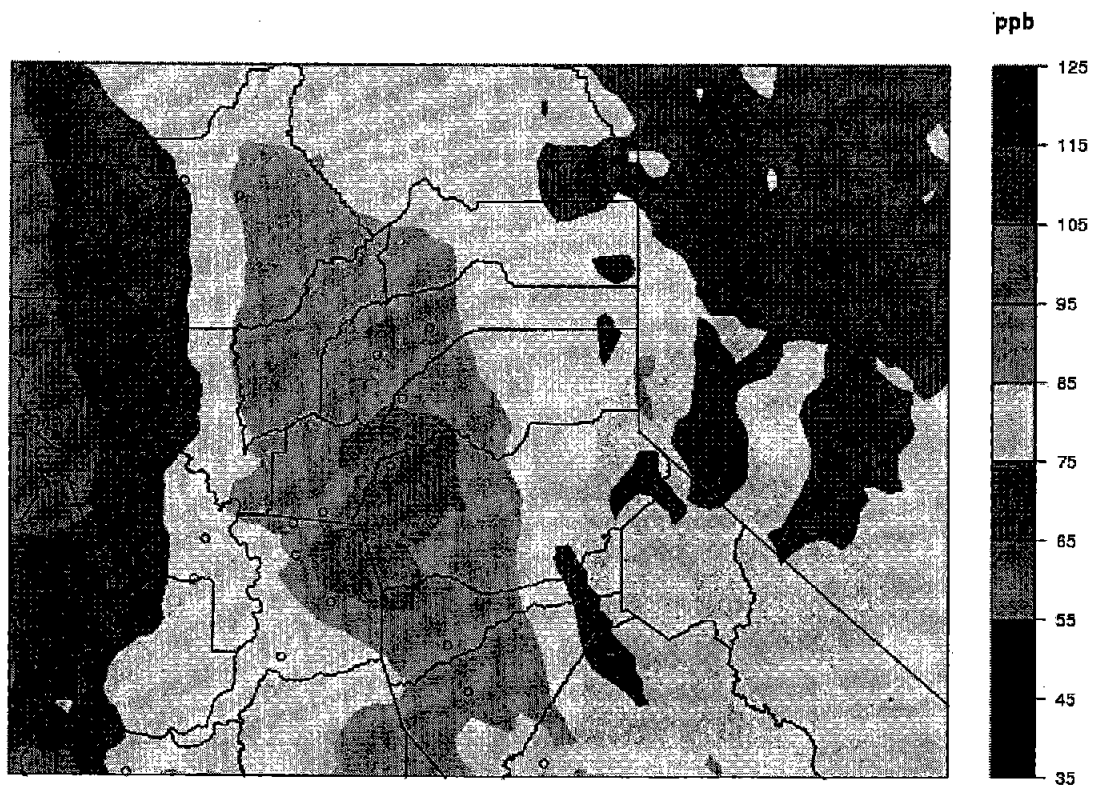


Figure 2 - . Interpolated gradient adjusted reference year concentration from MATS for 2002.

3. Apply gridded model RRFs to the gradient adjusted spatial fields.

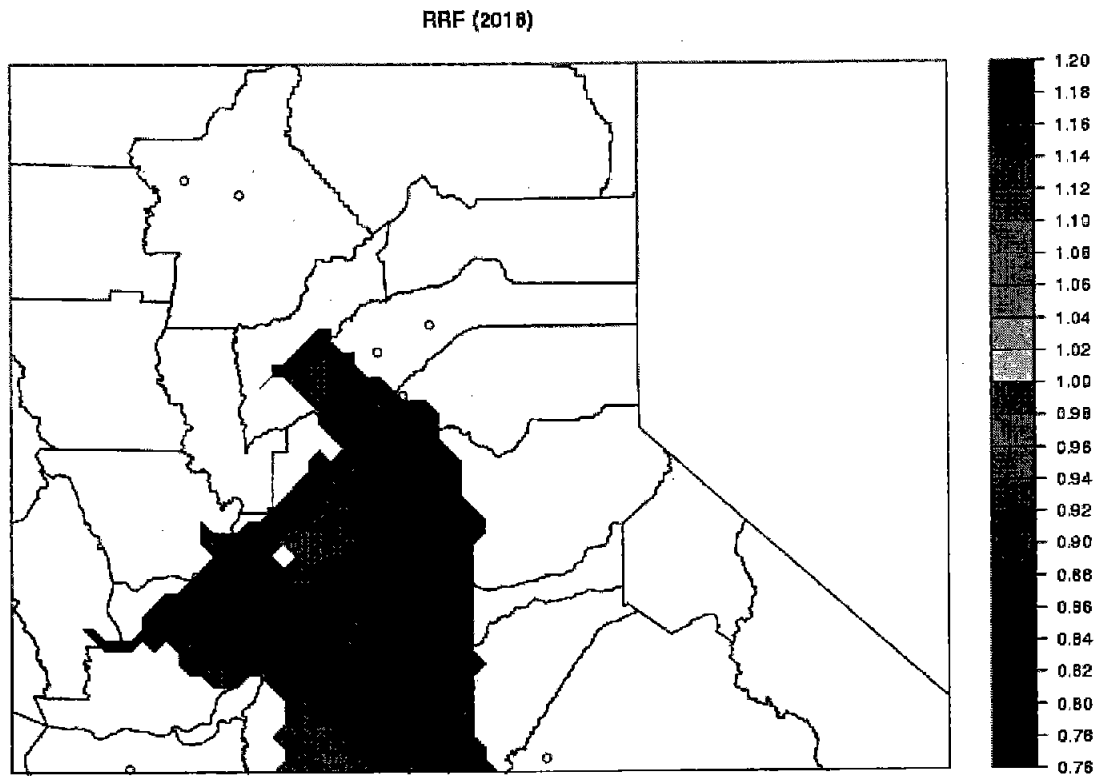


Figure 3 - Relative Response Factor from MATS for 2018.

4. Determine if any unmonitored areas are predicted to exceed the NAAQS in the future.

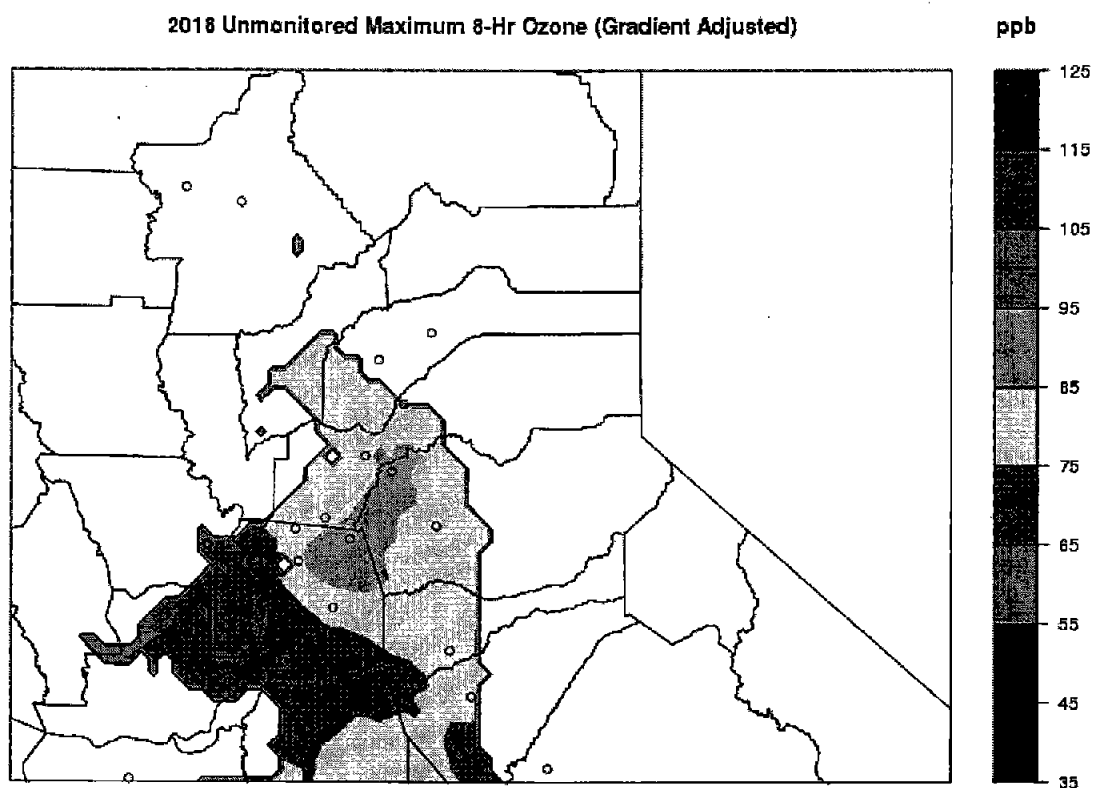


Figure 4 - Interpolated gradient adjusted future year concentration from MATS for 2018.

PROPOSED

State of California
AIR RESOURCES BOARD

**2013 SIP REVISION FOR THE 1997 8-HOUR OZONE STANDARD FOR THE
SACRAMENTO METROPOLITAN AREA**

Resolution 13-39

November 21, 2013

Agenda Item No.: 13-10-2

WHEREAS, sections 39515 and 39516 of the Health and Safety Code provide that any duty may be delegated to the Board's Executive Officer as the Board deems appropriate;

WHEREAS, the Legislature in Health and Safety Code section 39602 has designated the State Air Resources Board (ARB or Board) as the air pollution control agency for all purposes set forth in federal law;

WHEREAS, ARB is authorized by section 39600 of the Health and Safety Code to do such acts as may be necessary for the proper execution of its powers and duties;

WHEREAS, the ARB is responsible for preparing the State Implementation Plan (SIP) for attaining and maintaining the National Ambient Air Quality Standards (standards or NAAQSs) as required by the federal Clean Air Act (Act) (42 U.S.C. section 7401 et seq.), and to this end is directed by Health and Safety Code section 39602 to coordinate the activities of all local and regional air pollution control and air quality management districts as necessary to comply with the Act;

WHEREAS, section 41650 of the Health and Safety Code requires ARB to approve the nonattainment plan adopted by a district as part of the SIP unless the Board finds, after a public hearing, that the plan does not meet the requirements of the Act;

WHEREAS, ARB has responsibility for ensuring that the districts meet their responsibilities under the Act pursuant to sections 39002, 39500, 39602, and 41650 of the Health and Safety Code;

WHEREAS, the districts have primary responsibility for controlling air pollution from non-vehicular sources and for adopting control measures, rules, and regulations to attain the standards within their boundaries pursuant to sections 39002, 40000, 40001, 40701, 40702, and 41650 of the Health and Safety Code;

WHEREAS, in July 1997, the United States Environmental Protection Agency (U.S. EPA) promulgated an 8-hour NAAQS for ozone of 0.08 parts per million;

WHEREAS, in April 2004, U.S. EPA designated the Sacramento Metropolitan Area as nonattainment for the 8-hour ozone standard;

WHEREAS, the Sacramento Metropolitan Area includes the Sacramento Metropolitan Air Quality Management District, the Yolo-Solano Air Quality Management District; and parts of the El Dorado County Air Quality Management District, Placer County Air Pollution Control District, and Feather River Air Quality Management District (collectively "the Districts");

WHEREAS, in April 2004, U.S. EPA finalized "Phase 1" of the 8-hour ozone implementation rule (Phase 1 Implementation Rule), which established the classification scheme for nonattainment areas and identified continuing obligations with respect to the existing 1-hour ozone requirements;

WHEREAS, as part of that action U.S. EPA classified the Sacramento Metropolitan Area as a "serious" nonattainment area with an initial attainment date of June 15, 2013, and subject to the requirements of Subpart 2 of Part D of Title I of the Act;

WHEREAS, in November 2005, U.S. EPA supplemented its Phase 1 Implementation Rule with a "Phase 2" rule that specifies the emission controls and planning elements that nonattainment areas must address in their SIPs;

WHEREAS, the Districts determined that the Sacramento Metropolitan Area could not meet the 2013 attainment deadline for serious nonattainment areas and, on February 14, 2008, requested a voluntary reclassification of the Sacramento Metropolitan Area from "serious" nonattainment to "severe-15" nonattainment, with an applicable attainment date of June 15, 2019, as allowed under section 181 (b)(3) of the Act;

WHEREAS, the Act requires that areas classified moderate or greater, demonstrate that Reasonable Further Progress (RFP) toward attainment of the 8-hour ozone NAAQS will occur;

WHEREAS, the staffs of the Districts coordinated in the development of the 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (the 2009 Plan) to fulfill the planning requirements of a "severe-15" nonattainment area;

WHEREAS, the 2009 Plan included updated air quality and emissions data; a control strategy based on State, local, and federal measures; a modeled attainment demonstration; an RFP demonstration; transportation conformity emission budgets; and contingency measures;

WHEREAS, in March 2009, the Board adopted the 2009 Plan as a SIP revision and submitted it to the U.S. EPA;

WHEREAS, in approving the 2009 Plan, the Board committed to achieve the total aggregate reductions needed for attainment of the 1997 8-hour ozone standard, through the adoption of measures identified in the SIP, alternative measures or incentive programs, and actual emission decreases that occur;

WHEREAS, ARB and the Districts have now completed adoption of regulations that achieve the emission reductions necessary to demonstrate attainment of the 1997 8-hour ozone standard by the 2018 deadline;

WHEREAS, the Districts have adopted the "Sacramento Regional 8-hour Ozone Attainment and Reasonable Further Progress Plan 2013 SIP Revisions" (2013 SIP Revision) to incorporate updated emission inventories to reflect adopted rules, revised emissions forecasts that reflect impacts of the recession, updated information about emission sources, an updated attainment demonstration that allows fewer emissions in 2018, and other technical updates;

WHEREAS, consistent with section 172(c)(3) of the Act, the 2013 SIP Revision includes a comprehensive, accurate, current inventory of emissions data for precursors of ozone: oxides of nitrogen (NOx) and volatile organic compounds (VOC);

WHEREAS, the 2013 SIP Revision also includes locally approved revisions to district control strategies;

WHEREAS, consistent with section 182(c)(2)(A) of the Act, the 2013 SIP Revision provides for attainment of the 1997 8-hour ozone NAAQS in 2018;

WHEREAS, consistent with section 172(c) of the Act, the 2013 SIP Revision demonstrates that the Sacramento Metropolitan Area meets requirements for Reasonably Available Control Measures (RACM) and Reasonably Available Control Technologies (RACT) for NOx and VOC;

WHEREAS, the RFP demonstration in the 2013 SIP Revision shows that the Sacramento Metropolitan Area meets the required progress milestones as a result of adopted measures, and that adopted measures will provide additional emission reductions beyond the 2018 attainment year, needed to meet the contingency measure requirements;

WHEREAS, consistent with section 176 of the Act, the 2013 SIP Revision establishes transportation conformity emission budgets, developed in consultation between the Districts and the Sacramento Area Council of Governments, the regional transportation agency, that conform to the attainment emission levels;

WHEREAS, section 182(d)(1)(a) of the Act requires SIPs submitted for severe and extreme ozone nonattainment areas to identify and adopt transportation control strategies and transportation control measures to offset any growth in emissions from vehicle miles traveled (VMT) or the number of vehicle trips in the area ("VMT offset demonstration");

WHEREAS, in February 2011, the Ninth Circuit Court of Appeals held that section 182(d)(1)(a) of the Act requires additional transportation control strategies and transportation control measures to offset vehicle emissions whenever they are projected to be higher than they would have been if base year VMT had not increased;

WHEREAS, the Ninth Circuit Court of Appeals remanded the approval of the 2007 8-hour ozone SIP VMT emissions offsets demonstration to U.S. EPA;

WHEREAS, in August 2012, U.S. EPA issued guidance entitled "Implementing Clean Air Act section 182(d)(1)(A): Transportation Control Measures and Transportation Control Strategies to Offset growth in Emissions Due to Growth in Vehicle Miles Traveled";

WHEREAS, consistent with the requirements of section 182(d)(1)(A), as specified by the Ninth Circuit Court of Appeals ruling in 2011 and with U.S. EPA guidance in 2012, the 2013 SIP Revision includes the required VMT emissions offset demonstration;

WHEREAS, federal law, set forth in section 110(l) of the Act and Title 40, Code of Federal Regulations (CFR), section 51.102, requires that one or more public hearings, preceded by at least 30 days notice and opportunity for public review, must be conducted prior to adopting and submitting any SIP revision to U.S. EPA;

WHEREAS, the Districts noticed and made the 2013 SIP Revision available for public review at least 30 days before a public hearing;

WHEREAS, the Board of Directors of the Sacramento Metropolitan Air Quality Management District held a public hearing on the 2013 SIP Revision, on behalf of all five air districts in the Sacramento Metropolitan Area, at its September 26, 2013 meeting;

WHEREAS, the District determined that the 2013 SIP Revision is exempt from the California Environmental Quality Act pursuant to California Code of Regulations, title 14, section 15061(b)(3) (no possibility of a significant adverse effect on the environment) and section 15308 (actions taken by regulatory agencies to assure the maintenance, restoration, enhancement, or protection of the environment);

WHEREAS, the Board of Directors of the Sacramento Metropolitan Air Quality Management District adopted the 2013 SIP Revision after determining that it is consistent with reasonable further progress and attainment requirements;

WHEREAS, on September 26, 2013, the staff of the Sacramento Metropolitan Air Quality Management District transmitted the 2013 SIP Revision to ARB as a SIP update, along with proof of public notice publication in accordance with State and federal law;

WHEREAS, the Board finds that:

1. The 2013 SIP Revision meets the applicable planning requirements established by the Act, and includes the required air quality and emissions data, attainment demonstration, RACM/RACT demonstrations, transportation conformity emission budgets, contingency measures, and VMT offset demonstration.

NOW, THEREFORE, BE IT RESOLVED the Board hereby approves the Sacramento Metropolitan Area 2013 SIP Revision as an amendment to the California SIP, excluding those portions not required to be submitted to U.S. EPA under federal law, and directs the Executive Officer to forward the 2013 SIP Revision, as approved, to the U.S. EPA for inclusion in the SIP to be effective, for purposes of federal law, upon approval by U.S. EPA.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with the Districts and U.S. EPA and take appropriate action to resolve any completeness or approvability issues that may arise regarding the SIP submission.

BE IT FURTHER RESOLVED that the Board authorizes the Executive Officer to include in the SIP submittal any technical corrections, clarifications, or additions that may be necessary to secure U.S. EPA approval.

BE IT FURTHER RESOLVED that the Board hereby certifies pursuant to 40 CFR section 51.102 that the Sacramento Metropolitan Area 2013 SIP Revision was adopted after notice and public hearing as required by 40 CFR section 51.102.

PROPOSED

State of California
AIR RESOURCES BOARD

Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars

RESEARCH PROPOSAL

Resolution 13-48

November 21, 2013

Agenda Item No.: 13-10-3

WHEREAS, the Air Resources Board (ARB or Board) has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2768-277, entitled "Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars," has been submitted by Control-Tec, LLC in response to RFP No. 13-313; and

WHEREAS, in accordance with Health and Safety Code section 39705, the Research Screening Committee has reviewed and recommends for funding:

Proposal Number 2768-277, entitled "Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars," submitted by Control-Tec, LLC, for a total amount not to exceed \$162,120.

WHEREAS, the Research Division staff has reviewed Proposal Number 2768-277 and finds that in accordance with Health and Safety Code section 39701, the results of this study will help ARB to continue to evaluate the potential benefits of load reduction strategies and assess the technical feasibility and associated costs for advanced technology vehicles in future model years. These findings may inform the Technical Assessment Report that will be a component of the interagency midterm evaluation for the greenhouse gas standards.

NOW, THEREFORE, BE IT RESOLVED that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39703, hereby accepts the recommendation of the Research Screening Committee and Research Division staff and approves the following:

Proposal Number 2768-277 entitled "Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars," submitted by Control-Tec, LLC not to exceed \$162,120.

BE IT FURTHER RESOLVED that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the research effort proposed herein, and as described in Attachment A, in an amount not to exceed \$162,120.

ATTACHMENT A

“Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars”

Background

Greater penetration of load-reduction technologies, such as improved aerodynamic designs, low rolling resistance tires, mass reduction, and reduced accessory loads, is one of many possible compliance strategies for auto manufacturers to meet the greenhouse gas (GHG) standards of the Advanced Clean Cars program. Reducing vehicle road load through these technologies contributes to GHG emission reductions by reducing the energy required to propel the vehicle. Additionally, load reduction strategies have the ability to produce ancillary cost benefits. For example, reducing vehicle road load may allow for a downsized powertrain while maintaining vehicle performance characteristics, which may in turn reduce emissions further; or for electric-drive vehicles, reduced vehicle load can result in lower energy storage requirements and vehicle costs, or extend vehicle range.

Objective

Stringent GHG emission standards may require vehicle manufacturers to increasingly utilize load-reduction strategies such as vehicle aerodynamic improvements, reduced tire rolling resistance, or mass optimization to facilitate compliance. The objective of this research project is to understand the extent to which current vehicles have already adopted these technologies, and the potential to reduce GHG emissions assuming that all model year 2025 vehicles adopt load-reduction technologies that have been demonstrated on today's vehicles.

Methods

The contractor will conduct a literature review of current and promising load-reduction technologies and strategies. They will then assemble a dataset containing detailed vehicle attributes for a full vehicle model year that will allow them to assess, calculate, or infer vehicle load of individual vehicle configurations. Using this dataset and statistical analysis, they will identify the vehicle configurations in the fleet that are using new, non-mass load-reduction technologies, materials, or designs and designating those that are best available or best-in-class. Additionally, they will produce a working definition for “mass efficiency” to develop appropriate metrics for this concept and identify the most mass efficient vehicles in the fleet.

Expected Results

The contractor will use their findings on best available and best-in-class technologies as well as mass efficiency to estimate the reduction in California's new vehicle fleet average tailpipe CO₂ emission rates assuming maximum utilization of load-reduction strategies and their secondary effects on powertrain sizing and energy storage. Basing this analysis on existing technologies found on vehicles in commercial production produces some level of assurance that these technologies can be adopted without compromising vehicle safety.

The deliverables of this project include a final report detailing all of the data, methods, and results from the research, as well as the final cross-referenced dataset and a listing of vehicle configurations with best available and/or best-in-class load reduction technologies, designs, or materials.

Significance to the Board

Continued evaluation of the potential benefits of load reduction strategies will help ARB to assess the technical feasibility and associated costs for advanced technology vehicles in future model years. These findings may inform the Technical Assessment Report that will be a component of the interagency midterm evaluation for the greenhouse gas standards.

Contractor:

Control-Tec, LLC

Contract Period:

18 months

Principal Investigator:

Greg Pannone

Contract Amount:

\$162,120

Basis for Indirect Cost Rate:

The Control-Tec, LLC proposal was received using a competitive bid process in which the cost proposal is rated. The hourly rates included the indirect cost overhead rate.

Past Experience with the Principal Investigator/s:

ARB staff has worked with Control-Tec, LLC in the past with their devices for on-board diagnostic systems, but have no experience in a research capacity or with their data analytics division.

Prior Research Division Funding to Control-Tec, LLC:

Year	2012	2011	2010
Funding	\$ 0	\$ 0	\$ 0

BUDGET SUMMARY

Control-Tec, LLC

"Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars"

DIRECT COSTS AND BENEFITS

1.	Labor and Employee Fringe Benefits	\$ 158,880
2.	Subcontractors	\$ 0
3.	Equipment	\$ 0
4.	Travel and Subsistence	\$ 3,240
5.	Electronic Data Processing	\$ 0
6.	Reproduction/Publication	\$ 0
7.	Mail and Phone	\$ 0
8.	Supplies	\$ 0
9.	Analyses	\$ 0
10.	Miscellaneous	\$ 0

Total Direct Costs \$ 162,120

INDIRECT COSTS

1.	Overhead	\$ 0
2.	General and Administrative Expenses	\$ 0
3.	Other Indirect Costs	\$ 0
4.	Fee or Profit	\$ 0

Total Indirect Costs \$ 0

TOTAL PROJECT COSTS \$ 162,120

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Summary

On December 14, 2012, the U.S. Environmental Protection Agency (U.S. EPA) strengthened the annual National Ambient Air Quality Standard (NAAQS or standard) for particulate matter 2.5 micrometers or less in diameter (PM_{2.5}) from 15.0 µg/m³ to 12.0 µg/m³. The State of California is required to submit area designation recommendations and appropriate boundaries to U.S. EPA for this standard by December 14, 2013. The purpose of this report is to share the staff's technical analysis and recommendations to be sent to U.S. EPA. U.S. EPA will make final designations in December 2014.

California Air Resources Board (ARB) staff has performed an analysis to determine appropriate designation areas throughout the State using criteria outlined in the U.S. EPA's guidance memorandum.¹ Determination of attainment/nonattainment is based on comparing a three-year average of the annual average concentration to the level of the standard. This is known as the design value. These three-year rolling averages are updated once the year's monitoring data is reviewed and certified.

Due to the success of ongoing programs, many California counties already meet the 12.0 µg/m³ standard. Based on 2010-2012 PM_{2.5} air quality monitoring data, the three areas that do not meet the standard are: South Coast Air Basin, San Joaquin Valley and Imperial County. Staff is recommending that the boundaries for the 15.0 µg/m³ standard for the South Coast Air Basin and the San Joaquin Valley be retained for the new standard. The recommended boundary for Imperial County is the same as the boundary for the 35 µg/m³ 24-hour standard. While U.S. EPA is expected to base final designations on 2011-2013 PM_{2.5} data, the attainment status is not expected to be different with the addition of 2013 data.

Air Quality Analysis

ARB maintains a comprehensive PM_{2.5} monitoring network, including Federal Reference Method (FRM) mass samplers, Federal Equivalent Method (FEM) continuous mass samplers, and chemical speciation samplers. ARB staff uses these monitoring data to determine PM_{2.5} concentrations in relation to the federal standard. Speciation samplers are used to determine the nature of the PM_{2.5} pollution and to assist in assessing the efficacy of emission reduction strategies. ARB staff's initial designation recommendations are based on ambient PM_{2.5} concentrations measured from 2010 through 2012 by over 90 FRM/FEM monitors, sited and operated in accordance with federal requirements, and located throughout the State.

U.S. EPA allows for the exclusion of certain FEM data, if the data have compared poorly with FRM data, in accordance with the Particulate Matter NAAQS rule

¹ April 16, 2013, Initial Area Designations for the 2012 Revised Primary Annual Fine Particle National Ambient Air Quality Standard, Memorandum from Gina McCarthy, Assistant Administrator, Office of Air and Radiation to Regional Administrators, Regions 1-10.

published on January 15, 2013² and specific to the provisions detailed in §58.10 (b)(13) and §58.11 (e). Consequently, formal requests were submitted to the U.S. EPA by the South Coast Air Quality Management District (South Coast AQMD)³ and the San Diego County Air Pollution Control District (San Diego APCD)⁴ to exclude the use of FEM data in comparison to the NAAQS due to insufficient comparability to collocated PM_{2.5} monitors. In anticipation of U.S. EPA granting this request, the data from these monitors were not used in calculating the 2012 annual PM_{2.5} design values.

The U.S. EPA's guidance memorandum also states that air quality monitoring data affected by exceptional events may be excluded from use in identifying a violation if certain criteria are met. The 2012 design values in this document do not reflect the exclusion of impacts from exceptional events, as these events would not affect attainment status based on data for 2010 through 2012. However, should this change with the addition of data for 2013, ARB staff will submit any required documentation to U.S. EPA in accordance with federal policy on exceptional events prior to final designations.

The following table provides the annual PM_{2.5} design value for three air districts with monitors violating the standard: South Coast AQMD, San Joaquin Valley Air Pollution Control District (San Joaquin Valley APCD), and the Imperial County Air Pollution Control District (Imperial County APCD). Attachment 1 contains the PM_{2.5} design values for all monitors in California.

Table 1: Nonattainment Area Design Values

Air District	Nonattainment Area High Site	2012 Annual Average Design Value (µg/m³)
South Coast AQMD	Mira Loma, Riverside County	15.2
San Joaquin Valley APCD	Clovis, Fresno County	16.0
Imperial County APCD	Calexico, Imperial County	14.0

Boundary Analysis

In California, if the pollution problem is regional in nature, the primary considerations for air quality planning are air basin and air district boundaries. Consistent with State law, California's air basin boundaries were established based on a scientific assessment of emissions, geography, and meteorology, with consideration of political jurisdictions. Basin boundaries are formally

² National Ambient Air Quality Standards for Particulate Matter; Final Rule. 78 Federal Register 10 (15 January 2013), pp. 3086-3287.

³ South Coast Air Quality Management District. Annual Air Quality Monitoring Network Plan. July 2013. <http://www.aqmd.gov/tao/AQ-Reports/AQMonitoringNetworkPlan/AQnetworkplan.htm>.

⁴ San Diego Air Pollution Control District. 2012 Air Quality Network Plan. July 2013. http://www.sdapcd.org/air/reports/2012_network_plan.pdf.

adopted by ARB in regulation. Local air districts have been established, and their jurisdictions defined, by State statute. ARB typically uses a combination of air basin and air district lines to identify boundaries for areas that violate air quality standards, with the exception of situations where a single city or community has a unique air pollution problem distinct from the region.

The Clean Air Act requires that a nonattainment area must include not only the area that is violating the standard, but also nearby areas that contribute to violations. Accordingly, ARB's recommended nonattainment boundaries are sufficiently large to include both the violating and contributing areas. U.S. EPA guidance recommends that in making boundary recommendations for nonattainment areas, states evaluate each area on a case-by-case basis in consideration of the following five factors:

- Air quality data
- Emissions and emission-related data
- Meteorology
- Geography/topography
- Jurisdictional boundaries

The boundaries already in existence for the 24-hour $PM_{2.5}$ standard, and in the case of the South Coast and San Joaquin Valley Air Basins, the previous annual $PM_{2.5}$ standard, are the result of extensive technical analyses,⁵ and continue to appropriately reflect conditions under the revised annual $PM_{2.5}$ standard.

Designation Recommendations

After consideration of the five factors outlined in U.S. EPA's guidance memorandum, ARB staff recommends the nonattainment area boundaries outlined below.

Imperial County Air Pollution Control District

No portion of Imperial County was designated nonattainment for the previous annual standard of $15 \mu g/m^3$. In 2006, after extensive technical analysis, U.S. EPA designated a portion of Imperial County as nonattainment of the 24-hour $PM_{2.5}$ standard of $35 \mu g/m^3$. Based on 2010-2012 monitoring data, only one monitor in Imperial County is in nonattainment for the revised annual $PM_{2.5}$ standard, with a design value of $14.0 \mu g/m^3$. The violations of the $PM_{2.5}$ standard are localized at the monitor at Calexico, on the U.S. – Mexico border, at the southern end of Imperial County. ARB staff's assessment of air quality in the region indicates the area would attain the $PM_{2.5}$ air quality standard but for emissions emanating from outside of the United States, in particular, from the

⁵ Letter from James Goldstene, Executive Officer, ARB, to Wayne Nastri, Regional Administrator, U.S. EPA, December 17, 2007, plus enclosures; Letter from Wayne Nastri, Regional Administrator, U.S. EPA, to Arnold Schwarzenegger, Governor, State of California, August 18, 2008, plus enclosures; Letter from James Goldstene, Executive Officer, ARB, to Wayne Nastri, Regional Administrator, U.S. EPA, October 15, 2008, plus enclosures.

much larger adjacent city of Mexicali, Mexico. Consideration of U.S. EPA's five factors indicates that this international pollutant transport contributes to elevated PM_{2.5} levels at Calexico and, to a much lesser extent, the urban area to the north. This analysis of the contribution of international transport to the annual PM_{2.5} standard is consistent with the assessment previously submitted for the recently revised 24-hour PM_{2.5} standard and U.S. EPA's extensive technical analysis in support of the final designations.⁵ Consistent with the previous assessment of the impacts of international pollutant transport on PM_{2.5} in Imperial County, ARB recommends the annual PM_{2.5} nonattainment area coincide with the nonattainment area already in existence.

The recommended Imperial County PM_{2.5} nonattainment area includes the urban areas of Calexico, Brawley, El Centro, Holtville, Imperial, Seeley, and Westmorland. The area is under the jurisdiction of the Imperial County Air Pollution Control District. The official boundary is provided in Attachment 2.

San Joaquin Valley Air Basin

In 1997, the San Joaquin Valley Air Basin (San Joaquin Valley) was designated nonattainment of the annual PM_{2.5} standard of 15.0 µg/m³. Based on 2010-2012 monitoring data, the San Joaquin Valley remains in nonattainment of the revised annual PM_{2.5} standard with a design value of 16.0 µg/m³ measured at the Clovis-N Villa Ave monitoring site. In addition to data recorded at the high site listed in Table 1, other monitors distributed throughout the San Joaquin Valley record violations of the standard (Attachment 1). Consideration of U.S. EPA's five factors indicates broad regional contribution to elevated PM_{2.5} levels and supports the use of the air basin boundary which reflects the regional nature of PM_{2.5} pollution in this area. Consistent with this recent analysis, the assessment previously submitted for the recently revised 24-hour PM_{2.5} standard, and U.S. EPA's extensive technical analysis in support of their final designations,⁵ ARB recommends the annual PM_{2.5} nonattainment area coincide with the nonattainment area already in existence.

The recommended San Joaquin Valley PM_{2.5} nonattainment area consists of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Western Kern Counties. The area is under the jurisdiction of the San Joaquin Valley Air Pollution Control District. The official boundary is provided in Attachment 2.

South Coast Air Basin

In 1997, the South Coast Air Basin (South Coast) was designated nonattainment of the annual PM_{2.5} standard of 15.0 µg/m³. Based on 2010-2012 monitoring data, the South Coast remains in nonattainment of the revised annual PM_{2.5} standard with a design value of 15.2 µg/m³ measured at the Mira Loma-Van Buren monitoring site. In addition to data recorded at the high site listed in Table 1, other monitors distributed throughout the South Coast record violations of the standard (Attachment 1). Consideration of U.S. EPA's five factors indicates broad regional contribution to elevated PM_{2.5} levels and supports the

use of the air basin boundary which reflects the regional nature of PM_{2.5} pollution in this area. Consistent with this recent analysis, the assessment previously submitted for the recently revised 24-hour PM_{2.5} standard, and U.S. EPA's extensive technical analysis in support of their final designations,⁵ ARB recommends the annual PM_{2.5} nonattainment area coincide with the nonattainment area already in existence.

The recommended South Coast PM_{2.5} nonattainment area includes Western Los Angeles (excluding Catalina and San Clemente Islands), Orange, Southwestern San Bernardino, and Western Riverside Counties. This area is under the jurisdiction of the South Coast Air Quality Management District. The official boundary is provided in Attachment 2.

The areas recommended by ARB as nonattainment for the PM_{2.5} standard are illustrated below (Figure 1):

Figure 1: Proposed Nonattainment Areas



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ATTACHMENT 1

PM2.5 Annual Average and Annual Design Values (ug/m3)

Basin	SiteName	Annual Average			Annual Design Values		
		2010	2011	2012	2010	2011	2012
GBV	Keeler-Cerro Gordo Road	7.1	8.1	6.7	7.0	7.4	7.3
GBV	Mammoth Lakes-Gateway HC						
LC	Lakeport-Lakeport Blvd	3.0	3.4	3.8	4.5	3.2	3.4
LT	South Lake Tahoe-Sandy Way						
MC	Echo Summit						
MC	Grass Valley-Litton Building	4.5	4.2	3.8	6.2	4.4	4.2
MC	Portola-161 Nevada Street	9.7	11.9	13.0	10.9	10.3	11.5
MC	Portola-Commercial Street						
MC	Quincy-N Church Street	7.1	10.8	9.5	10.9	9.4	9.1
MC	San Andreas-Gold Strike Road	4.9	9.1	7.0	6.5	7.2	7.5
MC	Truckee-Fire Station	5.6	6.6	6.2	7.0	6.0	6.1
MD	Lancaster-43301 Division Street	5.9	7.1	5.4	7.0	6.9	6.1
MD	Lancaster-W Pondera Street						
MD	Mojave-923 Poole Street	4.6	6.3	6.5	5.5	5.4	5.8
MD	Ridgecrest-100 West California Avenue	5.1	5.6	5.3	6.0	5.5	5.3
MD	Victorville-14306 Park Avenue	7.2	6.8	6.7	8.3	7.7	6.9
MD	Victorville-Armagosa Road						
NC	Eureka-Humboldt Hill		8.2	6.8			
NC	Eureka-I Street	5.5	6.2	5.4	6.5	6.1	5.7
NC	Eureka-Jacobs	5.6	6.6	5.7	6.8	6.4	6.0
NC	Ukiah-County Library	6.6	7.6	4.6	8.7	8.6	6.3
NC	Willits-125 E Commercial Street	7.7	9.9	7.4			8.3
NCC	Carmel Valley-Ford Road			5.7			
NCC	Hollister-Fairview Road	5.8	5.9	5.1	6.1	5.7	5.6
NCC	King City-415 Pearl Street			6.1			
NCC	Salinas-#3	6.6	6.4	5.6	6.5	6.3	6.2
NCC	Salinas-Natividad Road #2						
NCC	Santa Cruz-2544 Soquel Avenue	6.5	6.5	5.9	6.3	6.3	6.3
NEP	Alturas-W 4th Street						
NEP	Yreka-Foothill Drive	4.5	5.5	5.7	5.7	5.1	5.2
SC	Anaheim-Harbor Blvd						
SC	Anaheim-Pampas Lane	10.2	10.9	10.8	11.8	11.1	10.6
SC	Azusa	10.8	12.1	11.0	12.7	12.0	11.3
SC	Big Bear City-501 W. Valley Blvd	8.4	8.4	8.0	9.1	8.9	8.2
SC	Burbank-W Palm Avenue	12.4	13.2	12.2	13.3	12.6	12.6
SC	Compton-700 North Bullis Road	12.5	13.0	11.7	13.2	13.4	12.4
SC	Fontana-Arrow Highway	11.9	12.6	12.8	13.8	12.9	12.4
SC	Los Angeles-North Main Street	11.9	12.9	12.5	13.1	13.1	12.4

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PM2.5 Annual Average and Annual Design Values (ug/m3)

Basin	SiteName	Annual Average			Annual Design Values		
		2010	2011	2012	2010	2011	2012
SC	Lynwood						
SC	Mira Loma Van Buren	15.2	15.3	15.0	16.9	15.9	15.2
SC	Mission Viejo-26081 Via Pera	8.0	8.5	7.9	9.3	8.7	8.1
SC	North Long Beach	10.5	11.0	10.3	12.5	11.4	10.6
SC	Ontario-1408 Francis Street	13.0	13.3	12.4	14.5	13.7	12.9
SC	Pasadena-S Wilson Avenue	10.2	10.8	10.1	11.8	11.1	10.4
SC	Pico Rivera						
SC	Pico Rivera-4144 San Gabriel	12.5	12.5	11.9	14.1	13.3	12.3
SC	Reseda	10.2	10.2	10.5	11.1	10.6	10.3
SC	Riverside-Magnolia	11.0	11.8	11.4	12.5	12.0	11.4
SC	Riverside-Rubidoux	13.1	13.6	13.5	15.0	14.1	13.2
SC	San Bernardino-4th Street	11.1	12.2	11.8	12.5	12.1	11.7
SC	South Long Beach	10.4	10.7	10.5	12.2	11.2	10.5
SCC	Arroyo Grande-2391 Willow Road	10.0	12.0	9.6			10.5
SCC	Atascadero-Lewis Avenue	6.3	7.6	6.2	7.9	7.7	6.7
SCC	El Rio-Rio Mesa School #2	8.5	8.8	8.8	9.6	9.2	8.7
SCC	Nipomo-Guadalupe Road	8.2	8.3	8.1		8.2	8.2
SCC	Ojai-Ojai Avenue			9.5			
SCC	Piru-3301 Pacific Avenue	8.5	7.6	9.6	9.2	8.5	8.6
SCC	San Luis Obispo-3220 South Higuera St	5.5	6.7	6.2	6.4	6.1	6.1
SCC	San Luis Obispo-Marsh Street						
SCC	Santa Barbara-700 East Canon Perdido	7.7	11.0	8.6	9.2	9.9	9.5
SCC	Santa Barbara-W Carillo Street						
SCC	Santa Maria-906 S Broadway	5.6	7.8	7.6	6.8	6.9	7.2
SCC	Santa Maria-Broadway						
SCC	Simi Valley-Cochran Street	8.7	8.7	9.3	9.9	9.2	8.9
SCC	Thousand Oaks-Moorpark Road	8.7	8.6	9.5	9.9	9.3	9.0
SD	Alpine-Victoria Drive			7.7			
SD	Camp Pendleton	8.0	12.0	10.7		10.8	10.2
SD	Chula Vista	9.6	9.9	10.1	11.1	10.3	9.8
SD	El Cajon-Redwood Avenue	10.8	10.6	10.5	12.1	11.2	10.6
SD	Escondido-E Valley Parkway	10.5	10.4	10.5	12.7	11.5	10.5
SD	San Diego-1110 Beardsley Street	10.4	10.8	11.0	12.0	11.0	10.7
SD	San Diego-12th Avenue						
SD	San Diego-Kearny Villa Road			8.7			
SD	San Diego-Overland Avenue	8.7	8.9	8.1	10.2	9.4	8.6
SFB	Concord-2956 A Treat Blvd						

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PM2.5 Annual Average and Annual Design Values (ug/m3)

Basin	SiteName	Annual Average			Annual Design Values		
		2010	2011	2012	2010	2011	2012
SFB	Concord-2975 Treat Blvd	7.1	7.8	6.6	8.3	7.8	7.2
SFB	Fremont-Chapel Way	8.5			9.1		
SFB	Gilroy-9th Street	8.2	8.1	7.4	8.6	8.4	7.9
SFB	Livermore-793 Rincon Avenue	7.6	7.9	6.6	9.0	8.2	7.4
SFB	Napa-Jefferson Avenue			13.7			
SFB	Oakland-9925 International Blvd	7.8	10.1	9.5	8.8	9.1	9.1
SFB	Oakland-West			7.1			
SFB	Redwood City	8.4	8.8	8.5	8.7	8.6	8.6
SFB	San Francisco-Arkansas Street	10.5	9.5	8.2	10.0	9.9	9.4
SFB	San Jose-4th Street						
SFB	San Jose-Jackson Street	8.8	9.9	9.1	10.2	9.6	9.3
SFB	San Jose-Tully Road						
SFB	San Pablo-Rumrill Blvd			7.3			
SFB	San Rafael	10.7	9.9	8.0			9.5
SFB	Santa Rosa-5th Street	7.3	8.6	8.3	8.1	8.1	8.0
SFB	Vallejo-304 Tuolumne Street	7.7	9.8	9.0	9.1	9.1	8.8
SJV	Bakersfield-410 E Planz Road	17.6	14.4	14.7	21.2	18.2	15.6
SJV	Bakersfield-5558 California Avenue	14.2	16.2	13.0	18.4	16.5	14.5
SJV	Bakersfield-Golden State Highway						
SJV	Clovis-N Villa Avenue	14.7	17.9	15.4	16.4	17.0	16.0
SJV	Corcoran-Patterson Avenue	17.9			17.1		
SJV	Fresno-1st Street	13.0	15.5	14.1	15.2	14.5	14.2
SJV	Fresno-Garland			14.1			
SJV	Fresno-Hamilton and Winery	13.4	15.4	12.7	14.9	14.5	13.9
SJV	Hanford-S Irwin Street			14.8			
SJV	Madera-28261 Avenue 14		20.4	16.0			
SJV	Manteca-530 Fishback Rd		10.8	8.3			
SJV	Merced-2334 M Street	11.2	10.4	9.5	13.2	11.7	10.4
SJV	Merced-S Coffee Avenue	16.3	15.6	11.0		18.2	14.3
SJV	Modesto-14th Street	12.3	14.7	11.9	13.8	13.3	12.9
SJV	Stockton-Hazeltan Street	11.0	11.3	12.4	12.2	11.2	11.6
SJV	Tranquility-32650 West Adams Avenue	7.1	8.2	7.1			7.5
SJV	Turlock-S Minaret Street	12.7	17.1	14.8		15.3	14.9
SJV	Visalia-N Church Street	13.6	16.1	14.8	16.5	15.2	14.8
SS	Brawley-220 Main Street	6.3	7.1	8.1	7.5	7.1	7.2
SS	Brawley-Main Street						
SS	Calexico-Ethel Street	12.8	13.5	15.8	12.9	14.0	14.0
SS	El Centro-9th Street	6.6	7.5	7.5	7.5	7.4	7.2

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PM2.5 Annual Average and Annual Design Values (ug/m3)

Basin	SiteName	Annual Average			Annual Design Values		
		2010	2011	2012	2010	2011	2012
SS	Indio-Jackson Street	6.8	7.2	7.6	7.7	7.3	7.2
SS	Palm Springs-Fire Station	5.9	6.0	6.5	6.6	6.2	6.1
SV	Auburn-11645 Atwood Road			5.5			
SV	Chico-East Avenue						
SV	Chico-Manzanita Avenue	8.0	12.1	8.2	11.5	10.1	9.7
SV	Colusa-Sunrise Blvd	5.0	6.8	7.3	7.5	6.3	6.3
SV	Red Bluff-310 S Main Street	9.8	11.1	8.4			9.8
SV	Redding-Health Dept Roof	4.6	5.4	5.9	8.4	5.3	5.3
SV	Roseville-N Sunrise Blvd	6.6	8.5	6.5	8.4	7.9	7.2
SV	Sacramento-Del Paso Manor	8.8	10.5	9.1	10.9	10.0	9.5
SV	Sacramento-Health Dept Stockton Blvd	7.8	10.1	8.2	9.9	9.2	8.7
SV	Sacramento-T Street	8.1	10.1	8.3	9.5	9.2	8.8
SV	Woodland-Gibson Road	5.7	7.6	6.4	7.6	6.9	6.6
SV	Yuba City-Almond Street	5.9	8.0	6.9	8.2	7.3	6.9



SV: Calculated using combined data for Chico-Manzanita and Chico-East (Q1&Q2 data are from Manzanita; Q3&Q4 data are from East);

SJV: 2012 data for Fresno-1st are from Fresno-Garland

These values are based on FRM data only.

ATTACHMENT 2

BOUNDARIES FOR RECOMMENDED NONATTAINMENT AREAS

South Coast

Los Angeles County (P)

Orange County

Riverside County (P)

San Bernardino County (P)

The entirety of Orange County and those portions of Los Angeles, Riverside, and San Bernardino counties described below:

Los Angeles County (P)

That portion of Los Angeles County which lies south and west of a line described as follows:

Beginning at the Los Angeles-San Bernardino County boundary and running west along the Township line common to Township 3 North and Township 2 North, San Bernardino Base and Meridian;

then North along the range line common to Range 8 West and Range 9 West;

then west along the Township line common to Township 4 North and Township 3 North;

then north along the range line common to Range 12 West and Range 13 West to the southeast corner of Section 12, Township 5 North and Range 13 West;

then west along the south boundaries of Sections 12, 11, 10, 9, 8, and 7, Township 5 North and Range 13 West to the boundary of the Angeles National Forest which is collinear with the range line common to Range 13 West and Range 14 West;

then north and west along the Angeles National Forest boundary to the point of intersection with the Township line common to Township 7 North and Township 6 North (point is at the northwest corner of Section 4 in Township 6 North and Range 14 West);

then west along the Township line common to Township 7 North and Township 6 North;

then north along the range line common to Range 15 West and Range 16 West to the southeast corner of Section 13, Township 7 North and Range 16 West;

then along the south boundaries of Sections 13, 14, 15, 16, 17 and 18, Township 7 North and Range 16 West;

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then north along the range line common to Range 16 West and Range 17 West to the north boundary of the Angeles National Forest (collinear with the Township line common to Township 8 North and Township 7 North);

then west and north along the Angeles National Forest boundary to the point of intersection with the south boundary of the Rancho La Liebre Land Grant;

then west and north along this land grant boundary to the Los Angeles-Kern County boundary.

Riverside County (P)

That portion of Riverside County which lies to the west of a line described as follows:

Beginning at the Riverside-San Diego County boundary and running north along the range line common to Range 4 East and Range 3 East, San Bernardino Base and Meridian;

then east along the Township line common to Township 8 South and Township 7 South;

then north along the range line common to Range 5 East and Range 4 East;

then west along the Township line common to Township 6 South and Township 7 South to the southwest corner of Section 34, Township 6 South, Range 4 East;

then north along the west boundaries of Sections 34, 27, 22, 15, 10, and 3, Township 6 South, Range 4 East;

then west along the Township line common to Township 5 South and Township 6 South;

then north along the range line common to Range 4 East and Range 3 East;

then west along the south boundaries of Sections 13, 14, 15, 16, 17, and 18, Township 5 South, Range 3 East;

then north along the range line common to Range 2 East and Range 3 East; to the Riverside-San Bernardino County Line.

San Bernardino County (P)

That portion of San Bernardino County which lies south and west of a line described as follows:

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Beginning at the San Bernardino-Riverside County boundary and running north along the range line common to Range 3 East and Range 2 East, San Bernardino Base and Meridian;

then west along the Township line common to Township 3 North and Township 2 North to the San Bernardino-Los Angeles County boundary.

San Joaquin Valley

Fresno County

Kern County (P)

Kings County

Madera County

Merced County

San Joaquin County

Stanislaus County

Tulare County

The entirety of the counties of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare, and that portion of Kern County described below:

Kern County (P)

That portion of Kern County which lies west and north of a line described as follows:

Beginning at the Kern-Los Angeles County boundary and running north and east along the northwest boundary of the Rancho La Liebre Land Grant to the point of intersection with the range line common to Range 16 West and Range 17 West, San Bernardino Base and Meridian;

north along the range line to the point of intersection with the Rancho El Tejon Land Grant boundary;

then southeast, northeast, and northwest along the boundary of the Rancho El Tejon Land Grant to the northwest corner of Section 3, Township 11 North, Range 17 West;

then west 1.2 miles;

then north to the Rancho El Tejon Land Grant boundary;

then northwest along the Rancho El Tejon line to the southeast corner of Section 34, Township 32 South, Range 30 East, Mount Diablo Base And Meridian;

ATTACHMENT 2

then north to the northwest corner of Section 35, Township 31 South, Range 30 East;

then Northeast along the boundary of the Rancho El Tejon Land Grant to the southwest corner of Section 18, Township 31 South, Range 31 East;

then east to the southeast corner of Section 13, Township 31 South, Range 31 East;

then north along the range line common to Range 31 East and Range 32 East, Mount Diablo Base and Meridian, to the northwest corner of Section 6, Township 29 South, Range 32 East;

then east to the southwest corner of Section 31, Township 28 South, Range 32 East;

then north along the range line common to Range 31 East and Range 32 East to the northwest corner of Section 6, Township 28 South, Range 32 East,

then west to the southeast corner of Section 36, Township 27 South, Range 31 East,

then north along the range line common to Range 31 East and Range 32 East to the Kern-Tulare County boundary.

Imperial County

Imperial County (P)

That portion of Imperial County which lies within the line described as follows:

Beginning at the intersection of the United States-Mexico border and the southeast corner of Township 17 South, Range 11 East, San Bernardino Base and Meridan,

then north along the range line of the eastern edge of Range 11 East,

then east along the township line of the southern edge of Township 12 South to the northeast corner of Township 13 South, Range 15 East,

then south along the range line common to Range 15 East and Range 16 East, to the United States-Mexico border.

PROPOSED

State of California
AIR RESOURCES BOARD

**PM2.5 DESIGNATION RECOMMENDATIONS
FOR THE REVISED FEDERAL PM2.5 ANNUAL STANDARD**

Resolution 13-47

November 21, 2013

Agenda Item No.: 13-10-5

WHEREAS, the Legislature in Health and Safety Code section 39602 has designated the State Air Resources Board (ARB or Board) as the air pollution control agency for all purposes set forth in federal law;

WHEREAS, section 109(b)(1) of the Clean Air Act requires the United States Environmental Protection Agency (U.S. EPA) to set primary air quality standards at levels that protect public health with an adequate margin of safety;

WHEREAS, on December 14, 2012, the U.S. EPA promulgated a new annual fine particulate (PM2.5) primary standard at a level of 12.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), based on the need to provide increased protection for children, older adults, persons with pre-existing heart and lung disease and for other at-risk populations;

WHEREAS, section 107(d) of the Clean Air Act requires states to submit to U.S. EPA a list designating areas for a new or revised national ambient air quality standard no later than one year after the promulgation of the standard and requires U.S. EPA to finalize the designations within two years of the promulgation of the new standard;

WHEREAS, ARB has developed recommendations for area designations and boundaries in consultation with local air districts and U.S. EPA;

WHEREAS, a Staff Report which lists recommendations for area designations and nonattainment area boundaries for the federal 12.0 $\mu\text{g}/\text{m}^3$ annual PM2.5 standard was made available on October 22, 2013;

WHEREAS, staff has made recommendations to designate the South Coast Air Basin, the San Joaquin Valley Air Basin, and part of Imperial County as nonattainment for the federal 12.0 $\mu\text{g}/\text{m}^3$ annual PM2.5 standard based on the most recent available air quality data from 2010 to 2012; and

WHEREAS, U.S. EPA will base their final designations on 2011 to 2013 air quality data.

NOW, THEREFORE, BE IT RESOLVED that the Board directs the Executive Officer to forward the recommended area designations and nonattainment boundaries for the federal $12.0 \mu\text{g}/\text{m}^3$ annual PM_{2.5} standard to U.S. EPA, and to work with U.S. EPA to resolve any issues that may arise regarding the recommendations.

CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO CONSIDER APPROVAL OF THE SAN JOAQUIN VALLEY 2013 PLAN FOR THE FEDERAL 1-HOUR OZONE STANDARD

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to consider approval of the San Joaquin Valley 2013 Plan for the 1-hour ozone standard (2013 1-hour Ozone Plan) developed and adopted by the San Joaquin Valley Air Pollution Control District (District). If approved by the Board, ARB will submit the 2013 1-hour Ozone Plan to the United States Environmental Protection Agency (U.S. EPA) as a revision to the California State Implementation Plan (SIP).

DATE: November 21, 2013

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, CA 95814

This item may be considered at a two-day meeting of the Board in Sacramento, which will commence at 9:00 a.m., November 21, 2013 and may continue at 8:30 a.m., on November 22, 2013. This item may not be considered until November 22, 2013. Please consult the agenda for the meeting, which will be available at least 10 days before November 21, 2013, to determine the day on which this item will be considered.

BACKGROUND

The Clean Air Act (CAA) establishes planning requirements for areas that exceed the health-based National Ambient Air Quality Standards (NAAQS or standard). These nonattainment areas must develop and implement a SIP that demonstrates how they will attain the standard by specified CAA deadlines.

The U.S. EPA promulgated a 0.12 parts per million (ppm) 1-hour ozone standard and classified the San Joaquin Valley as a serious nonattainment area. Due to the severity of the air quality problem, the San Joaquin Valley was later reclassified as "extreme" nonattainment with a 2010 attainment date. In 2005, the U.S. EPA revoked the 1-hour ozone standard to pursue a more health-protective 8-hour ozone standard. Subsequent litigation reinstated portions of the implementation requirements under the revoked standard, and EPA withdrew approval of the District's 2004 extreme ozone plan. The District's 2013 1-hour Ozone Plan is intended to meet those requirements by demonstrating attainment of the standard by 2017.

The 2013 1-hour Ozone Plan demonstrates attainment by relying on emission reductions from previous SIPs, as well as reductions from adopted ARB and District programs. It also includes a comprehensive emission inventory, an assessment of

reasonably available control measures and technologies, a rate of progress demonstration, identification of contingency measures, and provisions for clean fuels and clean technologies for boilers.

The 2013 1-hour Ozone Plan also includes a vehicle miles traveled emission offset demonstration, which applies to areas classified as severe or extreme nonattainment of the NAAQS for both the 1-hour and 8-hour ozone standards.

PROPOSED ACTION

ARB staff has reviewed the locally adopted 2013 1-hour Ozone Plan and concluded that it meets the applicable requirements of the CAA. ARB staff recommends that the Board approve the 2013 1-hour Ozone Plan as a revision to the California SIP.

AVAILABILITY OF DOCUMENTS

ARB staff will present a written Staff Report prior to the meeting. Copies of the report may be obtained from ARB's Public Information Office, 1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, (916) 322-2990, November 11, 2013. The report may also be obtained from ARB's website at: <http://www.arb.ca.gov/planning/sip/sip.htm>

SUBMITTAL OF COMMENTS

Interested members of the public may present comments orally or in writing at the meeting and may be submitted by postal mail or by electronic submittal 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, November 20, 2013**, 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>

You can sign up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information go to: <http://www.arb.ca.gov/board/online-signup.htm>.

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and verbal comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

ARB requests that written and email statements on this item be filed at least 10 days prior to the meeting so that ARB staff and Board members have sufficient time to consider each comment. Further inquiries regarding this matter should be directed to

Mr. Webster Tasat, Manager, Central Valley Air Quality Planning Section, Air Quality Planning and Science Division, at (916) 323-4950, or Ms. Elizabeth Melgoza, Air Pollution Specialist, Central Valley Air Quality Planning Section, Air Quality Planning and Science Division, at (916) 322-6161.

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing.

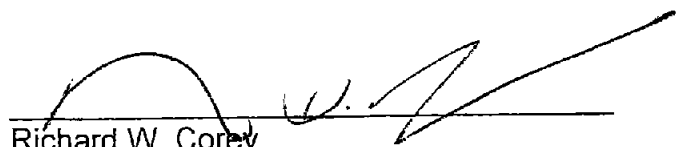
TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia.
- Documentos disponibles en un formato alterno u otro idioma.
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

CALIFORNIA AIR RESOURCES BOARD


Richard W. Corey
Executive Officer

Date: October 21, 2013

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.

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