

**REDESIGNATION REQUEST
AND MAINTENANCE PLAN
FOR THE 1997 NATIONAL OZONE STANDARD
FOR SAN DIEGO COUNTY**

(Adopted December 5, 2012; Effective upon EPA approval)

**SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT
10124 OLD GROVE ROAD
SAN DIEGO, CA 92131**

OZONE REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR SAN DIEGO COUNTY

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1.0 INTRODUCTION

The San Diego County Air Pollution Control District (District) is hereby requesting that the California Air Resources Board (ARB) petition the U.S. Environmental Protection Agency (EPA) to redesignate the San Diego County ozone nonattainment area to attainment of the ozone National Ambient Air Quality Standard (NAAQS or standard), promulgated in 1997. This request meets the statutory criteria for redesignation under the Clean Air Act (CAA),¹ as demonstrated herein.

Ozone monitoring data for the period of 2009-2011 show that San Diego County has attained the 1997 ozone NAAQS. Available preliminary monitoring data for 2012 show the area to continue to be in attainment of the standard. Attainment is a significant air quality and public health achievement resulting from a long-standing, comprehensive regulatory program to control air pollutant emissions. The resulting long-term and continuing downtrend in peak ozone levels and in the annual number of exceedances of the 1997 ozone NAAQS—despite substantial growth in population and motor vehicles over the same period—clearly shows that emission control measures are working.

Attainment is also an indicator of the region's progress toward meeting the more health-protective 2008 ozone NAAQS. Attaining the more-stringent standard will require additional emission reductions. Nevertheless, the region's substantial progress to date toward meeting this standard further demonstrates that emission control measures are working.

Notwithstanding compliance with the 1997 ozone NAAQS, San Diego County will remain designated a nonattainment area for this standard until a redesignation request and supporting documentation are adopted by the Air Pollution Control Board and submitted to ARB, ARB forwards the request to EPA, and EPA finds that the CAA criteria for redesignation have been met and grants the request. Redesignation primarily requires demonstrating that all CAA requirements applicable to the nonattainment area have been met, and receiving EPA approval of a maintenance plan demonstrating how the region will maintain compliance with the standard in future years.

The District has reviewed the statutory criteria and EPA policy guidance addressing redesignation, and concludes redesignation to attainment is warranted. Accordingly, the District hereby requests redesignation to attainment of the 1997 ozone NAAQS. The applicable criteria and the justification for redesignation are provided herein.

1.1 BACKGROUND

1.1.1 National Ambient Air Quality Standards for Ozone

The CAA requires EPA to set NAAQS for pollutants such as ozone that are considered harmful to public health and the environment. The law also requires EPA to periodically review the standards and their scientific basis to determine whether revisions are appropriate. Accordingly, EPA has

¹ The Clean Air Act is codified, as amended, in the US Code at 42 USC Sections 7401, et seq.

periodically established new, more health-protective standards for ozone following advances in the scientific understanding of the pollutant and its potential health and welfare effects.

1-Hour Standard. A 1-hour ozone NAAQS was established in 1979 at a level of 0.12 parts per million (ppm).² The 1-hour averaging time was selected on the basis of health effects associated with short-term exposure periods. The standard was attained in San Diego County in 2001, and subsequently revoked by EPA in 2005 following implementation of a more health-protective 8-hour ozone standard established in 1997.

1997 8-Hour Standard. An 8-hour ozone NAAQS (the subject of this Redesignation Request and Maintenance Plan) was established in 1997 at a level of 0.08 ppm.³ The 8-hour averaging time was selected to address the impacts of exposure to longer periods of elevated ozone pollution. The standard is attained when, at each monitor in the region, the three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentrations is no more than 0.084 ppm (based on the rounding convention dictated in federal regulation).⁴ Three years of ozone concentrations are averaged due to the impacts of year-to-year variations in meteorology on ozone formation.

2008 8-Hour Standard. A more health-protective 8-hour ozone NAAQS was established in 2008 at a level of 0.075 ppm.⁵ The 2008 standard is independent of the 1997 standard, which currently remains in effect while EPA undertakes rulemaking to address implementation of the 2008 standard.

1.1.2 Emissions Sources

Ozone is not emitted directly by sources, but is formed in the air by reactions of ozone precursor emissions—volatile organic compounds (VOC) and oxides of nitrogen (NO_x)—in the presence of sunlight and heat. Accordingly, peak ozone levels occur during the sunnier, warmer times of the year, typically April through October.

VOCs are emitted from a variety of sources, including motor vehicles, chemical plants, factories, consumer and commercial products, and other industrial sources. VOCs are also emitted by natural sources such as vegetation. NO_x is emitted primarily from motor vehicles, other mobile sources (e.g., trains, ships, and aircraft), power plants, and other sources of fuel combustion.

² Federal Register, Volume 44, Page 8220 (44 FR 8220); see also Code of Federal Regulations, Title 40, Part 50.9 (40 CFR 50.9), "National One-Hour Primary and Secondary Ambient Air Quality Standards for Ozone."

³ 62 FR 38856; 40 CFR 50.10, "National Eight-Hour Primary and Secondary Ambient Air Quality Standards for Ozone."

⁴ Appendix I to 40 CFR 50, "Interpretation of the Eight-Hour Primary and Secondary National Ambient Air Quality Standards for Ozone."

⁵ 73 FR 16436; 40 CFR 50.15, "National Primary and Secondary Ambient Air Quality Standards for Ozone."

1.1.3 Health and Welfare Effects of Ozone

Ozone is a colorless gas with a pungent, irritating odor. Ozone occurs naturally and is beneficial in the upper atmosphere (stratospheric ozone), shielding the earth from harmful ultraviolet radiation from the sun. However, ground-level (tropospheric) ozone is a highly reactive and harmful air pollutant that can damage living tissues and man-made materials upon contact.

The health effects of ground-level ozone are focused on the respiratory tract. When inhaled, ozone can irritate and inflame the lining of the lungs, much like sunburn damage on skin. People with respiratory problems are most vulnerable, but even healthy people that are active outdoors can be affected when ozone levels are high. Potential health impacts include aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Ground-level ozone can also hurt the economy by affecting crop yield and the durability of materials. Ozone interferes with a plant's ability to produce and store food, compromising its growth and reproduction. Additionally, ozone chemically attacks natural rubber and certain synthetic polymers, textile fibers and dyes, and, to a lesser extent, paints. Rubber cracks and dyes fade after prolonged exposure to ozone.

1.1.4 Ozone Designation and SIP History of San Diego County

San Diego County's air quality designations, or compliance status, with respect to NAAQS (i.e., attainment or nonattainment) are specified in federal regulation.⁶ Each area of the nation with air pollution levels violating a NAAQS must be designated by EPA as a "nonattainment area" for that pollutant. Each nonattainment area must submit a "State Implementation Plan" (SIP) outlining the combination of local, state, and federal actions and emission control regulations necessary to bring the area into attainment as expeditiously as practicable.

Then, even after the nonattainment area attains the air quality standard, it will remain designated a nonattainment area unless and until the state submits to EPA a formal request for redesignation to attainment. The request must include a "maintenance" plan demonstrating that the area will maintain compliance with that NAAQS for at least 10 years after EPA redesignates the area to attainment.

1-Hour Ozone Standard. San Diego County was designated nonattainment for the 1-hour ozone standard on March 3, 1978.⁷ The region attained the 1-hour ozone standard in 2001, based on 1999-2001 air quality data. The District prepared and ARB submitted to EPA a redesignation request and maintenance plan in 2002, and EPA redesignated San Diego County to attainment for the 1-hour ozone standard on July 28, 2003.⁸ EPA subsequently revoked the 1-hour ozone standard on June 15, 2005,⁹ after issuing area designations for the more health-protective 1997 8-hour ozone

⁶ 40 CFR 81.305, "Designation of Areas for Air Quality Planning Purposes – California."

⁷ 43 FR 8964.

⁸ 68 FR 37976.

⁹ 69 FR 23951.

NAAQS. However, the EPA-approved 1-hour ozone Maintenance Plan remains in effect as the applicable ozone SIP until EPA approves a subsequent ozone SIP submittal (i.e., the Maintenance Plan herein).

1997 8-Hour Ozone Standard. The region was designated nonattainment for the 1997 8-hour ozone NAAQS, effective June 15, 2004, based on ozone air quality measurements over the 2001-2003 three-year period.¹⁰ At that time, EPA did not further "classify" the region as "marginal," "moderate," "serious," "severe," or "extreme" nonattainment pursuant to section 181 of the CAA. Instead, EPA relied on CAA provisions in section 172 that do not require classifications and declared San Diego County (and other regions that had attained the former 1-hour ozone NAAQS but violated the 8-hour standard) to be only "basic" (unclassified) nonattainment areas. Basic areas are allowed some flexibility in their air quality attainment plans, whereas classified areas are subject to more prescriptive regulatory requirements. In June 2007, the District submitted a SIP revision fulfilling the requirements EPA had established for a basic nonattainment area.

However, EPA did not take action to approve that SIP submittal because, also in June 2007, a court ruled that EPA must reconsider its implementation methodology and criteria for foregoing nonattainment classifications in affected regions, including San Diego County. In a rulemaking responding to the court remand, EPA classified San Diego County as a Moderate ozone nonattainment area for the 1997 ozone standard, effective on June 13, 2012.¹¹ According to the EPA rulemaking, a SIP submittal addressing Moderate ozone nonattainment area control requirements would be due in June 2013. Nevertheless, the District is already implementing even more stringent NO_x and VOC emission control rules that had been required because the area was previously classified as a Serious nonattainment area for the former 1-hour ozone standard. Those Serious area controls remain in place pursuant to the existing 1-hour ozone Maintenance Plan, and are similarly retained in the proposed Maintenance Plan herein for the 1997 8-hour ozone NAAQS.

The District is now requesting redesignation of San Diego County to attainment of the 1997 ozone NAAQS. Because the region attained the standard in 2011, and this request for redesignation to attainment is being submitted prior to the June 2013 SIP submittal due date, those Moderate area SIP requirements will not apply after EPA redesignates San Diego County to attainment for the 1997 ozone NAAQS.¹² Instead, the Maintenance Plan included in this SIP submittal will fulfill that SIP submittal requirement.

2008 8-Hour Ozone Standard. EPA designated and classified San Diego County as a Marginal ozone nonattainment area for the 2008 ozone standard, effective on July 20, 2012, based on 2009-2011 ozone data.¹³ Redesignation to attainment of the 1997 standard, if approved, would not affect the region's Marginal nonattainment status for the 2008 standard.

¹⁰ 69 FR 23858.

¹¹ 77 FR 28423.

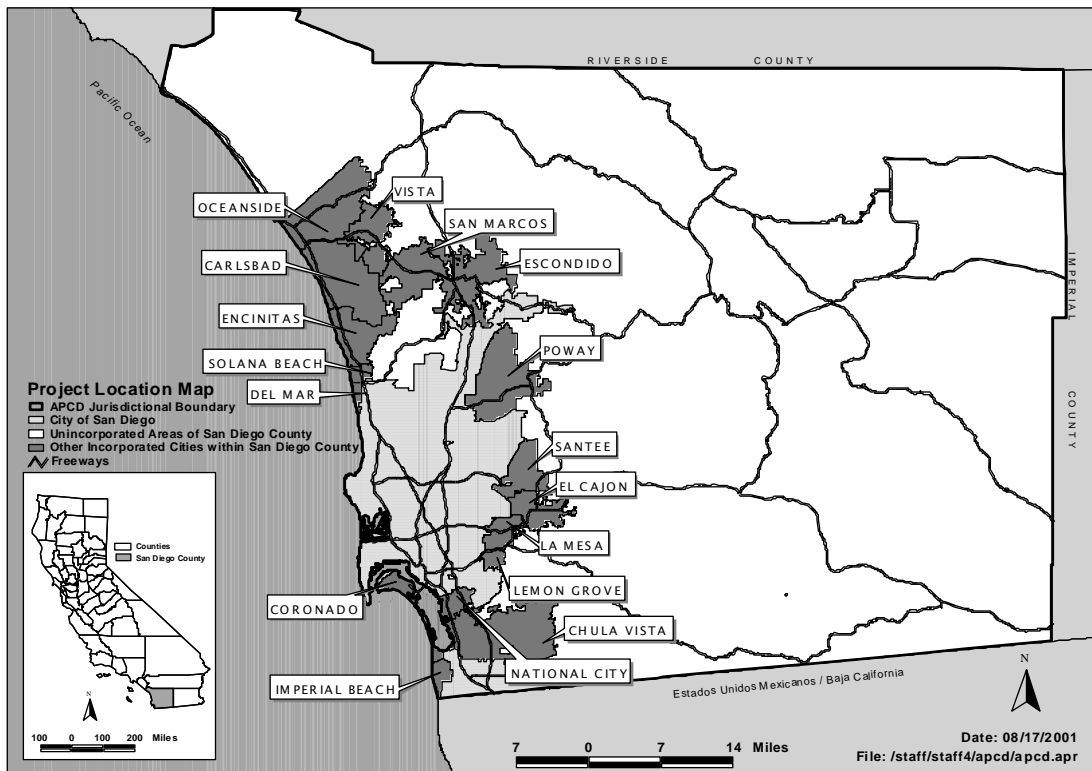
¹² "Procedures for Processing Requests to Redesignate Areas to Attainment," John Calcagni, September 4, 1992.

¹³ 77 FR 34221.

1.1.5 San Diego County Ozone Attainment Area Boundaries

The San Diego County ozone attainment area boundaries are proposed to be contiguous with San Diego County (and District) jurisdictional boundaries, as specified in federal regulation.¹⁴ San Diego County encompasses approximately 4,200 square miles and is bounded on the north by Orange and Riverside Counties, on the east by Imperial County, on the west by the Pacific Ocean, and on the south by the State of Baja California, Mexico (as illustrated in Figure 1-1).

FIGURE 1-1
SAN DIEGO COUNTY
PROPOSED ATTAINMENT AREA BOUNDARIES



1.2 REDESIGNATION CRITERIA

Section 107(d)(3)(E) of the CAA identifies the following five criteria that must be met before EPA can redesignate an area from nonattainment to attainment.

¹⁴ 40 CFR 81.164 ("San Diego Intrastate Air Quality Control Region").

1. EPA has determined that the area attained the applicable NAAQS based on ambient air quality data.
2. EPA has fully approved the applicable SIP pursuant to section 110(k) of the CAA. Section 110(k) addresses completeness findings, deadlines for EPA actions, types of EPA actions, and sanctions that may be applied to areas failing to meet CAA requirements.
3. The area has met all requirements in section 110 and part D of the CAA. Section 110 describes general requirements for SIPs, while part D pertains to requirements applicable to nonattainment areas.
4. EPA has determined that the area's improved air quality is due to permanent and enforceable emissions reductions, including those resulting from the implementation of the applicable SIP and federal measures.
5. EPA has fully approved a maintenance plan for the area as meeting the requirements of CAA section 175A. Section 175A requires demonstrating that the area will maintain compliance with the standard for at least 10 years after redesignation to attainment, and specifying contingency measures to be implemented if a violation is monitored at any time during the 10-year maintenance period.

1.3 EPA POLICY GUIDANCE

EPA has provided policy guidance on redesignation requests in the documents identified below. San Diego County's redesignation request and supporting documentation herein have been prepared consistent with statutory requirements and the following EPA policy guidance.

1. "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," April 16, 1992 (57 FR 13498), and supplemented on April 28, 1992 (57 FR 18070). (General Preamble, 1992)
2. "Procedures for Processing Requests to Redesignate Areas to Attainment," John Calcagni, Director, Air Quality Management Division, September 4, 1992. (Calcagni, September 1992)
3. "Part D New Source Review (part D NSR) Requirements for Areas Requesting Redesignation to Attainment," Mary D. Nichols, Assistant Administrator for Air and Radiation, October 14, 1994. (Nichols, October 1994)
4. "Regional Consistency for the Administrative Requirements of State Implementation Plan Submittals and the Use of Letter Notices," Janet McCabe, Deputy Assistant Administrator, Office of Air and Radiation, April 6, 2011. (McCabe, April 2011)

2.0 ATTAINMENT OF THE 1997 NATIONAL OZONE STANDARD

A key criterion for redesignation is that the area has attained the NAAQS based on ambient air quality data. A description of the region's ozone monitoring network and a demonstration that San Diego County has attained the 1997 ozone NAAQS based on the resulting monitoring data are provided below.

2.1 MONITORING NETWORK

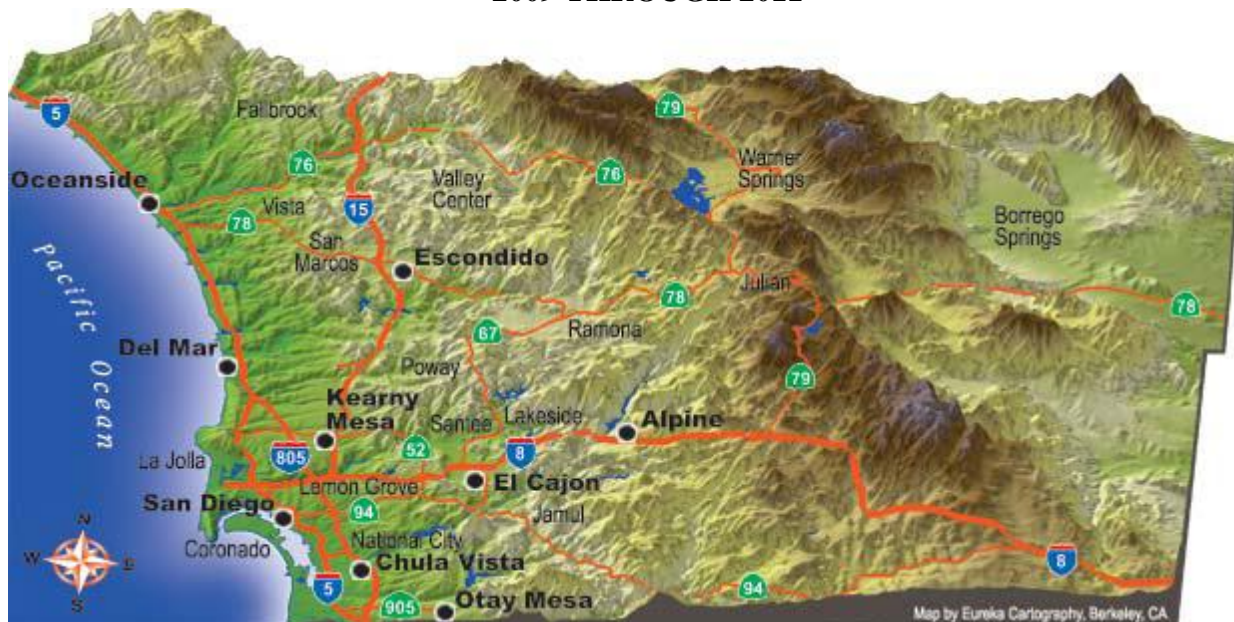
The District operates an extensive ozone monitoring network, continuously monitoring ambient ozone levels at numerous sites throughout San Diego County¹⁵ in compliance with federal requirements.¹⁶ Whereas EPA regulations require only two ozone monitoring sites in this region, San Diego County operated nine ozone monitors during the 2009-2011 attainment period, substantially exceeding the requirement. The data generated at these monitors are used to define the nature and severity of ozone pollution in San Diego County, identify ozone pollution trends, and determine compliance with the ozone NAAQS.

A map indicating the location of all ozone monitors operated during the three-year attainment period (2009-2011) is presented in Figure 2-1. Each monitor remained at the same location for the duration of the three-year period, with one minor exception. The Alpine monitoring station needed to be moved just 33 meters to the east, on August 18, 2010, due to renovation work at the property where it was previously located. The relocation was coordinated with EPA to ensure the continued adequacy of the monitoring network.

¹⁵These monitors collectively form San Diego County's State and Local Air Monitoring Stations (SLAMS) network, including National Air Monitoring Stations (NAMS).

¹⁶ 40 CFR Part 58, "Ambient Air Quality Surveillance."

FIGURE 2-1
OZONE MONITORS IN SAN DIEGO COUNTY
OPERATED DURING THE THREE-YEAR ATTAINMENT PERIOD
2009 THROUGH 2011



Pursuant to federal requirements, the District ensures the quality of the ambient ozone concentration data collected at its monitoring sites through analysis of precision and accuracy data. These ambient concentration data and quality assurance data are submitted to the EPA's ambient air quality database, the Air Quality System (AQS). The District annually certifies the quality of the submitted data, as documented in a Certification Letter submitted to EPA. This Certification Letter confirms that the data have completed and passed a data validation process in compliance with all federal regulations and guidelines. The Certification Letter must include summary reports of the ozone concentration data and precision and accuracy statistics for each monitor.

2.2 METHODOLOGY

The method for demonstrating attainment of the 1997 ozone NAAQS is prescribed in federal regulation.¹⁷ Attainment status must be determined for each monitor and is based on three complete, consecutive calendar years of complete, quality-assured, and certified monitoring data that have been recorded in EPA's AQS.

In its simplest form, an attainment demonstration is relatively straightforward. For each monitor, the fourth-highest daily maximum 8-hour average ozone concentration in each of the past three

¹⁷ 40 CFR 50.10 ("National Eight-Hour Primary and Secondary Ambient Air Quality Standards for Ozone"), and Appendix I to Part 50 ("Interpretation of the Eight-Hour Primary and Secondary National Ambient Air Quality Standards for Ozone").

consecutive years is recorded and then averaged over the three-year period. The highest resulting averaged value for all monitors is known as the ozone "design value" for the region. The standard is attained when the region's design value is less than or equal to 0.084 ppm. Averaging over a three-year period reduces the variable influence of year-to-year meteorology changes and thus better represents the air quality trend.

2.3 ATTAINMENT DEMONSTRATION

San Diego County's ozone attainment demonstration is summarized in Table 2-1 and is based on complete, quality-assured, and certified monitoring data covering the three-year period January 1, 2009, through December 31, 2011. The data have been recorded in EPA's AQS database and are available for public review.

San Diego County's current ozone design value (for the period 2009-2011) is 0.082 ppm at the Alpine monitoring station, which historically has recorded the highest ozone concentrations in the region.¹⁸ Thus, the 1997 ozone NAAQS has been attained throughout the region. To date, based on uncertified data for 2012, the region continues to be in attainment. This shows sustained improvement in air quality in San Diego County.

¹⁸ Ozone levels in Alpine (and in other inland, foothill communities in the region) tend to be higher because of how and where ozone is created. Emissions from the denser metropolitan areas and major transportation corridors are blown inland by the onshore breeze toward the west-facing mountain slopes. During this transport of pollution, the emissions have time to react in the sunlight to form ozone. The ozone then becomes trapped against the mountain slopes and below the thermal inversion layer, which often hovers at about 2,000 feet (the same approximate elevation as Alpine).

TABLE 2-1

**ANNUAL FOURTH HIGHEST DAILY MAXIMUM 8-HOUR OZONE CONCENTRATIONS
AND OZONE DESIGN VALUE IN SAN DIEGO COUNTY
2009-2011
(Parts Per Million)**

Monitor Location (Site ID)	2009	2010	2011	3-Year Average
Alpine (06-073-1006)	0.085	0.081	0.082	0.082 ¹⁹
Camp Pendleton (06-073-1008)	0.071	0.064	0.067	0.067
Chula Vista (06-073-0001)	0.067	0.068	0.055	0.063
Del Mar (06-073-1001)	0.067	0.063	0.064	0.064
Downtown (06-073-1010)	0.060	0.058	0.060	0.059
El Cajon (06-073-0003)	0.071	0.073	0.070	0.071
Escondido (06-073-1002)	0.074	0.075	0.068	0.072
Kearny Mesa (06-073-0006)	0.069	0.070	0.069	0.069
Otay Mesa (06-073-2007)	0.061	0.056	0.059	0.058

Source: EPA's Air Quality System (AQS), February 2012.

¹⁹ The 8-hour ozone design value for San Diego County is 0.082 ppm, representing the highest three-year average of the fourth-highest daily maximum 8-hour average for all monitors in the region.

3.0 CLEAN AIR ACT COMPLIANCE

For purposes of redesignation, San Diego County must comply with section 110 and part D of the CAA, and the applicable SIP must have been fully approved by EPA pursuant to CAA section 110(k). As specified in the following sections, these requirements will have been fully met by the time EPA acts on this redesignation request.

3.1 COMPLIANCE WITH CLEAN AIR ACT SECTION 110 AND PART D

Section 107(d)(3)(E)(v) of the CAA specifies that EPA can redesignate a nonattainment area to attainment only if the state containing such area has met all requirements applicable to the area under section 110 and part D of the CAA. Section 110 of the CAA identifies general SIP provisions, and part D identifies specific requirements for nonattainment area SIPs. Thus, for the nonattainment area to be redesignated to attainment for the 1997 ozone standard, all SIP requirements related to that standard must be met.

Because San Diego County was designated nonattainment for the 1997 8-hour ozone standard on June 15, 2004, a SIP revision was required to be submitted by June 15, 2007, to demonstrate attainment for that standard. Since San Diego County had attained the 1-hour ozone standard prior to being designated nonattainment for the 8-hour ozone standard, EPA regulations subjected the nonattainment area only to the more general and flexible requirements of section 172 of the CAA, and not the more prescriptive requirements of section 182. The District submitted a SIP revision by the submittal deadline, which fulfilled the requirements specified in EPA's implementation rule for the 1997 8-hour ozone standard.

However, on June 8, 2007, a court vacated the portion of EPA's 8-hour ozone implementation rule that subjected the area to section 172 instead of section 182.²⁰ Due to the vacatur, the 2007 SIP submittal deadline no longer applied to areas like San Diego County (notwithstanding the District's timely SIP submittal) that were covered by the vacated portions of the 8-hour ozone implementation rule. EPA's rulemaking in response to the court remand, effective on June 13, 2012, classified San Diego County as a Moderate ozone nonattainment area for the 1997 ozone standard, and required a SIP revision to be submitted by June 13, 2013.²¹

Since San Diego County attained the 1997 ozone standard in 2011, and this request for redesignation to attainment is being submitted prior to the June 2013 SIP submittal due date, the Moderate area SIP requirements will not apply after EPA redesignates San Diego County to attainment for the 1997 ozone NAAQS.²² Instead, the Maintenance Plan included in this SIP submittal will fulfill that SIP submittal requirement. Thus, the applicable SIP requirements of section 110 and part D of the CAA, related to the 1997 ozone NAAQS, will be met by the Maintenance Plan herein.

²⁰ "Decision of the U.S. Court of Appeals for the District of Columbia Circuit on our Petition for Rehearing of the Phase I Rule to Implement the 8-Hour Ozone NAAQS," Robert J. Meyers, June 15, 2007.

²¹ 77 FR 28423.

²² "Procedures for Processing Requests to Redesignate Areas to Attainment," John Calcagni, September 4, 1992.

3.2 FULLY-APPROVED SIP PURSUANT TO CLEAN AIR ACT SECTION 110(k)

Section 110(k) of the CAA describes EPA's actions on SIPs, including full approval, disapproval, conditional approval, and partial approval/partial disapproval. For a nonattainment area to be redesignated to attainment, the applicable SIP must be fully approved.

EPA fully approved San Diego's 1-hour ozone Maintenance Plan and redesignated San Diego County to attainment for the 1-hour ozone standard on July 28, 2003.²³ The EPA-approved 1-hour ozone Maintenance Plan remains the applicable ozone SIP for San Diego until EPA approves a subsequent ozone SIP submittal (i.e., the Maintenance Plan herein). No SIP provisions are currently disapproved, conditionally approved, or partially approved.

²³ 68 FR 37976.

4.0 ATTAINMENT DUE TO PERMANENT, ENFORCEABLE EMISSIONS REDUCTIONS

To be redesignated, attainment must have resulted from permanent and enforceable emissions reductions. According to EPA guidance,²⁴ "Attainment resulting from temporary reductions in emission rates (e.g., reduced production or shutdown due to temporary adverse economic conditions) or unusually favorable meteorology would not qualify as an air quality improvement due to permanent and enforceable emission reductions."

As demonstrated below, notwithstanding the recent economic downturn,²⁵ the emission reductions that were responsible for San Diego County attaining the 1997 ozone NAAQS were not temporary, and the meteorology during the attainment period was not unusually favorable. Rather, attainment resulted from the effective combination of District and State measures submitted into the Ozone SIP and federal measures that provided permanent and enforceable reductions of VOC and NOx emissions.

4.1 PERMANENT, ENFORCEABLE EMISSIONS REDUCTIONS

EPA policy and longstanding practice allows states to demonstrate permanent and enforceable emission reductions by comparing emissions occurring during the nonattainment period (represented by emissions during one of the years in the three-year period used to designate an area as nonattainment) with emissions occurring during the attainment period (represented by emissions during one of the three attainment years). Documentation prepared pursuant to EPA policy guidance²⁶ follows, identifying the percent emissions reductions achieved between the 2002 base year and the 2011 attainment year from permanent and enforceable emissions control programs.

Air quality control in California is a shared responsibility among local, State, and federal agencies. Local air districts regulate emissions from non-mobile (stationary) sources, such as stationary industrial and commercial sources, and some area-wide sources such as coatings and industrial solvents. At the State level, ARB adopts measures to reduce emissions from on-road motor vehicles, off-road vehicles and equipment, fuels, and consumer products. At the national level, EPA regulates off-road equipment and inter-state sources such as ships, trains, aircraft, and out-of-state vehicles.

The District—in collaboration with federal, State, and local agencies and the citizens, businesses, and civic groups of San Diego County—has worked hard to efficiently and cost-effectively reduce ozone-precursor emissions from nearly every source to ensure cleaner air for all San Diegans. The District and State measures that have been submitted into the Ozone SIP and the federal measures that control VOC and NOx emissions are listed in Appendix B.

²⁴ Calcagni, September 1992.

²⁵ The recent economic recession began in December 2007 and ended in June 2009 (the last quarter of contracting Gross Domestic Product), according to the National Bureau of Economic Research.

²⁶ Calcagni, September 1992.

As indicated in Table 4-1, emissions reductions between 2002 and 2011 came mostly from EPA and ARB mobile source control programs. The District's stationary source control programs had mostly already been implemented and provided significant emissions reductions prior to the 2002 base year, rather than during the 2002-2011 period.

The emission reduction percentages presented in Table 4-1 are calculated relative to the 2002 base year regionwide emissions totals of 183.1 tons per day of VOC and 198.1 tons per day of NO_x. Overall, VOC emissions were reduced 22% and NO_x emissions were reduced 31% from the 2002 base year to the 2011 attainment year. About 15% VOC and 25% NO_x reductions were from on-road motor vehicles control programs, and 5% VOC and 5% NO_x reductions were from non-road mobile sources control programs. ARB's consumer solvent products control program also reduced VOC emissions by 3%.

TABLE 4-1
SAN DIEGO COUNTY
2002-2011 REDUCTIONS IN OZONE PRECURSOR EMISSIONS
(Tons Per Day)

Source Category	Jurisdiction	VOC 2002	VOC 2011	% VOC Reduction	NO_x 2002	NO_x 2011	% NO_x Reduction
Consumer Solvent Products	ARB	22.5	17.9	3%	--	--	--
On-road Motor Vehicles	ARB	63.4	35.3	15%	119.9	70.9	25%
Non-road Mobile Sources	ARB & EPA	49.1	40.3	5%	68.0	58.6	5%
Stationary & Area Sources	District	48.0	49.1	0%	10.1	8.1	1%
TOTAL		183.1	142.6	22%	198.1	137.5	31%

Source: California Air Resources Board, Southern California 2012 SIP Baseline Emission Projection – Version 1.02 Planning Inventory Tool website.

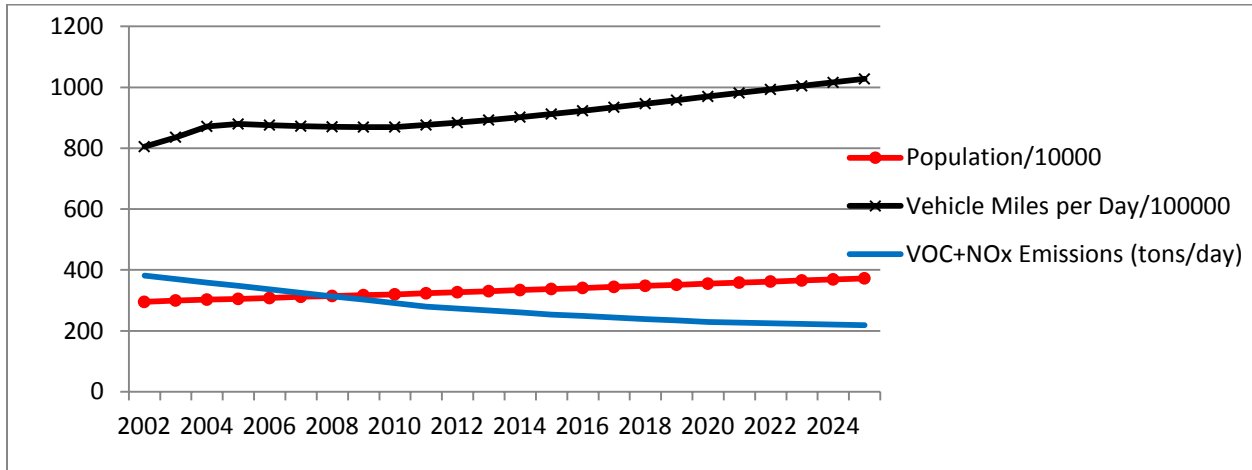
Notes: Emissions data reflect a "summer day," as required by EPA policy guidance.²⁷
Emissions data assume no emissions reductions from NSR or Title V permit programs.
Source category-specific data are listed in Appendix A to this Ozone Redesignation Request.
Emission reduction percentages are relative to the 2002 base year regionwide emissions totals of 183.1 tons per day of VOC and 198.1 tons per day of NO_x.

²⁷ Calcagni, September 1992.

4.2 EMISSION REDUCTIONS NOT TEMPORARY

Emission reductions occurring during the recent recession could only be considered temporary, and to be causing a temporary ozone attainment, if the ensuing economic recovery were to bring emissions increases back up to levels that would cause nonattainment in the maintenance period (through 2025). However, as illustrated in Figure 4-1, total regionwide ozone-precursor emissions are projected to continue declining through the maintenance period due to the existing emissions control program, even considering the forecast recovery from the recession²⁸ and ongoing growth in population and motor vehicle use. In fact, much of the emissions reduction benefit of the adopted rules and regulations has yet to be realized and is projected to occur during the maintenance period, due to the continued replacement of older vehicles, engines, and equipment with newer units subject to more stringent emission control requirements. These trends support the conclusion that the emission reductions that provided for ozone attainment are not temporary, but are permanent and enforceable.

**FIGURE 4-1
SAN DIEGO COUNTY
VOC + NOX EMISSION REDUCTIONS DESPITE GROWTH**



4.3 METEOROLOGY NOT UNUSUALLY FAVORABLE

The ozone concentrations that occur at a given location and time period depend both on ozone-precursor emission levels and on meteorological conditions. Consequently, even if ozone-precursor emissions remain constant, the maximum ozone concentration will vary from one period to the next

²⁸ ARB’s emissions projections presented herein assume the economy is starting to recover and will fully rebound sometime between 2017 (faster recovery scenario) and 2023 (slower recovery scenario). Rather than rely on either recovery scenario, ARB assumed a middle case between the two forecasts.

due solely to the random nature of meteorological factors that affect ozone formation and dispersion.²⁹

The 1997 ozone NAAQS is based on a three-year averaging period, designed to minimize the effect of a single extreme year caused by unusual weather conditions and to more properly reflect the effect of changes in precursor emissions. By its very nature, the form of the standard helps ensure that attainment resulted from emission reductions and not from unusually favorable meteorology.

Notwithstanding the inherent safeguard in the standard itself, meteorological parameters correlated with ozone formation were analyzed to verify attainment did not result from unusually favorable meteorology during the three-year attainment period. Temperature is a principal determinant of ozone formation, such that higher ozone concentrations occur more frequently on warmer days and lower concentrations occur more frequently on cooler days. Thus, the District reviewed historical temperature records to verify that the 2009–2011 attainment period was not unusually cool.

Specifically, April-to-October "ozone season" average daily maximum temperatures were calculated for each year from 1993 (the earliest year available in the District's meteorological database) through 2011. Then, to reflect the three-year measurement period of the ozone NAAQS, three-year temperature averages were calculated for the three-year periods ending with each year from 1995 through 2011. An overall long-term, 19-year average was also calculated for the entire 1993–2011 period, to establish the temperature norm. Finally, the difference between each three-year average and the long-term average was calculated, to determine the extent to which each three-year period deviated from the norm.

The results are presented in Table 4-2. The temperatures presented in the table were measured at the El Cajon monitoring site, which is in the downwind eastern metropolitan portion of the air basin, and is representative of areas along the path of the onshore breeze carrying emissions from the densely populated coastal area to the foothills, where maximum ozone concentrations occur.

As indicated in Table 4-2, the three-year average daily maximum temperature for the 2009–2011 attainment period (78.5 degrees), though slightly cooler than the long-term average (78.9 degrees), was not unusually cool, in that six other three-year periods were at least as cool or cooler. Of the five previous three-year periods that were cooler than the attainment period, average daily maximum temperatures in four periods were from twice to three times as much cooler than the long-term average than was the 2009–2011 attainment period. Thus, the temperature records (as well as the nature of the standard itself, as described above) support the conclusion that attainment did not result from unusually favorable meteorology during the three-year attainment period.

²⁹ These factors include daily maximum temperature, average relative humidity, incoming solar radiation levels, and average wind speed and direction.

TABLE 4-2
SAN DIEGO COUNTY
THREE-YEAR AVERAGE OZONE SEASON DAILY MAXIMUM TEMPERATURES
(Degrees Fahrenheit)

Three-Year Periods	El Cajon Temp (°F)	Deviation (°F)
1993 - 1995	78.7	-0.2
1994 - 1996	79.2	0.3
1995 - 1997	80.1	1.3
1996 - 1998	79.5	0.6
1997 - 1999	78.6	-0.3
1998 - 2000	78.0	-0.9
1999 - 2001	78.4	-0.4
2000 - 2002	78.1	-0.8
2001 - 2003	77.7	-1.1
2002 - 2004	77.7	-1.2
2003 - 2005	78.3	-0.6
2004 - 2006	79.3	0.4
2005 - 2007	79.5	0.7
2006 - 2008	80.6	1.7
2007 - 2009	80.3	1.4
2008 - 2010	79.5	0.6
2009 - 2011	78.5	-0.4
Long-Term Average		
1993 - 2011	78.9	---

Source: Surface temperature data for El Cajon monitoring site, compiled by the District.

5.0 MAINTENANCE PLAN

For purposes of redesignation, the District must have an EPA-approved maintenance plan, pursuant to CAA section 175A, demonstrating that the area will maintain compliance with the 1997 ozone NAAQS for at least 10 years after redesignation to attainment, and specifying contingency measures to be implemented if a violation is monitored at any time during the 10-year maintenance period. EPA policy guidance³⁰ requires, in addition to the maintenance demonstration and contingency measures, that the maintenance plan must also identify the attainment inventory, and commit to continued air quality monitoring and verification of continued attainment. As demonstrated in the following sections, the Maintenance Plan presented herein complies with the requirements of the CAA and EPA policy guidance.

5.1 ATTAINMENT INVENTORY

The Maintenance Plan must identify the total regionwide level of ozone-precursor emissions that provided for attainment.³⁰ Because the standard was attained in 2011, total daily VOC and NOx emissions in 2011 represent the Attainment Inventory (see Table 5-1).

TABLE 5-1

**SAN DIEGO COUNTY
2011 OZONE ATTAINMENT INVENTORY**

Pollutant	Average Total Daily Emissions (tons)
Volatile organic compounds (VOC)	142.6
Nitrogen oxides (NOx)	137.5

Source: California Air Resources Board, Southern California 2012 SIP Baseline Emission Projection – Version 1.02 Planning Inventory Tool website.

Notes: Emissions data reflect a "summer day," as required by EPA policy guidance.³⁰
Emissions data assume no emissions reductions from NSR or Title V permit programs.
Source category-specific data are listed in Appendix A to this Ozone Redesignation Request.

5.2 MAINTENANCE DEMONSTRATION

The Maintenance Plan must include a demonstration that the standard will be maintained for at least 10 years after the effective date of redesignation.³¹ To accommodate time for ARB and EPA to process the redesignation request, the Maintenance Plan horizon year is 2025, providing a maintenance period of at least 10 years from the future effective date of redesignation (which is not yet known).

³⁰ Calcagni, September 1992.

³¹ CAA Section 175A(a).

The 2011 Attainment Inventory of ozone precursors (Table 5-1) represents the regionwide emissions level that was sufficient to attain the 1997 ozone NAAQS. Maintenance is demonstrated by showing that projected future emissions levels through the maintenance period will not exceed the 2011 Attainment Inventory. Specifically, VOC emissions must stay at or below 142.6 tons per day and NO_x emissions must stay at or below 137.5 tons per day for the entire maintenance period.

Future emissions levels are forecasted by adjusting the attainment year emissions inventory to reflect projected growth in emitting activities and additional control of emission rates that will be provided by continued implementation of the existing federal, State and District emissions control regulations. Growth in emitting activities is projected based on forecasted growth in socio-economic factors such as population, employment, industrial production, and vehicle miles of travel.

By contrast, changes in military activity do not follow socio-economic factors. Therefore, the District obtained from the Department of the Navy, for inclusion in the maintenance demonstration, a projection of future mobile source emissions from potential military actions that may occur during the maintenance period at Coast Guard, Navy, and Marine Corps facilities in San Diego County.³² Accordingly, the future emissions projections for the maintenance demonstration include a line item for potential future military activity (beyond that assumed in the baseline emissions) of one ton per day of VOC emissions and 4.4 tons per day of NO_x (see Appendix A, Tables A-1 and A-2). This updated projection of potential military-related emissions growth is less than half as much as the previous projection that was incorporated in the currently applicable 1-hour ozone Maintenance Plan.

As indicated in Table 5-2, total regionwide emissions of VOC and NO_x will steadily decline through the maintenance period due to the existing emissions control program (despite forecasted growth in population, employment, travel, and military activities), to well below the 2011 level that provided for attainment. In fact, by 2025, San Diego County ozone precursor emissions are projected to decrease by 12.1 tons per day (8 %) for VOC and 49.7 tons per day (36%) for NO_x, relative to the 2011 Attainment Inventory. Consequently, future violations of the ozone standard are not anticipated and maintenance is thus demonstrated.

³² Department of Navy Emissions Growth Increment Request for the San Diego Air Pollution Control District, May 24, 2011.

TABLE 5-2

**OZONE MAINTENANCE DEMONSTRATION
2011 – 2025 MAINTENANCE PERIOD
PROJECTED INVENTORY OF OZONE PRECURSORS**

Pollutant	Average Total Daily Emissions in San Diego County (tons)			
	2011	2015	2020	2025
VOC	142.6	133.9	130.3	130.6
NO _x	137.5	119.9	98.9	87.8

Source: California Air Resources Board, Southern California 2012 SIP Baseline Emission Projection – Version 1.02 Planning Inventory Tool website.

Notes: Emissions data are based on a 2008 base year and reflect "summer day."
Emissions data assume no emissions reductions from NSR or Title V permit programs.
Source category-specific data are listed in Appendix A to this Ozone Redesignation Request.

5.3 TRANSPORTATION CONFORMITY EMISSIONS BUDGETS

The CAA requires transportation planning to be consistent with air quality goals. This is determined through the federally mandated transportation conformity process.

The federal transportation conformity regulation³³ requires the Maintenance Plan to specify on-road motor vehicle emissions "budgets" for the horizon year and any interim milestone years. The emissions budgets represent the maximum allowable levels of NO_x and VOC emissions from on-road vehicle travel on the region's transportation system that will conform to the Maintenance Plan.³⁴ Emissions projected to result from implementation of the long-range regional transportation plan (RTP) and shorter-term regional transportation improvement program (RTIP) may not exceed these emissions budgets.

Conformity determinations must be made by the San Diego Association of Governments (SANDAG) at least every four years, but may occur more frequently if their RTP or RTIP is updated or amended (with non-exempt projects) more frequently. Also, conformity determinations must be made within two years after emissions budgets are found adequate or approved by EPA, whichever is first. Conformity determinations are subject to final approval by the U.S. Department of Transportation.

Emissions budgets are established in this Maintenance Plan for the 2025 horizon year and an interim year, 2020 (Table 5-3). The 2025 horizon year emissions budgets will also apply to all

³³ 40 CFR 93 ("Determining Conformity of Federal Actions to State or Federal Implementation Plans").

³⁴ 40 CFR 93.118 ("Criteria and Procedures: Motor Vehicle Emissions Budget").

post-2025 future transportation conformity analysis years, as authorized in the federal transportation conformity regulation.³⁵

TABLE 5-3

**SAN DIEGO COUNTY
ON-ROAD MOTOR VEHICLE EMISSIONS BUDGETS
OZONE MAINTENANCE PERIOD
(Tons Per Day)**

Pollutant	2020	2025 and Subsequent Years
VOC	23	21
NO _x	38	30

Note: Emissions budgets are based on ARB's EMFAC2011 motor vehicle emissions model and reflect "summer day."

The emissions budgets presented in Table 5-3 represent the on-road motor vehicle emissions levels projected for 2020 and 2025, as determined using ARB's EMFAC2011 on-road motor vehicle emissions estimation model, with travel activity forecasts by SANDAG. To account for imprecision and potential future adjustments in the on-road motor vehicle emissions modeling process, the emissions budgets were derived from EMFAC2011 estimates by rounding up to the next whole number (tons), and adding two.

The budgets are environmentally conservative in that they are substantially lower (more stringent) than the 2011 onroad emissions levels needed to provide for maintenance of the 1997 ozone NAAQS. By requiring future reductions in emissions from on-road vehicle travel, these budgets readily provide for such maintenance, as well as continue the region's progress toward attaining the more-stringent 2008 ozone NAAQS.

Because the emissions budgets are expressed as whole numbers, on-road motor vehicle emissions estimates (in tons per day) should be rounded to whole numbers using standard rounding conventions (.49 rounds down; .50 rounds up), prior to being compared to the emissions budgets for purposes of transportation conformity determinations.

5.4 MAINTENANCE STRATEGY

All existing NO_x and VOC emission control rules and regulations approved into the Ozone SIP and applicable to San Diego County are retained in this Maintenance Plan. The District and State measures that have been submitted into the Ozone SIP and the federal measures that

³⁵ 40 CFR 93.118(b)(2) ("Criteria and Procedures: Motor Vehicle Emissions Budget").

control VOC and NO_x emissions are listed in Appendix B. Any revisions to existing SIP rules subsequently determined to be necessary will be submitted to EPA for approval as SIP revisions.

5.5 CONTINUED MONITORING

The District commits to continue operating the ambient ozone monitoring network, quality assuring the resulting monitoring data, and entering all data into the AQS in accordance with federal requirements and guidelines. Should changes in the location of an ozone monitor become necessary, the District commits to work with EPA to ensure the adequacy of the monitoring network.

5.6 VERIFICATION OF MAINTENANCE

The District commits to annually reviewing ozone monitoring data from the three most recent, consecutive years to verify continued attainment of the 1997 ozone NAAQS through the maintenance period.

5.7 CONTINGENCY PLAN

Despite best efforts to ensure continued compliance with the 1997 ozone NAAQS, it is possible, although not anticipated, that future ambient ozone concentrations could violate the NAAQS. Therefore, pursuant to the CAA, section 175A(d), the Maintenance Plan must identify contingency measures to be implemented to correct any future violation that might occur after the region has been redesignated to attainment. Specifically, the Maintenance Plan must identify the contingency measures to be considered for possible adoption, a schedule and procedure for adoption and implementation of the selected contingency measures, and a time limit for action. It must also identify specific indicators or triggers to be used to determine when the contingency measures need to be adopted and implemented.

Typically, contingency measures are held in reserve, to be adopted and implemented only if an area violates the standard (or exceeds another identified trigger level) in the future. However, California's on-going emissions control program creates a unique situation, allowing this Maintenance Plan to identify a set of recently adopted ARB mobile source control regulations that will be implemented through the maintenance period (collectively referred to as California's Advanced Clean Cars Program) as a contingency measure that will be implemented regardless of monitored ozone levels.

The Advanced Clean Cars Program, adopted on January 27, 2012, will progressively tighten emissions control requirements for motor vehicles through model year 2025, and thus will provide additional emissions reductions year after year during the maintenance period, over and above those that provided for attainment and beyond those that are relied on herein to demonstrate maintenance. Since the Advanced Clean Cars Program was not reflected in EMFAC2011, and the emissions inventory used for the maintenance demonstration herein is based on EMFAC2011, the emission reductions from the Advanced Clean Cars Program are surplus to the maintenance demonstration, and therefore are eligible as a contingency measure.

This contingency measure will provide significant continuing emissions reductions through the maintenance period (and for sometime thereafter), and thus provide adequate additional reductions to address the CAA's contingency requirements. As previously indicated (Table 5-2), by 2025, the existing control program, without crediting the Advanced Clean Cars Program, is projected to reduce San Diego County ozone precursor emissions by 12.1 tons per day (8%) for VOC, and 49.7 tons per day (36%) for NO_x, below the 2011 emissions level that provided for attainment. The Advanced Clean Cars Program is expected to provide about 2 tons per day additional reductions in each precursor by 2025. Therefore, if a new violation were to occur during the maintenance period, continuing additional emissions reductions are projected to ensure any violation will be quickly corrected and then provide for continued maintenance of the 1997 ozone NAAQS in San Diego County through the maintenance period.

Additionally, CAA, section 175A(d) requires that the contingency measures include a commitment that, should there be a violation after redesignation to attainment, the region will implement all control measures contained in its Ozone Nonattainment SIP prior to redesignation. As previously indicated (Section 5.4), all measures in the Ozone Nonattainment SIP for San Diego County are retained in this Maintenance Plan. Therefore, there are no deferred SIP measures to transfer into the contingency plan.

In addition to the above contingency measures, in the event of a monitored violation of the 1997 ozone NAAQS that is based on complete, quality-assured, and certified monitoring data, the District commits to work with ARB to ensure the expeditious adoption, submittal as a SIP revision, and implementation of any additional feasible measure(s) needed to promptly correct the violation. Potential selection of additional contingency measures will be based on considerations such as emission reduction potential, cost effectiveness, and other environmental, economic, legal, social, technological, and energy factors prevailing in the region.

5.8 SUBSEQUENT PLAN REVISIONS

CAA section 175A(b) requires a second Maintenance SIP submittal eight years after the effective date of redesignation, to provide for continued maintenance of the NAAQS for an additional 10-year period. However, it is anticipated that when EPA promulgates an implementation rule for the more health-protective 2008 ozone NAAQS, that rule will revoke the 1997 ozone NAAQS on July 20, 2013. It is further anticipated that the rule will provide that after the 1997 ozone NAAQS is revoked, then maintenance plans for the 1997 ozone NAAQS will no longer need to include a commitment to prepare a second maintenance plan for the revoked standard. Consequently, this Maintenance Plan commits to submittal of a second Maintenance SIP eight years after the effective date of redesignation, unless the rule revoking the 1997 ozone NAAQS provides that the second Maintenance SIP will not be required.

APPENDIX A
PROJECTED EMISSIONS INVENTORIES

TABLE A-1
SAN DIEGO COUNTY
VOC PROJECTED EMISSIONS INVENTORY
(Tons/Day)

Emissions Source Category	2002	2011	2015	2020	2025
ELECTRIC UTILITIES	0.4	0.3	0.2	0.2	0.2
COGENERATION	0.0	0.1	0.1	0.1	0.1
MANUFACTURING AND INDUSTRIAL	0.1	0.1	0.1	0.1	0.1
FOOD AND AGRICULTURAL PROCESSING	0.1	0.0	0.0	0.0	0.0
SERVICE AND COMMERCIAL	0.2	0.2	0.2	0.2	0.2
OTHER (FUEL COMBUSTION)	0.2	0.1	0.1	0.1	0.1
SEWAGE TREATMENT	0.0	0.0	0.0	0.1	0.1
LANDFILLS	1.6	2.0	2.2	2.3	2.3
INCINERATORS	0.0	0.0	0.0	0.0	0.0
SOIL REMEDIATION	0.0	0.0	0.0	0.0	0.0
OTHER (WASTE DISPOSAL)	0.2	0.2	0.3	0.3	0.3
LAUNDERING	0.3	0.6	0.6	0.6	0.6
DEGREASING	1.7	1.9	2.0	2.1	2.1
COATINGS AND RELATED PROCESS SOLVENTS	6.4	7.0	7.6	8.3	8.3
PRINTING	3.8	4.2	4.6	5.0	5.0
ADHESIVES AND SEALANTS	3.1	2.5	2.3	2.0	2.0
OTHER (CLEANING AND SURFACE COATINGS)	0.1	0.1	0.1	0.1	0.1
PETROLEUM MARKETING	7.8	9.1	9.7	10.4	10.6
OTHER (PETROLEUM PRODUCTION & MARKETING)	0.0	0.0	0.0	0.0	0.0
CHEMICAL	1.4	1.7	2.0	2.4	2.9
FOOD AND AGRICULTURE	0.1	0.1	0.1	0.1	0.1
MINERAL PROCESSES	0.2	0.2	0.2	0.2	0.3
METAL PROCESSES	0.0	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	0.0	0.0	0.0	0.0	0.0
ELECTRONICS	0.0	0.0	0.0	0.0	0.0
OTHER (INDUSTRIAL PROCESSES)	0.6	0.5	0.8	1.1	1.3
STATIONARY SOURCES SUBTOTAL	28.4	31.1	33.1	35.8	36.8

TABLE A-1 (CONTINUED)

**SAN DIEGO COUNTY
VOC PROJECTED EMISSIONS INVENTORY
(Tons/Day)**

Emissions Source Category	2002	2011	2015	2020	2025
CONSUMER PRODUCTS	22.5	17.9	16.9	17.6	18.3
ARCHITECTURAL COATINGS AND SOLVENTS	12.5	11.6	11.9	12.4	12.4
PESTICIDES/FERTILIZERS	1.2	0.6	0.5	0.5	0.5
ASPHALT PAVING / ROOFING	1.8	1.8	1.8	1.9	1.9
RESIDENTIAL FUEL COMBUSTION	0.8	0.5	0.5	0.5	0.5
FARMING OPERATIONS	1.3	1.3	1.3	1.3	1.3
CONSTRUCTION AND DEMOLITION	0.0	0.0	0.0	0.0	0.0
PAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0
UNPAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0
FUGITIVE WINDBLOWN DUST	0.0	0.0	0.0	0.0	0.0
FIRES	0.0	0.1	0.1	0.1	0.1
MANAGED BURNING AND DISPOSAL	0.2	0.2	0.2	0.2	0.2
COOKING	1.9	2.0	2.1	2.3	2.5
OTHER (MISCELLANEOUS PROCESSES)	0.0	0.0	0.0	0.0	0.0
AREAWIDE SOURCES SUBTOTAL	42.2	35.9	35.3	36.7	37.5

TABLE A-1 (CONTINUED)

**SAN DIEGO COUNTY
VOC PROJECTED EMISSIONS INVENTORY
(Tons/Day)**

Emissions Source Category	2002	2011	2015	2020	2025
LIGHT DUTY PASSENGER (LDA)	33.3	14.5	9.4	6.2	5.4
LIGHT DUTY TRUCKS - 1 (LDT1)	7.1	3.8	2.9	2.2	1.8
LIGHT DUTY TRUCKS - 2 (LDT2)	10.3	5.0	3.9	2.9	2.5
MEDIUM DUTY TRUCKS (MDV)	3.8	4.0	3.9	3.4	3.1
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	1.0	1.9	1.7	1.4	1.1
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.5	0.2	0.1	0.1	0.1
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.8	0.4	0.2	0.1	0.1
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.3	0.1	0.0	0.0	0.0
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.1	0.3	0.3	0.2	0.2
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.1	0.1	0.1	0.1	0.0
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.7	0.4	0.2	0.1	0.1
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	1.8	1.1	0.7	0.7	0.8
MOTORCYCLES (MCY)	2.6	2.9	2.7	2.7	2.8
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.1	0.1	0.1	0.1	0.1
HEAVY DUTY GAS URBAN BUSES (UB)	0.0	0.0	0.0	0.0	0.0
SCHOOL BUSES - GAS (SBG)	0.1	0.1	0.0	0.0	0.0
SCHOOL BUSES - DIESEL (SBD)	0.1	0.0	0.0	0.0	0.0
OTHER BUSES - GAS (OBG)	0.1	0.1	0.1	0.1	0.1
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.1	0.0	0.0	0.0	0.0
ALL OTHER BUSES - DIESEL (OBD)	0.0	0.0	0.0	0.0	0.0
MOTOR HOMES (MH)	0.5	0.2	0.1	0.0	0.0
ON-ROAD MOTOR VEHICLES SUBTOTAL	63.4	35.3	26.4	20.5	18.3

TABLE A-1 (CONTINUED)

**SAN DIEGO COUNTY
VOC PROJECTED EMISSIONS INVENTORY
(Tons/Day)**

Emissions Source Category	2002	2011	2015	2020	2025
AIRCRAFT*	3.2	2.5	2.5	2.6	2.6
TRAINS	0.1	0.1	0.1	0.1	0.1
OCEAN GOING VESSELS*	0.7	0.7	0.8	0.9	1.0
COMMERCIAL HARBOR CRAFT	0.6	0.6	0.5	0.5	0.5
RECREATIONAL BOATS	19.2	16.6	15.7	15.4	15.9
OFF-ROAD RECREATIONAL VEHICLES	2.0	2.6	2.5	2.6	2.7
OFF-ROAD EQUIPMENT*	17.8	14.1	12.6	11.5	11.7
FARM EQUIPMENT	1.1	0.7	0.5	0.3	0.2
FUEL STORAGE AND HANDLING	4.5	2.4	1.9	1.6	1.4
NON-ROAD MOBILE SOURCES SUBTOTAL	49.1	40.3	37.1	35.4	36.1
BANKED EMISSION CREDITS**			0.9	0.9	0.9
POTENTIAL FUTURE MILITARY ACTIVITY***			1.0	1.0	1.0
TOTAL VOC	183.1	142.6	133.9	130.3	130.6

Source: Except as indicated below, emissions estimates are from ARB's Southern California 2012 SIP Baseline Emission Projection – Version 1.02 Planning Inventory Tool website. Documentation of ARB's emission inventory methodologies is at <http://www.arb.ca.gov/ei/documentation.htm>. Emissions data reflect a "summer day," as required by EPA policy guidance. Emissions data assume no emissions reductions from NSR or Title V permit programs.

*Emissions estimates for Aircraft, Ocean-Going Vessels, and Off-Road Equipment incorporate updated baseline military emissions estimates for those source categories, provided by the Department of the Navy in April 2011, which were not included in ARB's emissions inventory.

**To demonstrate that utilization of banked emissions credits will not interfere with maintenance, emissions amounting to the sum of all banked emissions credits were added to future emissions projections.

***Because potential changes in military activities do not follow socio-economic factors, the District obtained from the Department of the Navy, for inclusion in the maintenance demonstration, a projection of future mobile source emissions from potential additional military activity (beyond that assumed in the baseline emissions) that may occur during the maintenance period at Coast Guard, Navy, and Marine Corps facilities in San Diego County, "Department of Navy Emissions Growth Increment Request for the San Diego Air Pollution Control District," May 24, 2011.

TABLE A-2
SAN DIEGO COUNTY
NOX PROJECTED EMISSIONS INVENTORY
(Tons/Day)

Emissions Source Category	2002	2011	2015	2020	2025
ELECTRIC UTILITIES	2.4	1.7	1.1	1.1	1.1
COGENERATION	0.0	0.6	0.6	0.7	0.7
MANUFACTURING AND INDUSTRIAL	1.4	0.9	0.9	1.0	1.0
FOOD AND AGRICULTURAL PROCESSING	0.7	0.3	0.2	0.1	0.1
SERVICE AND COMMERCIAL	1.5	1.1	1.2	1.2	1.3
OTHER (FUEL COMBUSTION)	1.8	1.2	1.0	0.9	0.9
SEWAGE TREATMENT	0.1	0.1	0.1	0.1	0.1
LANDFILLS	0.2	0.2	0.2	0.2	0.2
INCINERATORS	0.0	0.0	0.0	0.0	0.0
SOIL REMEDIATION	0.0	0.0	0.0	0.0	0.0
OTHER (WASTE DISPOSAL)	0.0	0.0	0.0	0.0	0.0
LAUNDERING	0.0	0.0	0.0	0.0	0.0
DEGREASING	0.0	0.0	0.0	0.0	0.0
COATINGS AND RELATED PROCESS SOLVENTS	0.0	0.0	0.0	0.0	0.0
PRINTING	0.0	0.0	0.0	0.0	0.0
ADHESIVES AND SEALANTS	0.0	0.0	0.0	0.0	0.0
OTHER (CLEANING AND SURFACE COATINGS)	0.0	0.0	0.0	0.0	0.0
PETROLEUM MARKETING	0.0	0.0	0.0	0.0	0.0
OTHER (PETROLEUM PRODUCTION & MARKETING)	0.0	0.0	0.0	0.0	0.0
CHEMICAL	0.0	0.0	0.0	0.0	0.0
FOOD AND AGRICULTURE	0.0	0.0	0.0	0.0	0.0
MINERAL PROCESSES	0.2	0.2	0.2	0.2	0.2
METAL PROCESSES	0.0	0.0	0.0	0.0	0.0
GLASS AND RELATED PRODUCTS	0.0	0.0	0.0	0.0	0.0
ELECTRONICS	0.0	0.0	0.0	0.0	0.0
OTHER (INDUSTRIAL PROCESSES)	0.1	0.0	0.1	0.1	0.1
STATIONARY SOURCES SUBTOTAL	8.2	6.3	5.6	5.5	5.6

TABLE A-2 (CONTINUED)

**SAN DIEGO COUNTY
NOX PROJECTED EMISSIONS INVENTORY
(Tons/Day)**

Emissions Source Category	2002	2011	2015	2020	2025
CONSUMER PRODUCTS	0.0	0.0	0.0	0.0	0.0
ARCHITECTURAL COATINGS AND SOLVENTS	0.0	0.0	0.0	0.0	0.0
PESTICIDES/FERTILIZERS	0.0	0.0	0.0	0.0	0.0
ASPHALT PAVING / ROOFING	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL FUEL COMBUSTION	1.8	1.7	1.7	1.8	1.9
FARMING OPERATIONS	0.0	0.0	0.0	0.0	0.0
CONSTRUCTION AND DEMOLITION	0.0	0.0	0.0	0.0	0.0
PAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0
UNPAVED ROAD DUST	0.0	0.0	0.0	0.0	0.0
FUGITIVE WINDBLOWN DUST	0.0	0.0	0.0	0.0	0.0
FIRES	0.0	0.0	0.0	0.0	0.0
MANAGED BURNING AND DISPOSAL	0.1	0.1	0.1	0.1	0.1
COOKING	0.0	0.0	0.0	0.0	0.0
OTHER (MISCELLANEOUS PROCESSES)	0.0	0.0	0.0	0.0	0.0
AREAWIDE SOURCES SUBTOTAL	1.9	1.7	1.8	1.9	2.0

TABLE A-2 (CONTINUED)

**SAN DIEGO COUNTY
NOX PROJECTED EMISSIONS INVENTORY
(Tons/Day)**

Emissions Source Category	2002	2011	2015	2020	2025
LIGHT DUTY PASSENGER (LDA)	28.9	11.2	7.5	5.4	5.0
LIGHT DUTY TRUCKS - 1 (LDT1)	6.9	2.9	2.1	1.4	1.0
LIGHT DUTY TRUCKS - 2 (LDT2)	16.8	6.4	4.1	2.5	1.9
MEDIUM DUTY TRUCKS (MDV)	7.6	6.3	4.9	3.5	2.6
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	1.3	2.8	2.5	2.1	1.8
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.4	0.2	0.2	0.2	0.1
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	1.0	0.6	0.4	0.3	0.2
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.5	0.2	0.2	0.1	0.1
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	2.2	6.1	4.9	3.6	2.6
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	1.5	1.5	1.2	0.9	0.6
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	12.5	6.9	4.5	2.1	1.2
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	33.7	19.7	14.7	9.4	6.3
MOTORCYCLES (MCY)	0.4	0.8	0.8	0.8	0.8
HEAVY DUTY DIESEL URBAN BUSES (UB)	2.3	2.5	2.3	2.1	2.1
HEAVY DUTY GAS URBAN BUSES (UB)	0.1	0.1	0.1	0.1	0.1
SCHOOL BUSES - GAS (SBG)	0.1	0.1	0.0	0.0	0.0
SCHOOL BUSES - DIESEL (SBD)	0.8	0.5	0.5	0.4	0.4
OTHER BUSES - GAS (OBG)	0.2	0.3	0.2	0.2	0.1
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	1.0	0.6	0.4	0.2	0.1
ALL OTHER BUSES - DIESEL (OBD)	0.6	0.4	0.3	0.2	0.1
MOTOR HOMES (MH)	1.2	0.8	0.6	0.5	0.4
ON-ROAD MOTOR VEHICLES SUBTOTAL	119.9	70.9	52.5	35.9	27.6

TABLE A-2 (CONTINUED)

**SAN DIEGO COUNTY
NOX PROJECTED EMISSIONS INVENTORY
(Tons/Day)**

Emissions Source Category	2002	2011	2015	2020	2025
AIRCRAFT*	4.9	7.1	7.3	7.6	7.6
TRAINS	1.4	1.5	1.7	1.8	2.0
OCEAN GOING VESSELS*	13.7	14.3	15.2	15.7	14.6
COMMERCIAL HARBOR CRAFT	9.9	8.0	5.6	4.3	3.9
RECREATIONAL BOATS	4.8	6.7	6.8	6.9	7.0
OFF-ROAD RECREATIONAL VEHICLES	0.0	0.0	0.0	0.1	0.1
OFF-ROAD EQUIPMENT*	28.0	17.6	15.9	12.5	11.2
FARM EQUIPMENT	5.3	3.4	2.4	1.5	1.0
FUEL STORAGE AND HANDLING	0.0	0.0	0.0	0.0	0.0
NON-ROAD MOBILE SOURCES SUBTOTAL	68.0	58.6	54.9	50.4	47.5
BANKED EMISSIONS CREDITS**			0.7	0.7	0.7
POTENTIAL FUTURE MILITARY ACTIVITY***			4.4	4.4	4.4
TOTAL NOX	198.1	137.5	119.9	98.9	87.8

Source: Except as indicated below, emissions estimates are from ARB's Southern California 2012 SIP Baseline Emission Projection – Version 1.02 Planning Inventory Tool website.

Documentation of ARB's emission inventory methodologies is at

<http://www.arb.ca.gov/ei/documentation.htm>.

Emissions data reflect a "summer day," as required by EPA policy guidance.

Emissions data assume no emissions reductions from NSR or Title V permit programs.

*Emissions estimates for Aircraft, Ocean-Going Vessels, and Off-Road Equipment incorporate updated baseline military emissions estimates for those source categories, provided by the Department of the Navy in April 2011, which were not included in ARB's emissions inventory.

**To demonstrate that utilization of banked emissions credits will not interfere with maintenance, emissions amounting to the sum of all banked emissions credits were added to future emissions projections.

***Because potential changes in military activities do not follow socio-economic factors, the District obtained from the Department of the Navy, for inclusion in the maintenance demonstration, a projection of future mobile source emissions from potential additional military activity (beyond that assumed in the baseline emissions) that may occur during the maintenance period at Coast Guard, Navy, and Marine Corps facilities in San Diego County, "Department of Navy Emissions Growth Increment Request for the San Diego Air Pollution Control District," May 24, 2011.

APPENDIX B**District, State and Federal Emission Control Programs****San Diego District Rules in the Ozone SIP that Regulate
VOC and NO_x Emissions at Stationary Sources**

District Rules	SIP Approval Date
61.0 - Definitions Pertaining to the Storage and Handling of Organic Compounds	Approved 09/13/1993, 58 FR 47831
61.1 - Receiving and Storing Volatile Organic Compounds at Bulk Plants and Bulk Terminals	Approved 08/08/1995, 60 FR 40285
61.2 - Transfer of Organic Compounds Into Mobile Transport Tanks	Approved 08/26/2003, 68 FR 51186
61.3 - Transfer of Volatile Organic Compounds into Stationary Storage Tanks	Approved 06/30/1993, 58 FR 34906
61.4 - Transfer of Volatile Organic Compounds into Vehicles Fuel Tanks	Approved 05/13/1993, 58 FR 28354
61.5 - Visible Emission Standards for Vapor Control Systems	Approved 04/14/1981, 46 FR 21757
61.7 - Spillage and Leakage of Volatile Organic Compounds	Approved 03/11/1998, 63 FR 11831
61.8 - Certification Requirements for Vapor Control Equipment	Approved 03/11/1998, 63 FR 11831
66 – Organic Solvents	Approved 08/11/1998, 63 FR 42724
67.0 – Architectural Coatings	Approved 03/27/1997, 62 FR 14639
67.1 - Alternative Emission Control Plans	Approved 03/27/1997, 62 FR 14639
67.2 - Dry Cleaning Equipment Using Petroleum-Based Solvent	Approved 03/27/1997, 62 FR 14639
67.3 - Metal Parts and Products Coating Operations	Approved 11/14/2003, 68 FR 64538
67.4 - Metal Container, Metal Closure and Metal Coil Coating Operations	Approved 11/03/1997, 62 FR 59284
67.5 – Paper, Film and Fabric Coating Operations	Approved 03/27/1997, 62 FR 14639
67.6 - Solvent Cleaning Operations	Approved 12/13/1994, 59 FR 64132
67.6.1 - Cold Solvent Cleaning and Stripping Operations	Approved 10/13/2009, 74 FR 52427
67.6.2 - Vapor Degreasing Operations	Approved 10/13/2009, 74 FR 52427
67.7 - Cutback and Emulsified Asphalts	Approved 03/27/1997, 62 FR 14639
67.9 - Aerospace Coating Operations	Approved 08/17/1998, 63 FR 43884
67.10 - Kelp Processing and Bio-Polymer Manufacturing Operations	Approved 06/22/1998, 63 FR 33854

**San Diego District Rules in the Ozone SIP that Regulate
VOC and NOx Emissions at Stationary Sources
(Continued)**

District Rules	SIP Approval Date
67.11.1 – Large Coating Operations for Wood Products	Approved 06/05/2003, 68 FR 33635
67.12 - Polyester Resin Operations	Approved 03/27/1997, 62 FR 14639
67.15 - Pharmaceutical and Cosmetic Manufacturing Operations	Approved 03/27/1997, 62 FR 14639
67.16 - Graphic Arts Operations	Approved 03/27/1997, 62 FR 14639
67.17 - Storage of Materials Containing Volatile Organic Compounds	Approved 03/27/1997, 62 FR 14639
67.18 - Marine Coating Operations	Approved 03/27/1997, 62 FR 14639
67.19 - Coatings and Printing Inks Manufacturing Operations	Approved 05/26/2000, 65 FR 34101
67.24 - Bakery Ovens	Approved 03/27/1997, 62 FR 14639
68 - Fuel-Burning Equipment - Oxides of Nitrogen	Approved 04/09/1996, 61 FR 15719
69.2 - Industrial and Commercial Boilers, Process Heaters and Steam Generators	Approved 02/09/1996, 61 FR 4887
69.3 - Stationary Gas Turbine Engines – Reasonably Available Control Technology	Approved 06/17/1997, 62 FR 32691
69.4 - Stationary Reciprocating Internal Combustion Engines – Reasonably Available Control Technology	Approved 01/04/2006, 71 FR 244

ARB Ozone Precursor Emission Reduction Measures

Since 2007, ARB has adopted a number of statewide measures that will further reduce ozone precursor emissions in the San Diego region. As shown below, the majority of ARB measures in the 2007 8-Hour Ozone SIP have been sent to U.S. EPA as revisions to the SIP or as requests for waivers (CAA Section 209(b)) or for authorizations (CAA Section 209(e)(2)).

Measure	Date of Adoption	Date Sent to U.S. EPA
Modifications to Reformulated Gasoline	June 14, 2007	Feb. 3, 2009
Vapor Recovery for Above-Ground Storage Tanks	June 21, 2007	June 12, 2008
Clean Up Existing Harbor Craft	Nov. 15, 2007	April 12, 2010
Ship Auxiliary Engine Cold Ironing and Clean Technology	Dec. 6, 2007	Aug. 2, 2010
Consumer Products Program -- 2008 Amendment -- 2009 Amendment	June 26, 2008 Sept. 24, 2009	Feb. 16, 2010 Jan. 28, 2011
Additional Evaporative Emission Standards	Sept. 25, 2008	May 2, 2011
Portable Outboard Marine Tanks	Sept. 25, 2008	May 2, 2011
Smog Check Improvements	Aug. 31, 2009	Oct. 28, 2009
Pesticides Element	Oct. 12, 2009	Aug. 2, 2011
Cleaner In-Use Heavy-Duty Trucks	Dec. 16, 2010	Sept. 21, 2011
Cleaner In-Use Off-Road Equipment	Dec. 17, 2010	Sept. 21, 2011
Port Truck Modernization	Dec. 17, 2010	Sept. 21, 2011
Cleaner Main Ship Engines and Fuel for Ocean-Going Vessels	June 23, 2011	Sept. 21, 2011

Air Resources Board SIP Control Measures (1994-2006)

Air Resources Board Action	Date
In-Use Diesel Agricultural Engine Requirements	2006
Consumer Product Lower Emission Limits	2006
Zero Emission Bus Rule Amendments	2006
Off-Highway Recreational Vehicle Regulation Amendments	2006
Forklifts and Other Spark- Ignition Equipment Regulation	2006
Border Truck Inspection Program Protocol Improvements	2006
Ship Auxiliary Engine Cleaner Fuel Requirements	2005
Diesel Cargo Handling Equipment Rule	2005
Public and Utility Diesel Truck Fleet Rule	2005
Heavy-Duty Sleeper Truck Idling Limits	2005
Portable Fuel Container Requirements	2005
Transit Bus Rule Additions	2004
Off-Road Diesel Engine Tier 4 Standards	2004
Harbor Craft and Locomotive Clean Diesel Fuel Requirement	2004
Idling Limits for Trucks	2004
Consumer Products Rule	2004
Chip Reflash to Detect Truck Emission Control System Failure	2004
Transportation Refrigeration Unit Rule	2004
Portable Diesel Engine Emission Standards	2004
Stationary Diesel Engine Regulation	2004
Solid Waste Collection Vehicle Regulation	2003
Lawn and Garden Equipment Emission Standards	2003
Low Sulfur Diesel Fuel Regulation	2003
California ZEV Requirement Update	2003
Heavy-Duty Gas Truck Emission Standards	2002
Heavy-Duty Diesel Truck Emission Standards	2001
Inboard and Sterndrive Marine Engine Emission Standards	2001
Architectural Coatings Suggested Control Measure	2000
Urban Transit Bus Fleet Rule	2000
Off-Road Diesel Equipment Emission Standards	2000
Reformulated Gas MTBE Phase Out	1999
Consumer Product Emission Limits	1999
Portable Fuel Can Regulation	1999
Marine Pleasurecraft Emission Standards	1998
Low-Emission Vehicle Program (LEV II) Exhaust Standards	1998
Large Off-Road Gas/LPG Engine Emission Standards	1998
Cleaner Burning Gasoline Rule Improvements	1998
On-Road Heavy-Duty Truck Exhaust Emission Standards	1998
Light-Duty Vehicle Off-Cycle Emission Controls	1997
Consumer Product Emission Limits	1997
Locomotive Memorandum of Agreement for the South Coast	1997
Medium- and Heavy-Duty Gas Truck Emission Standards	1995

**Air Resources Board SIP Control Measures (1994-2006)
(Continued)**

Air Resources Board Action	Date
Aerosol Coatings Regulation	1995
Large Off-Road Diesel Statement of Principles	1996
Medium- and Heavy-Duty Gasoline Trucks	1995
Off-Road Recreational Vehicles Regulation	1994

Federal Emission Control Measures

Nationwide EPA regulations for source categories for which EPA has exclusive authority:

Non-Road Diesel Engine Emission Standards
Locomotives and Marine Compression-Ignition Engines

Nationwide EPA regulations for source categories for which ARB has more stringent control requirements:

Tier 2 Emission Standards for On-Road Motor Vehicles and Gasoline Sulfur Content Standards
Heavy-Duty Diesel Emission Standards and Diesel Fuel Sulfur Content Standards
Onboard Refueling Vapor Recovery
Consumer Solvent Products

Nationwide EPA regulations for source categories for which the District has more stringent control requirements:

Architectural and Industrial Maintenance Coatings
Automobile Refinish Coatings