AVAQMD
2004 Ozone Attainment Plan
(State and Federal)

April 20, 2004

Antelope Valley Air Quality Management District
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Abbreviations and Acronyms

AQMA .....Air Quality Management Area
AQMP .....Air Quality Management Plan
AVAPCD .....Antelope Valley Air Pollution Control District
AVAQMD.....Antelope Valley Air Quality Management District
CAAQS .....California Ambient Air Quality Standard
CALGRID.....California Photochemical Grid Model
CARB.....California Air Resources Board
CCAA .....California Clean Air Act
CO .....Carbon Monoxide
ERC.....Emission Reduction Credit
FCAA.....Federal Clean Air Act
FMVCP .....Federal Motor Vehicle Control Program
MPR .....Model Performance Ratio
NAAQS.....National Ambient Air Quality Standard
NO_X.....Oxides of Nitrogen
NSR.....New Source Review
O_3..... Ozone
RACT.....Reasonably Available Control Technology
ROG .....Reactive Organic Gases
ROP.....Rate of Progress
RRR.....Relative Reduction Ratio
SCAB .....South Coast Air Basin
SCAG.....Southern California Association of Governments
SCAQMD .....South Coast Air Quality Management District
SCAQS87.....1987 Southern California Air Quality Study
SCOS97.....1997 Southern California Ozone Study
SDAQMA .....Southeast Desert Modified Air Quality Management Area
tposd.....Tons per Ozone Seasonal Day
UAM .....Urban Airshed Model
USEPA.....United States Environmental Protection Agency
VOC .....Volatile Organic Compounds

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Executive Summary

The United States Environmental Protection Agency (USEPA) designated the Southeast Desert Modified Air Quality Management Area (Southeast Desert Modified AQMA) as non-attainment for ozone National Ambient Air Quality Standards (NAAQS) pursuant to the provisions of the Federal Clean Air Act (FCAA). The Antelope Valley is included in the Southeast Desert Modified AQMA. The California Air Resources Board has also designated the Antelope Valley non-attainment for ozone California Ambient Air Quality Standards (CAAQS) pursuant to the provisions of the California Clean Air Act (CCAA). The South Coast Air Quality Management District (SCAQMD) adopted attainment plans for the Antelope Valley when the region was under its jurisdiction. The most recent such plan that was approved by USEPA is the 1994 version of the SCAQMD Air Quality Management Plan (AQMP).

The Antelope Valley Air Quality Management District now has jurisdiction over the Antelope Valley. The AVAQMD has reviewed and updated all elements of the ozone plan. The Antelope Valley will be in attainment of the NAAQS for ozone by the required year, 2007. The Antelope Valley will also show significant progress towards attainment of the CAAQS for ozone standard by that year.

This document includes the latest planning assumptions regarding population, vehicle activity and industrial activity. This document addresses all existing and forecast ozone precursor-producing activities within the Antelope Valley through the year 2007. This document includes all necessary information to allow general and transportation conformity findings to be made within the Antelope Valley.

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CHAPTER 1 - Introduction and Background

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INTRODUCTION

Purpose

The Southeast Desert Modified AQMA (as defined in 40 CFR 81.167) has been designated non-attainment for the NAAQS for ozone by USEPA (40 CFR 81.305) and the Antelope Valley has been designated non-attainment for the CAAQS for ozone by CARB (17 Cal. Code Reg. §60201). The Antelope Valley Air Quality Management District (AVAQMD) has experienced ambient ozone concentrations in excess of the one-hour ozone NAAQS and the ozone CAAQS. This document: (1) demonstrates that the AVAQMD will meet the primary required federal ozone planning milestones, attainment of the ozone NAAQS by the end of 2007; (2) presents the progress the AVAQMD will make towards meeting all required state ozone planning milestones, including attainment of the ozone CAAQS; and (3) discusses the 8 hour ozone NAAQS, preparatory to an expected non-attainment designation for the new NAAQS. This document satisfies 42 U.S.C. §§7410, 7502, 7504 and 7511a (FCAA §§110, 172, 174, and 182) regarding implementation plans, non-attainment plan provisions, planning procedures, and ozone plan submissions and requirements for the one-hour NAAQS. This document also satisfies or addresses Health & Safety Code (H&SC) §§40911, 40912, 40913, 40914, 40915, 40918, 40924, and 40925 regarding ozone attainment plans and plan elements.

BACKGROUND

Regulatory History

The USEPA classified the desert portion of Los Angeles County as Severe-17 for ozone as part of the Southeast Desert Modified AQMA. This large "maintenance area" was classified based on a 0.24 ppm ozone design value calculated from pre-1990 concentrations in Banning. The Severe-17 classification requires attainment of the one-hour ozone NAAQS by the end of 2007, 17 years after the adoption of the FCAA Amendments in 1990.

The desert portion of Los Angeles County was established as it's own air district as of July 1, 1997, the Antelope Valley Air Pollution Control District (AVAPCD), pursuant to former H&SC §40106 (Statutes 1996 ch 542, Repealed Statutes 2001 ch. 163). This air district was replaced by the AVAQMD on January 1, 2002, pursuant to H&SC §41300 et seq (Statutes 2001 ch. 163). As a successor district to SCAQMD, the AVAQMD assumes the authorities and duties of the SCAQMD for the Antelope Valley (H&SC §41302).

The SCAQMD addressed the desert portion of Los Angeles County in the 1991 AQMP, the 1994 AQMP, and the 1997 AQMP. The 1994 AQMP is the most recent ozone attainment plan for the desert portion of Los Angeles County that has been approved by USEPA. The USEPA has approved a revision to the 1997 AQMP that was adopted after the formation of the AVAPCD. The AVAQMD will address that approved plan in this document, but this document replaces all previously submitted plans.

Regional Ozone Planning Chronology

November, 1990 - Adoption of Federal Clean Air Act Amendments
September 9, 1994 – SCAQMD adopts 1994 AQMP
November 15, 1994 – SCAMQD submits 1994 AQMP to CARB
July 10, 1996 – CARB submits 1994 to USEPA
November 15, 1996 – SCAQMD adopts 1997 AQMP
January 8, 1997 – USEPA approves 1994 AQMP into State Implementation Plan (63 FR 1150)
February 5, 1997 – CARB submits 1997 AQMP to USEPA
July 1, 1997 – AVAPCD is formed
April 21, 1998 – USEPA approves CO portion of 1997 AQMP for SCAB (63 FR 19661)
July 24, 1998 – USEPA approves NO_2 portion of 1997 AQMP for SCAB (63 FR 39747)
January 12, 1999 – USEPA proposed limited approval/disapproval for remainder of 1997 AQMP, approving emission inventories but disapproving attainment demonstration, reasonable further progress, milestones and proposed control measures (64 FR 1770)
December 10, 1999 – SCAQMD adopts update to 1997 AQMP that fixes problems identified in January 12, 1999 USEPA action
February 4, 2000 – CARB submits revised 1997 AQMP to USEPA
April 10, 2000 – USEPA approves 1997 AQMP
January 1, 2002 – AVAPCD changed to AVAQMD

Statement of Issues

The Antelope Valley is downwind of the Los Angeles basin, and to a lesser extent, is downwind of the San Joaquin Valley. Prevailing winds transport ozone and ozone precursors from both regions into and through the Antelope Valley during the summer ozone season. These transport couplings have been officially recognized by CARB.[1] Local Antelope Valley emissions contribute to exceedances of both the NAAQS and CAAQS for ozone, but the Antelope Valley would be in attainment of both standards without the influence of this transported air pollution from upwind regions.

Federal Legal Requirements

The AVAQMD must adopt a plan that provides for the implementation, maintenance and enforcement of the NAAQS within three years after promulgation of the NAAQS. The plan is to include enforceable emission limitations, provide for a monitoring program, provide for a permit program (including a new source review program), contingency measures, and air quality modeling (42 U.S.C. §7410(a); FCAA §110(a)). The SCAQMD met this requirement with their 1991 Air Quality Management Plan and its 1994 update. This document represents an update to the Antelope Valley portion of that plan. The AVAQMD has adopted enforceable emission limitations, has a monitoring program in place (at Lancaster), maintains a permit program (including a New Source Review program with an ambient air quality modeling requirement), and has performed an attainment demonstration using air quality modeling. This document does

[1] "Ozone Transport: 2001 Review," April 2001, CARB identifies the South Coast Air Basin as having an overwhelming and significant impact on the Mojave Desert Air Basin (which includes the Antelope Valley) and the San Joaquin Valley as having an overwhelming impact on the MDAB.

not include any contingency measures, as any such contingent reductions must occur in the upwind areas that are responsible for the Antelope Valley's ozone NAAQS exceedances.

This document incorporates all reasonably available control measures (all such measures have already been adopted for the Antelope Valley). This document includes a comprehensive, accurate and current inventory of actual emissions (42 U.S.C. §7502(c)(3), 7511a(a)(1); FCAA §§172(c)(3), 182(a)(1)).

This document discusses reasonable further progress (42 U.S.C. §§7502(c)(2), 7511a(b)(1); FCAA §§172(c)(2), 182(b)(1)) for the applicable periodic milestone dates (2002, 2005 and 2007) (42 U.S.C. §7511a(g); FCAA §182(g)). The Antelope Valley is not capable of meeting the reasonable further progress milestones on its own; the target levels would require reductions in source categories that are not under the jurisdiction of the AVAQMD (specifically mobile sources).

This document has been coordinated with the transportation planning process (42 U.S.C. §7504; FCAA §174). The document includes an on-road mobile source emission budget for the Antelope Valley, and also includes the on-road mobile source emission budget for the entire Southeast Desert Modified AQMA as an appendix.

This document updates the Antelope Valley emissions inventory (42 U.S.C. 7511a(a)(1); FCAA §182(a)(1)). The SCAQMD met the original inventory requirement with their 1991 Air Quality Management Plan and subsequent updates.

The AVAQMD has an enhanced non-attainment pollutant monitoring program, requires reasonably available control technology, has an enhanced vehicle inspection and maintenance program, a De Minimis rule, and a gasoline vapor recovery rule. The District participates in the state's Clean-Fuel Vehicle Program, and performs periodic transportation activity consistency demonstrations in conjunction with the Southern California Association of Governments (including a review of vehicle miles traveled growth). The AVAQMD controls oxides of nitrogen (NO_x) in addition to Volatile Organic Compounds (VOC), and is addressing both pollutants in this document. The AVAQMD new source review program defines sources emitting 25 tons per year or more as major and requires offsets at a 1.3 to 1 ratio (42 U.S.C. §§7511a(d), 7511a(d)(2); FCAA §§182(d) 182(d)(2)). Employer trip rules (42 U.S.C. §7511a(d)(1); FCAA §182(d)(1)) have been shown to be not cost-effective for the AVAQMD due to low population density.

State Legal Requirements

H&SC §40911 requires each district that is a receptor of transported air pollutants to prepare and submit a plan to CARB not later than June 30, 1991. SCAQMD met this requirement for the Antelope Valley with their 1991 Air Quality Management Plan submission. This document is a revision to that plan and its subsequent revisions.

H&SC §40912 requires a downwind district plan to contain sufficient measures to reduce emissions originating in the district below the level at which violations of the CAAQS would

occur in the absence of the transported contribution. This document addresses this requirement to the extent possible.

This document achieves and maintains the CAAQS by the earliest possible date considering concentrations, violations, transport, emission projections, emission inventories, control measures, emission reductions, military base closures, and cost effectiveness (H&SC §40913).

H&SC §40914 requires specific annual ozone precursor emission reductions relative to 1990 (five percent per year or as otherwise approved), and the adoption of all feasible measures. This document addresses this requirement, but it is not feasible to achieve the reduction specified without reducing sources not under the jurisdiction of the AVAQMD. The AVAQMD has adopted and will adopt all feasible control measures.

H&SC §40915 requires that the plan include contingency measures for use in case of inadequate progress towards attainment. The AVAQMD has adopted all feasible measures; any contingent reductions must be obtained either upwind or from sources not under the AVAQMD's control (mobile sources).

The AVAQMD has a New Source Review program, has implemented Reasonably Available Control Technology on all sources, has an emissions inventory system, and has a public education program (H&SC §40918). Reasonably available transportation control measures, area-wide and indirect source control programs have been shown not to be cost-effective within the AVAQMD due to insufficient population density.

This document includes the required assessment of progress towards attainment of the CAAQS, addressing concentrations, emissions and control measures (H&SC §40924). This document updates previously submitted plans and summaries of progress.

This document corrects deficiencies, updates planning assumptions and addresses emissions reductions and growth since previous plan submissions (H&SC §40925). This document updates previous plan submissions by SCAQMD.

Pollutant Description and Health Effects

Ozone (O_3)- A colorless gas that is a highly reactive form of oxygen. It has a strong odor when highly concentrated. Ozone can occur naturally but can also be formed from other compounds through photochemistry, a complex system of reactions with hydrocarbons and oxides of nitrogen in the presence of sunlight (ultraviolet). The Antelope Valley experiences ozone concentrations in excess of the state and federal ambient air quality standards.

Ozone can cause respiratory irritation and discomfort, making breathing more difficult during exercise. Ozone can reduce the respiratory system's ability to remove inhaled particles, increase pulse rate, decrease blood pressure and reduce the body's ability to fight infection. After six hours of exposure a healthy person can have significant reduction of lung function. It is an irritant towards the skin, eyes, upper respiratory system, and mucous membranes, although symptoms disappear after exposure. It may also be a carcinogen.

Setting

The Antelope Valley is the desert portion of Los Angeles County. This region has been designated non-attainment for the one-hour ozone NAAQS by USEPA as a portion of the Southeast Desert Modified AQMA, based on a 240 part per billion (ppb) ozone design value monitored at Banning, California in Riverside County (40 CFR 81.305). The Southeast Desert Modified AQMA was defined using the Los Angeles-Anaheim-Riverside Consolidated Metropolitan Statistical Area, and includes a portion of the counties of Riverside and San Bernardino (40 CFR 81.167). The 240 ppb ozone design value classifies the area as a Severe-17 non-attainment area with 2007 as the required attainment year (42 U.S.C. 7511(a)(2); FCAA §181(a)(2)). The Antelope Valley's classification within the State system is less clear. This document has been prepared with the assumption that the region should be classified as moderate ozone non-attainment within the State of California's classification system.

The Antelope Valley covers 1300 square miles and included 219,628 persons as of the 1990 census (approximately 400,000 in 2002), centered within the cities of Lancaster and Palmdale. The region is characterized by a wide, arid valley little precipitation. Air Force Plant 42 and a portion of Edwards Air Force Base are located in the area.

The primary roadways in the Antelope Valley are State Route 14 and State Route 18. Both of these arterials carry a substantial amount of daily commute traffic from the region into the Greater Los Angeles Basin.

The Antelope Valley is primarily a bedroom community, but does have significant aerospace development and manufacturing on Plant 42 (Boeing, Lockheed Martin and Northrop Grumman all lease facilities on the base from the Air Force).

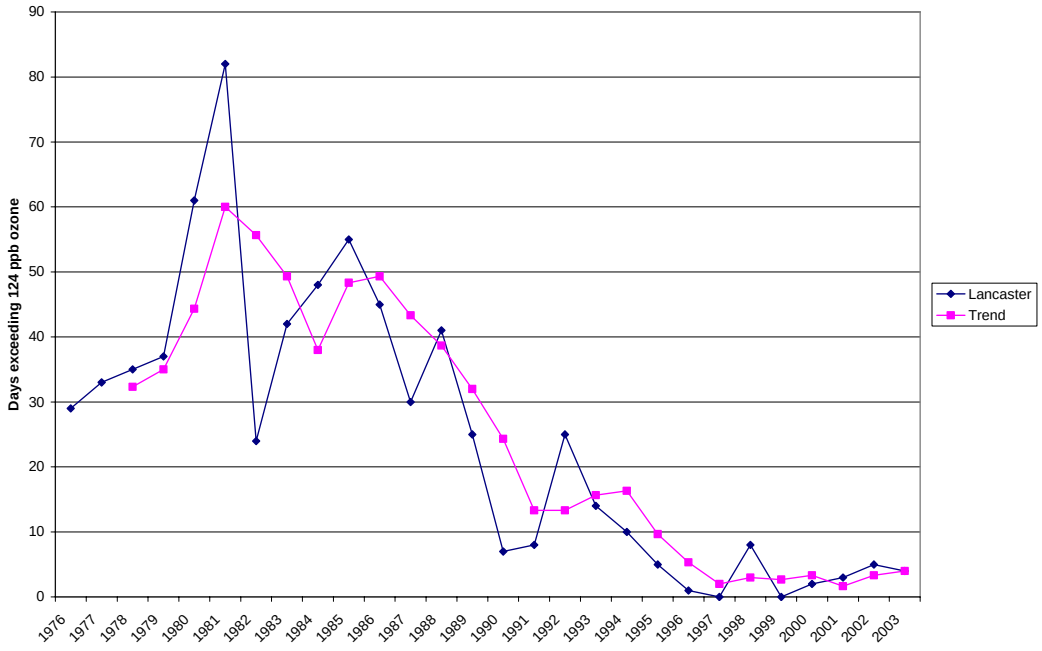
Ozone Trend

The Antelope Valley has experienced a substantial reduction in the number of days when ozone exceeds the one-hour ozone NAAQS, as displayed in Figure 1(the superimposed line is the three-year average trend line). The region has also experienced improvement in the number of days when ozone exceeds the ozone CAAQS, as shown in Figure 2 (the superimposed line is the three-year average trend). Note the significant change from 1998 to 1999 - 1998 was a hot year, and 1999 a cool year.

The Antelope Valley has also experienced a marked reduction in ozone exposure as measured by the State of California's preferred indicators, population- and area-weighted exposure hours (reductions of 91 and 89 percent, respectively, relative to 1988). All supporting data is presented in Appendix D.

Figure 1 - Federal One-Hour Ozone Exceedance Day Trend

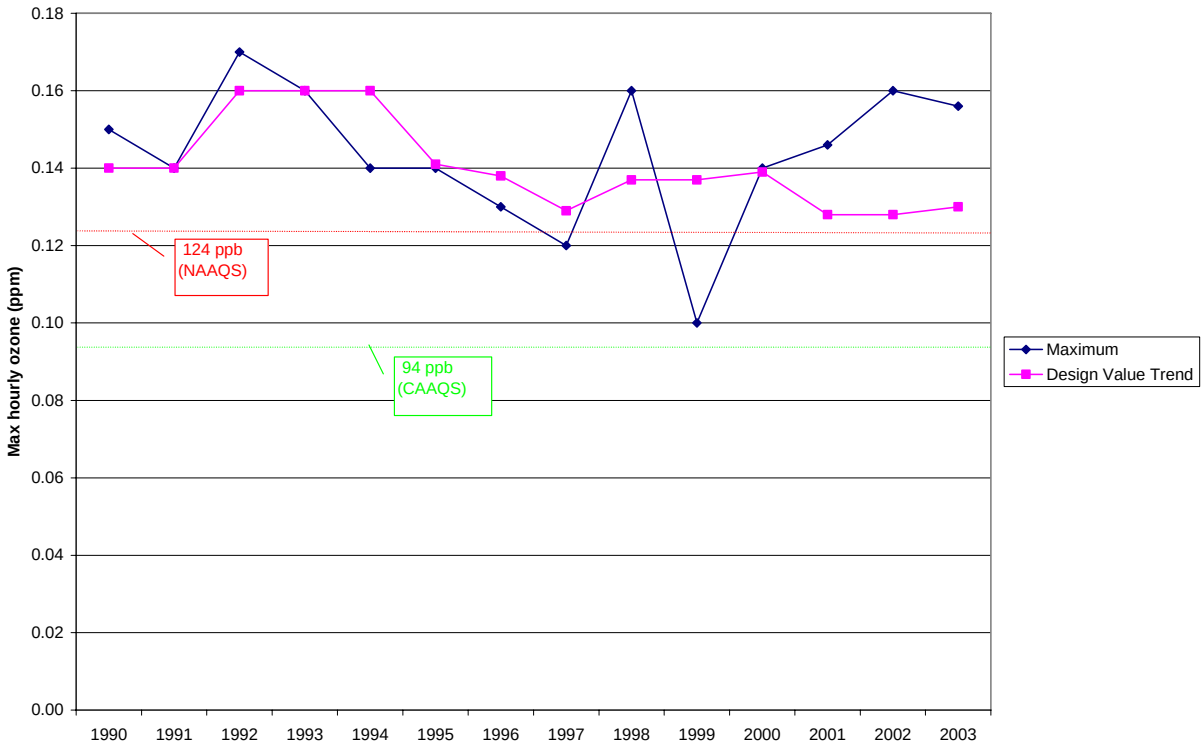
Figure 2 - State Ozone Exceedance Day Trend



The Antelope Valley has experienced a small improvement in its maximum ozone concentration, particularly when calculated on a NAAQS/CAAQS basis (taking the fourth highest from each

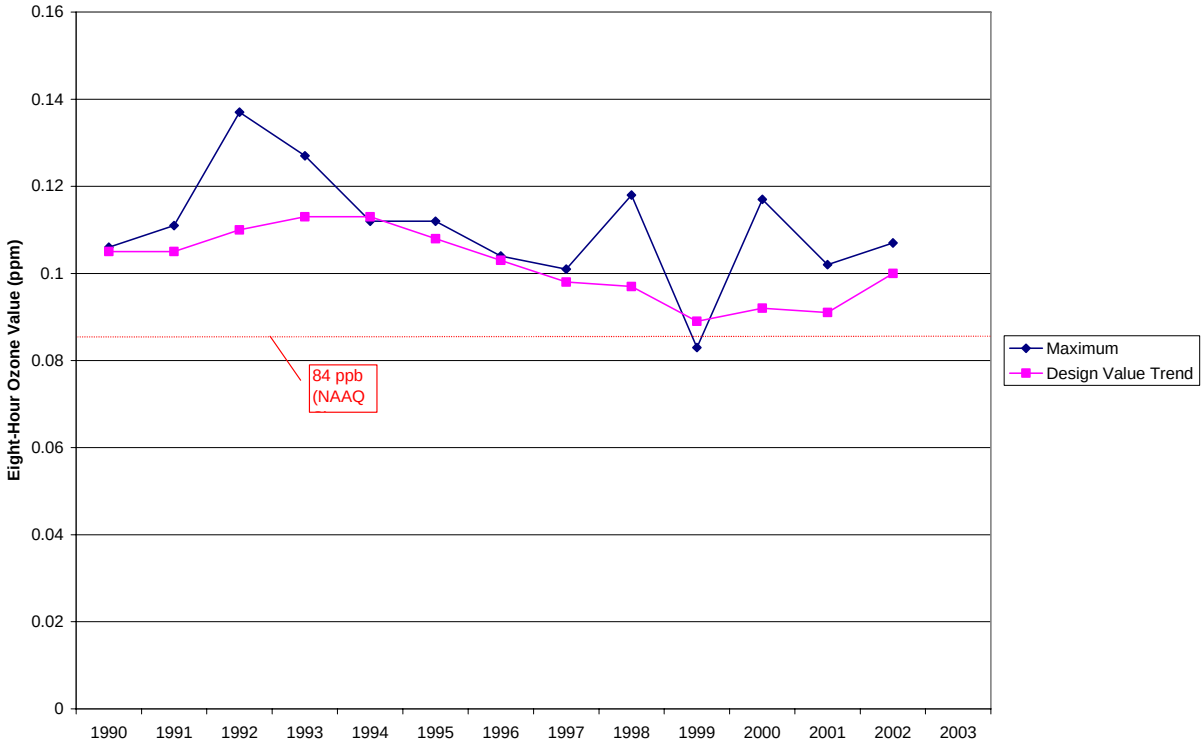
three years) - see Figure 3. The superimposed line is the fourth highest of three years trend. Figure 3 also includes lines representing the NAAQS level and the CAAQS level. As is shown in the figure, the AVAQMD is approaching attainment of the one-hour NAAQS.

Figure 3 - Maximum One-Hour Ozone Concentration Trend



No designations have yet been made for the recently promulgated eight-hour ozone NAAQS. The AVAQMD expects to be designated non-attainment for this standard based on ambient concentrations, presented in Figure 4. Progress towards attainment of the one-hour ozone standards also represents progress towards attainment of the eight-hour standard.

Figure 4 - Maximum Eight-Hour Ozone Concentration Trend



CHAPTER 2 – Emission Inventories

General
Modeled Emission Inventory
Base Year
Future Years

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General

Ozone planning requirements call for the use of seasonal inventories representing emissions during a typical summer day (since ozone concentrations are typically highest under summer weather conditions). This document includes ozone seasonal day inventories, in units of tons per ozone seasonal day (or tons per os day, or tposd), unless otherwise indicated. All emissions presented in this document have been adjusted or calculated in terms of ozone seasonal day emissions with the exception of stationary point source emissions, which have been calculated from annual emissions (and when presented on a daily basis are in annual average day units). Stationary points source emissions do not typically exhibit the kind of seasonal variation commonly associated with heating, travel and evaporative-based activities and emissions. Accordingly, the District finds that this assumption is reasonable and will have a negligible impact, if any, on the attainment demonstration.

Federal ozone planning requirements call for emissions in terms of Volatile Organic Compounds (VOC), while State ozone planning requirements call for emissions in terms of Reactive Organic Gases (ROG). Due to changes in each definition, there is no effective difference between the two terms (for example, ethane is now excluded from both definitions). For purposes of this document and attainment planning, the District considers these terms interchangeable.

Modeled Emission Inventory

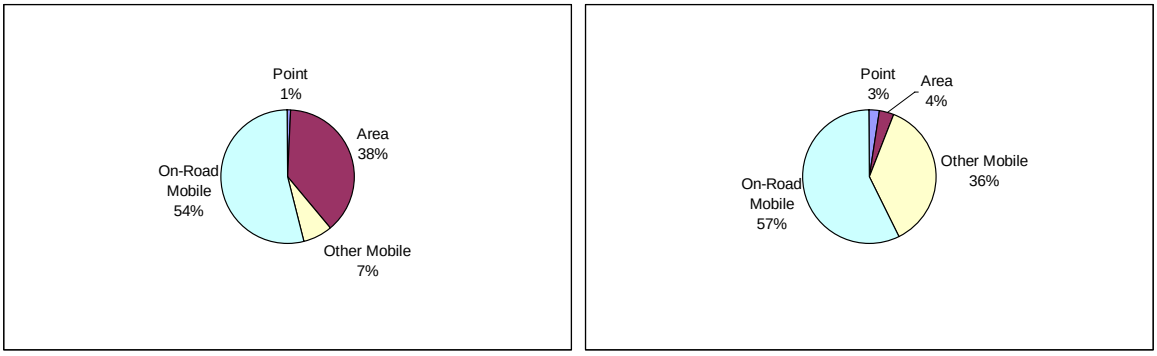
Complete documentation of the emission inventory used in the modeled attainment demonstration, and the planning inventory for all milestone years, is available at the following web address (contact Martin Johnson at mjohnson@arb.ca.gov or (916) 323-3567 if you have questions pertaining to this website):

http://www.arb.ca.gov/app/emsinv/scos/index.php

Base Year Emission Inventory

The initial federal base year emission inventory was 1990. USEPA has since required that 2002 be used as the base year. 1990 is still used for reasonable further progress requirements. This document includes an updated 1990 inventory and a 2002 inventory. 2002 is used as the base year inventory for all growth scenarios in this document. The base year emission inventory is presented in Appendix A; a summary is presented in Table 1 below. Figure 5 presents the current 1990 base year VOC and NO_x inventory in basic pie chart format (VOC on the left, NO_x on the right). On-road mobile sources were the primary emitters in the Antelope Valley in 1990.

Figure 5 - 1990 Base Year Pie Charts



The primary revision to the 1990 base year involves changes to the on-road mobile source emissions inventory - this document includes on-road mobile source emissions calculated using EMFAC2002 version 2.2 with April 2003 activity and other SCAG inputs.[2] This represents the latest planning assumptions available to the AVAQMD.

Table 1 and Figure 6 compare the 1990 base year as presented in the 1994 AQMP with the current version. Point source data has been improved, reducing the 1990 contribution. Area source and mobile source emissions calculations have been substantially changed and improved, resulting in significant increase for area NO_x and all mobile source emissions. In addition, the base year inventories in the 1994 AQMP did not adequately reflect aircraft emissions within the Antelope Valley - this document addresses aircraft emissions, including military, commercial and general aviation.

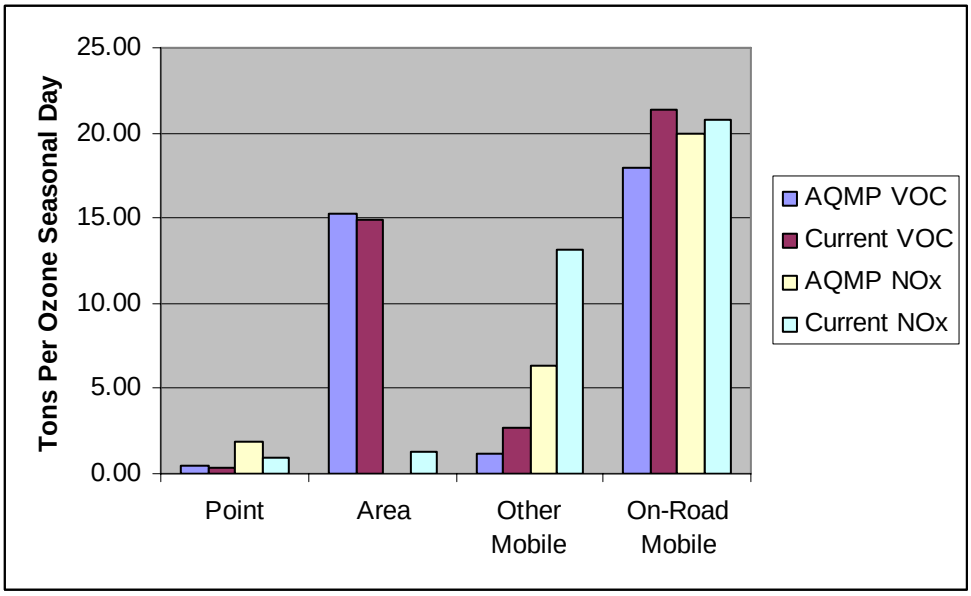
Table 1 - 1990 Base Year Comparison Data

1990 Base Year - 1994 AQMP versus Current (tposd)

	AQMP VOC	Current VOC	AQMP NOx	Current NOx
Point	0.42	0.34	1.92	0.92
Area	15.28	14.93	0.02	1.29
Other Mobile	1.19	2.73	6.28	13.13
On-Road Mobile	18.00	21.38	19.90	20.72
Totals:	*34.89*	*39.38*	*28.12*	*36.06*

[2] "Request #441 - Southeast Desert Modified AQMA Ozone SIP Motor Vehicle Inventory," CARB November 5, 2003

Figure 6 - Comparison of AQMP 1990 with Current 1990



Future Year Emission Inventories

Future year or forecasted emission inventories are estimated by multiplying a base year value for each category by a 'growth code' for a given future year. The 'growth code' is indexed to the base year (2002 for this document), so that its value for the base year is 1.00. This allows the growth code to estimate future activity in terms of emissions; if the growth code for the year 2007 is 1.50, activity in that category (and resulting emissions) is expected to be 50 percent greater than in 2002. The AVAQMD uses the growth codes approved by CARB for such purposes. The growth codes used to forecast point sources are presented in Appendix B. Forecasted VOC and NO_x inventory summaries for each year of interest are presented in Figures 7 and 8 respectively (the 1990 base year is included in each figure for reference). Future year emission inventories are presented for 2005 and 2007 in Appendix B.

In addition to grown emissions, the future year inventories include the AVAQMD Emission Reduction Credit (ERC) bank as emissions, using the total ERCs in the bank as of February 2004. The District is including ERCs as a separate line item in future years to ensure that credited reductions are not perceived as permanent reductions; in a real sense the ERC bank represents actual historic emissions. For example, the actual reduction in aerospace emissions from 1990 to 2002 is partially balanced by the creation of ERCs. Every ERC is represented in either the AVAQMD 1990 baseline or the upwind SCAQMD 1990 baseline as actual emissions.

The future year inventories also include an estimated New Source Review (NSR) growth allowance, to specifically account for emissions growth in sources below the federal NSR offset threshold of 25 tons. This NSR growth allowance is equivalent to adding 10 additional tons per year of growth (for both NO_x and VOC) each year, and is conservatively estimated using the

District's actual history of NSR activity. All pre-2003 NSR growth is reflected with actual stationary point source emissions in 2002. The NSR growth allowance is internally offset through the 1.3:1 mandatory offset ratio for sources above the 25 ton offset threshold. The District NSR program (Regulation XIII) was last federally approved at 40 CFR 52.220(x)(240)(i)(A)(1) (61 FR 64291). The current version of Regulation XIII is SIP pending, having been submitted on 10/30/2001 after full public, CARB and USEPA review (all comments were addressed prior to adoption and submission).

Figure 7 - Forecasted VOC Emission Inventories

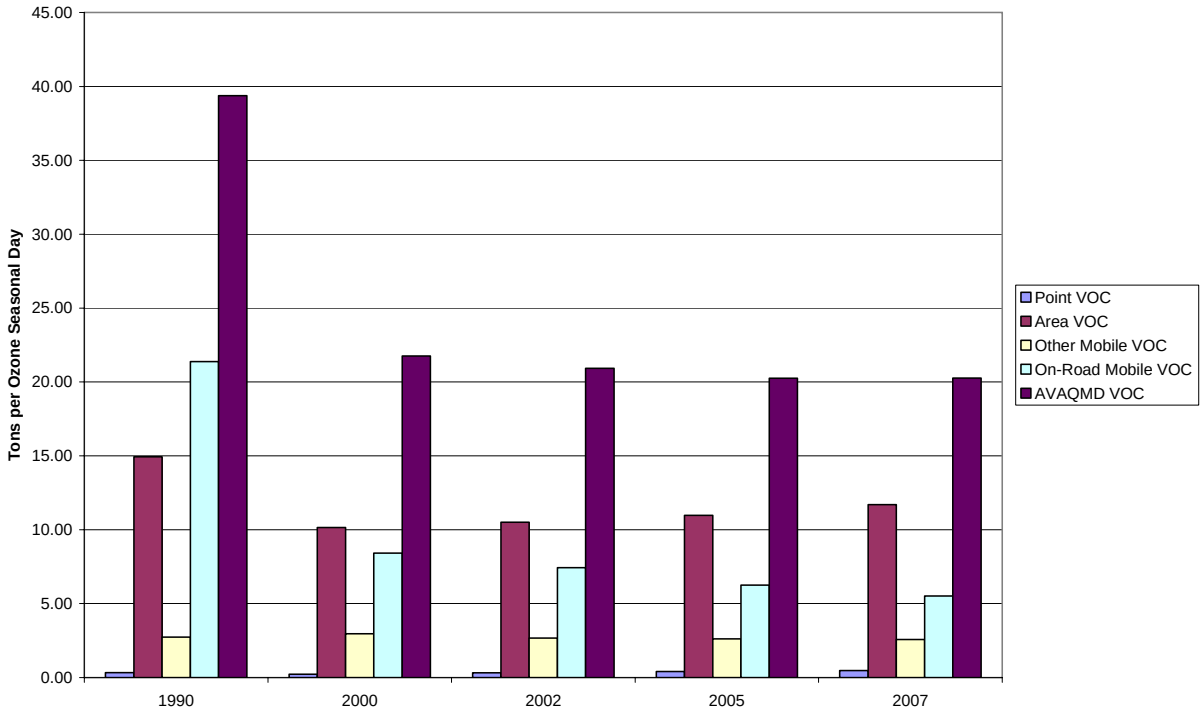
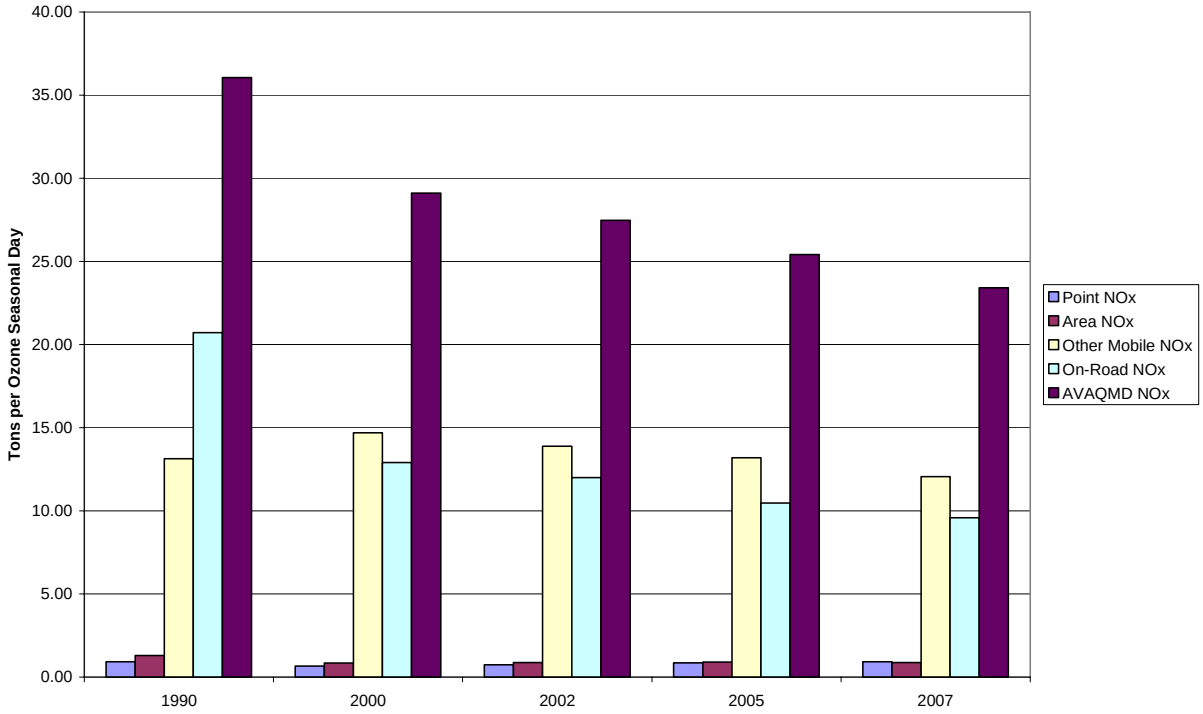


Figure 8 - Forecasted NO_x Emission Inventories



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CHAPTER 3 – Control and Contingency Measures

Existing Control Measures
Proposed Control Measures (All Feasible Measures)
Rule Adoption Schedule
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Required Progress
Controlled Emission Inventories
Conformity Budgets
Air Force Plant 42 Emissions Budget

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Existing Control Measures

The complete SCAQMD set of rules and regulations as of July 1, 1997 remained in effect pursuant to statute within the Antelope Valley upon formation of the AVAPCD until the AVAPCD Governing Board amended or repealed the rules (former H&SC §40106). Between July 1, 1997 and January 1, 2002 the Governing Board of the AVAPCD amended and rescinded some of these rules on a rule-by-rule basis. These amendments and recessions were primarily housekeeping matters removing references and rules for which no sources existed as well as removing certain rules for which the AVAPCD had no underlying statutory authority. On January 1, 2002 the AVAPCD rules as of that date became the AVAQMD rules (H&SC §413020). The current AVAQMD rulebook, especially the prohibitory rules, remains the same as the SCAQMD rules as of July 1, 1997. This set of rules and regulations represented the best available and most restrictive set of stationary source control measures available. The SCAQMD 1994 AQMP did not contain any additional or proposed control measures for the Antelope Valley. The AVAQMD has in place Reasonably Available Control Technology requirements for all applicable sources (including gasoline dispensing vapor control), as well as a New Source Review program with a 25 ton per year major source offset threshold level and a 1.3:1 offset ratio requirement.

Proposed Control Measures (All Feasible Measures)

The AVAQMD is not proposing to adopt any additional control measures. The Antelope Valley has in place all applicable RACT rules, and is achieving the CAAQS and NAAQS by the earliest practicable date not as a result of local reductions, but as a result of reductions occurring upwind. The AVAQMD is presently reviewing the all feasible measures list, and will develop a list of necessary rule actions (if any).

The Antelope Valley will experience additional future emission reductions resulting from existing and proposed federal and state control measures affecting mobile and area sources (the adopted state motor vehicle program will generate 2.4 tons per day of combined NO_x and VOC emission reductions from 2007 to 2010).

Rule Adoption Schedule

The AVAQMD is not proposing the adoption of any new control measures affecting ozone precursor emissions, so a rule adoption schedule is not presented here.

Contingency Measures

Failure to attain or make appropriate progress in attaining any ozone standard would not be due to local emissions, but would be due to insufficient ozone precursor reductions in the upwind regions (primarily the SCAQMD). California's adopted motor vehicle emission reduction program will continue to reduce emissions in the Antelope Valley and upwind regions beyond 2007, and serves as a contingency measure for this plan.

Required Progress

Both State and Federal law specify that each ozone non-attainment area must demonstrate ongoing emission reductions relative to the base year (1990 for Federal purposes). Federal law requires a three percent (3%) per year reduction in VOC emissions, and does not allow credit to be taken for certain federal motor vehicle control programs (FMVCP). Where both VOC and NO_x emissions have been shown to contribute to high ozone levels, the Clean Air Act allows NO_x emission reductions to be used to augment VOC emission reductions in order to demonstrate reasonable further progress. In the following rate of progress demonstration, the level of NO_x reductions needed to augment the VOC reductions is determined by the ratio of NO_x emissions to VOC emissions in 1990, the base year for federal rate of progress determinations. To meet federal rate of progress requirements, this plan must demonstrate VOC-equivalent reductions of 42 percent in 2005 and 48 percent in 2007, relative to the 1990 base year.

Table 2 demonstrates that the rate of progress projected for the Southeast Desert Modified AQMA meets Federal Clean Air Act requirements. The required rate of progress is met in part by substituting NO_x reductions for VOC reductions at the rate of 1.6 tons of NO_x per ton of VOC shortfall. The Southeast Desert Modified AQMA consists of the Antelope Valley in Los Angeles County, the Mojave and Victor Valley portions of San Bernardino County, and the Coachella Valley portion of Riverside County. The complete rate of progress demonstration calculations for the Southeast Desert Modified AQMA is presented in Appendix E.

Table 2 - Federal Reasonable Further Progress for the SDMAQMA

(all emissions in tons per ozone season day)

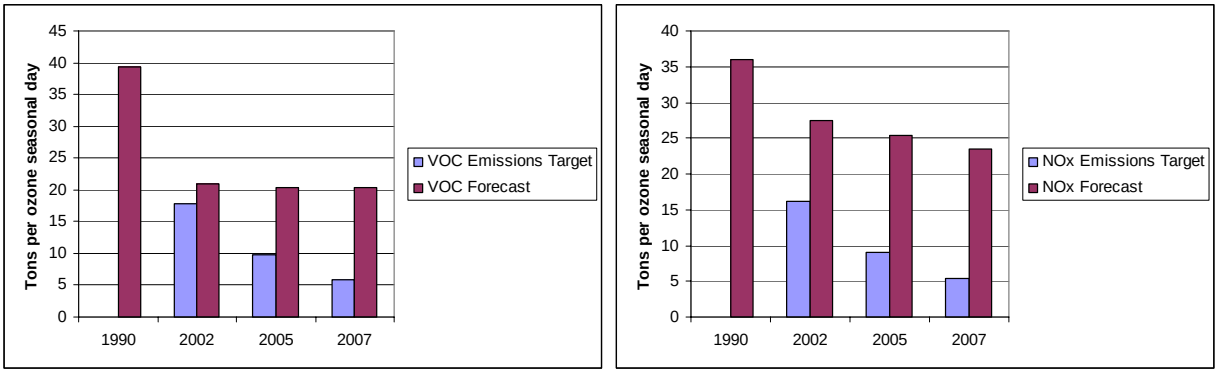
	VOC		NOx	
	2005	**2007**	**2005**	**2007**
1990 Baseline Emissions	136.53	136.53	218.79	218.79
FMVCP Adjustment	-38.30	-38.62	0	0
Adjusted VOC Baseline	98.23	97.91	218.51	218.51
VOC Emission Target	56.97	50.91		
Emissions with Adopted Controls	68.90	66.35	180.35	170.7
VOC Shortfall	11.93	15.44		
NOx Available for Substitution			38.44	48.90
NOx Used for Substitution 2005				
Actual NOx			19.09	
VOC Equivalents	11.93			
Net NOx Available for Substitution 2007				29.00
NOx Used for Substitution 2007				
Actual NOx				24.70
VOC Equivalents		15.44		
Final Progress Shortfall	0	0		

State law requires a five percent per year reduction in ozone precursors, relative to 1990. This equates to a substantial eighty five percent (85%) reduction requirement by 2007. As is shown in Table 3 and Figure 9, the Antelope Valley is not meeting this requirement, although significant reductions have been realized relative to 1990 levels. Meeting these reduction targets would require complete shutdown of all sources under the AVAQMD jurisdiction, and substantial reductions from mobile sources and other sources not under the AVAQMD's jurisdiction, which is not feasible.

Table 3 - State Emissions Target and Forecast Data

	1990	2002	2005	2007
VOC Base Year	39.38			
5% Per Year		0.55	0.75	0.85
VOC Emissions Target		17.72	9.84	5.91
VOC Forecast		20.79	19.85	19.57
NOx Base Year	36.06			
5% Per Year		0.55	0.75	0.85
NOx Emissions Target		16.23	9.01	5.41
NOx Forecast		28.23	26.07	24.58

Figure 9 - State Emissions Targets and Forecasts



Controlled Emission Inventories

As the AVAQMD is not proposing any additional control measures, the controlled emission inventory is identical to the forecasted emission inventory.

Conformity Budgets

The forecasted emission inventories presented in this document are the emission budgets for general conformity purposes, as no additional control measures are proposed. A project subject to the general conformity test must be demonstrated to conform with the applicable portion of the forecasted emission inventory. For a project that falls between forecasted years, a linearly-interpolated inventory may be calculated. For a project that falls after 2007, use 2007.

The forecasted on-road mobile source inventory represents the emission budget for transportation conformity purposes, as no transportation control measures are proposed. A project subject to the transportation conformity test must be demonstrated to conform with the forecasted on-road mobile source inventory. The Antelope Valley on-road mobile source inventory is presented in Table 4 below, in addition to the appendices. The portion presented here is for information only - the AVAQMD is officially adopting the transportation budget for the entire Southeast Desert Modified AQMA as presented in Appendix C.

Table 4 - Transportation Conformity Budget (Antelope Valley Portion)

	1990	2000	2002	2005	2007
(tons per ozone seasonal day)					
On-Road Mobile Source VOC	21.38	8.42	7.44	6.26	5.52
On-Road Mobile Source NOx	20.72	12.90	11.99	10.47	9.58

Air Force Plant 42 Emissions Budget

This document includes emissions from Air Force Plant 42 in the Antelope Valley emissions inventory. Air Force Plant 42 has military and commercial aircraft operations, and private aerospace development/manufacturing activity on leased property. Private activity is accounted for as an element of the point source emissions inventory. Aircraft emissions (and aircraft support equipment) are accounted for as an element of the other mobile source emissions inventory. For emissions budget purposes, the non-private Air Force Plant 42 emissions budget is presented in Table 5 (including military aircraft, commercial aircraft and aircraft ground support equipment).

Table 5 - Air Force Plant 42 Emissions Budget

AFP42 Emissions Budgets

	2002	2005	2007
(Tons per ozone seasonal day)			
CO	1.45	1.62	1.73
NOx	0.67	0.74	0.80
PM10	0.17	0.18	0.20
SOx	0.03	0.03	0.04
VOC	0.66	0.74	0.80
(tons per year)			
CO	529	591	631
NOx	245	270	292
PM10	62	66	73
SOx	11	11	15
VOC	241	270	292

CHAPTER 4 – Attainment Demonstration

Modeling Approach Overview
UAM Overview
Modeling Domain
Model Inputs
Modeling Episodes and Results
SCAQMD Discussion of 2007 Attainment Demonstration Modeling Results

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ATTAINMENT DEMONSTRATION

This chapter paraphrases and reiterates information from the most recent SCAQMD/CARB ozone model runs, the runs performed for the 2003 SCAQMD AQMP. For further information, please refer to Appendix V of that document.[3]

Modeling Approach Overview

The Antelope Valley is a small portion of the complex greater Southern California airshed. The Antelope Valley is also only one section of the larger federal ozone non-attainment area. Ozone and ozone precursors are known to flow (or be transported), under the influence of winds, throughout Southern California. The most technically accurate method of evaluating ozone concentrations, ozone emissions, and future ozone behavior is through a large modeling project that includes all of the affected areas in Southern California (and a portion of northern Mexico). The modeling effort has been performed as a joint project by all of the air districts in the region and CARB, with SCAQMD and CARB staff and resources doing the primary work. This regional modeling effort has allowed the most accurate understanding and prediction of future ozone concentrations for Southern California.

UAM Overview

The Urban Airshed Model (UAM) is the regional modeling system preferred by USEPA and CARB for analyzing ozone non-attainment areas. The UAM predicts future ambient ozone concentrations under historical conditions that led to high ambient ozone concentrations. These conditions are typically multi-day 'episodes' in which the state and federal ozone standards were exceeded. The UAM also evaluates ozone precursor emissions, local and regional meteorology, and regional topography to calculate ozone concentrations. These calculations are preformed on an hourly basis throughout the modeled episode, thus allowing the UAM to stimulate changing conditions (i.e. night, day and wind).

Future years are simulated twice using the UAM: first, using the uncontrolled emissions inventory; and second, using a reduced emissions inventory controlled by the proposed ozone control strategy. Comparing the uncontrolled and controlled ambient ozone concentrations identifies the effectiveness of the proposed ozone control strategy. Attainment year ambient ozone concentrations using the reduced emissions inventory controlled by the proposed ozone control strategy should achieve the state and federal ozone standards.

Modeling Domain

The UAM performed by SCAQMD included the AVAQMD within its model domain. This model domain includes the upwind sources within SCAQMD, which are responsible for the overwhelming ozone transport into the AVAQMD.

[3] "Final 2003 Appendix V - Modeling and Attainment Demonstrations," SCAQMD, August 2003

Model Inputs

SCAQMD performed the UAM attainment demonstration using data maintained by CARB and AVAQMD. The emissions inventory used for the UAM is consistent with the emissions inventory presented in the appendices to this document.

Modeling Episodes and Results

Table 6 presents the two modeling results for the Antelope Valley.

Table 6 - 2007 Federal Ozone Attainment Demonstration

All concentrations are in parts per billion		
Episode Day	**SCAB Max 2007 Ozone**	**Antelope Valley Max 2007 Ozone**
August 27, 1987	115	99
August 28, 1987	138	105
August 5, 1997	145	92
August 6, 1997	151	141 (99)*

The August 6, 1997 ozone concentration in the parentheses is the scaled (corrected) value to adjust for the systematic over-prediction in the base year.

The modeling results show that the Antelope Valley will attain the one-hour ozone NAAQS (124 ppb) in 2007, and will achieve progress in attaining the ozone CAAQS (94 ppb) by that year.

SCAQMD Discussion of 2007 Attainment Demonstration Modeling Results[4]

The SCAQMD 2003 Air Quality Management Plan provides future-year controlled emissions projections of ozone for the South Coast Air Basin and three adjacent downwind air basins: South Central Coast (Ventura County), Mojave Desert (Antelope Valley and Mojave Desert) and the Salton Sea (Coachella Valley). The 2007 ozone projections were simulated using the Urban Airshed Model (UAM). UAM was selected as the primary modeling tool for the 2003 ozone plan. Additional simulations presented in the 2003 AQMP used the California Photochemical Grid Model (CALGRID). The CALGRID simulations were conducted to support the primary UAM simulations. Detailed discussion of the UAM and CALGRID ozone modeling and attainment plans are provided in Appendix V of the 2003 AQMP.

The UAM simulations were conducted for two historical episodes: the August 4-7, 1997 meteorological episode that occurred during the Southern California Ozone Study (SCOS97) and for the August 27-29, 1987 meteorological episode that occurred during the Southern California Air Quality Study (SCAQS87). The 1987 meteorological episode was previously simulated for the 1991, 1994 and 1997 AQMPs. CALGRID was only simulated for the August 4-7, 1997 meteorological episode. The primary days for the two meteorological episodes included August 5th and 6th for the 1997 episodes and August 27th and 28th for the 1987 episode. Of the two

[4] This section has been prepared and provided by the South Coast Air Quality Management District (Joe Cassmassi)

meteorological episodes simulated, the August 4-7, 1997 episode was ranked to be more severe than the 1987 episode and is considered to be near the upper limit of expected ozone impacts.

Table 7, taken from the 2003 AQMP, Appendix V, (Table 3-14), summarizes the UAM simulated 2007 ozone concentrations for the Basin and its neighbors for the 1997 and 1987 meteorological episodes assuming that all identified projected emissions controls are in place. Table 8, taken from the 2003 AQMP, Appendix V, Attachment-7, provides the CALGRID simulated 2007 ozone concentrations for the Basin and its neighbors for the 1997 meteorological episode using the same emissions. As presented in the 2003 AQMP, the UAM simulations for the Basin fail to reach the federal 1-hour ozone standard in 2007. The projected ozone concentrations for Ventura County and Coachella Valley meet the federal standard on all days simulated. The UAM projections for the Antelope Valley and Mojave Desert meet the federal standard on three of the four days with the sole exception of August 6th. The 2007 CALGRID simulations for the August 1997 meteorological episode indicate that all areas with the exception of the Basin will meet the federal standard.

In both tables, a scaled projection of the predicted ozone is presented in brackets for the August 6th simulation. The use of a relative reduction ratio (RRR) is designed to calibrate the prediction based upon the model's ability to recreate ozone concentrations in the Antelope Valley and Mojave Desert in the base-year simulation. As depicted, both the UAM and CALGRID simulations are scaled downwards in concentrations using the RRR methodology.

For the UAM simulation, ozone concentrations in the Antelope Valley were scaled downward (by a 0.70 RRR multiplier) to reflect the 42 percent over prediction that occurred at the Lancaster air monitoring station. Similarly, ozone concentrations in the Mojave Desert portion of San Bernardino County were scaled downward (by a 0.75 RRR multiplier) to reflect the 33 percent average over prediction that occurred at the Hesperia and Victorville air monitoring stations.

For the CALGRID simulation, ozone concentrations in the Antelope Valley were scaled downward (by a 0.59 RRR multiplier) to reflect the 70 percent over prediction that occurred at the Lancaster air monitoring station. Similarly, ozone concentrations in the Mojave Desert portion of San Bernardino County were scaled downward (by a 0.91 RRR multiplier) to reflect the 9 percent average over prediction that occurred at the Hesperia and Victorville air monitoring stations.

Table 7 - UAM Simulated 2007 Maximum Ozone: Controlled Emissions

Episode Day	Basin	Coachella Valley	Antelope Valley	Mojave Desert	Ventura County
August 5, 1997	145	122	92	118	89
August 6, 1997	151	83	141 (99)*	148 (111)*	106
August 27, 1987	115	94	99	115	101
August 28, 1987	138	83	105	119	103

* Concentrations for the high desert inside the brackets is the scaled value to adjust for systematic over prediction in the base year

Table 8 - CALGRID 2007 Projected Maximum 1-Hour Ozone Concentrations (ppb)

Episode Day	Basin	Coachella Valley	Antelope Valley	Mojave Desert	Ventura County
August 5, 1997	135	121	107	105	95
August 6, 1997	123	117	123 (72)*	122(112)*	112

* Concentrations for the high desert inside the brackets is the scaled value to adjust for systematic over prediction in the base year

Table 9 summarizes the base year (1997) UAM and CALGRID model performance ratios (MPR) for the August 5th and 6th meteorological episodes in the Antelope Valley and at an expanded number of monitoring sites in the Mojave Desert. In general, the base-year UAM MPRs for the August 5th episode are within 20 percent of unity and meet EPA's recommended model performance criteria. The UAM MPRs for August 6th demonstrate a consistent pattern of over prediction in the high desert areas. The CALGRID MPRs indicate over prediction at all sites for both episode days. Table 10 provides the corresponding RRRs for each model and meteorological episode at the selected sites. The RRR is calculated as the inverse of the MPR at each site (1/MPR).

Figure 10 depicts the 2007 grid level UAM predicted maximum concentration map for the August 6th meteorological episode. Figure 11 focuses on the UAM peak predicted 1-hour maximum ozone concentrations for each jurisdictional area.

As depicted in Figure 10, a limited ozone impact is predicted near Lancaster, with a local peak concentration of less than 130 ppb. The primary impact to the Antelope Valley (141 ppb) occurs in the southeast most grid of the region, at the county line, in an area adjacent to the bulk of transported smog plume impacting the Mojave Desert. The closest monitoring station to the grid having the predicted peak concentration in the Antelope Valley is Phelan, in the Mojave Desert jurisdiction (see Figure 11). The UAM MPR used to calculate the RRR for the Antelope Valley in the 2003 AQMP was 1.43 based on the Lancaster site. Note that the ratios for Phelan and the multi-site Mojave Desert station average are 1.48 and 1.44, respectively. The consistency between the ratios for Lancaster, Phelan and the multi-site average lends confidence that the RRR for the Antelope Valley is not being dominated by a single "outlier" MPR but is reflecting an overall impact to the high desert.

The Phelan and multi-site MPRs for the Mojave Desert jurisdiction are marginally higher than the Hesperia and Victorville average used to generate the RRR for the 2007 UAM predictions presented in the 2003 AQMP. (The Phelan air monitoring site was located in the grid adjacent to the grid with the maximum predicted Mojave Desert ozone concentration). The two-site average provides a more conservative adjustment for the base-year model over prediction with higher predicted ozone concentrations.

Table 11 summarizes the range of adjustments made to the 2007 UAM ozone model simulations. When adjusted using the RRR methodology, the predicted ozone impacts to both jurisdictions in the high desert are below the federal 1-hour standard (125 ppb).

The CALGRID simulations over predict ozone concentrations in the high desert on both days in the Antelope Valley and to a lesser extent in the Mojave Desert. Despite the base year over prediction, the 2007 CALGRID simulations for the August 5th and 6th meteorological episodes are less than the federal 1-hour ozone standard. The MPRs and corresponding RRRs for the high desert jurisdictions effectively lower the predicted impacts further as shown in Table 11. Regardless, the adjusted and unadjusted CALGRID simulations support the use of the RRR for the UAM simulation and concur with the conclusion that the Antelope Valley and Mojave Desert will be in attainment with the federal 1-hour ozone standard in 2007.

Table 9 - Base Year Model Performance Ratio (MPR): Predicted/Observed 1-Hour Maximum Concentration

Location	UAM		CALGRID	
	August 5, 1997	August 6, 1997	August 5, 1997	August 6, 1997
Antelope Valley				
Lancaster	1.03	1.43	1.50	1.70
Mojave Desert				
Phelan	1.13	1.48	1.44	1.24
Cajon (MDAQMD)	0.96	1.60	1.55	1.24
Cajon (AV)	N/A	1.48	N/A	1.15
Hesperia	1.14	1.36	1.51	1.09
Victorville	0.83	1.29	1.31	1.09
Average of Hesperia and Victorville	0.99	1.33	1.41	1.09
Multi-Site Average (excluding Lancaster)	1.02	1.44	1.45	1.16

Table 10 - Model Simulation Relative Reduction Ratios (RRR): [1/MPR]

Location	UAM		CALGRID	
	August 5, 1997	August 6, 1997	August 5, 1997	August 6, 1997
Antelope Valley				
Lancaster	0.97	0.70	0.67	0.59
Mojave Desert				
Phelan	0.88	0.68	0.69	0.81
Cajon (MDAQMD)	1.04	0.63	0.65	0.81
Cajon (AV)	N/A	0.68	N/A	0.87
Hesperia	0.88	0.74	0.66	0.92
Victorville	1.20	0.78	0.76	0.92
Average of Hesperia and Victorville	1.01	0.75	0.71	0.92
Multi-Site Average (excluding Lancaster)	0.98	0.69	0.69	0.86

Table 11 - Relative Reduction Ratio (RRR) Adjusted 2007 Projected Maximum 1-Hour Ozone Concentrations (ppb)

Scenario	RRR	Antelope Valley	Mojave Desert
UAM Simulation			
August 5, 1997	Lancaster	89	---
	Phelan	81	104
	Hesperia-Victorville	93	119
	5-Site Average	90	116
August 6, 1997	Lancaster	99	---
	Phelan	96	101
	Hesperia-Victorville	106	111
	5-Site Average	97	102
CALGRID Simulation			
August 5, 1997	Lancaster	72	---
	Phelan	74	72
	Hesperia-Victorville	76	75
	5-Site Average	74	72
August 6, 1997	Lancaster	73	---
	Phelan	100	99
	Hesperia-Victorville	113	112
	5-Site Average	106	105

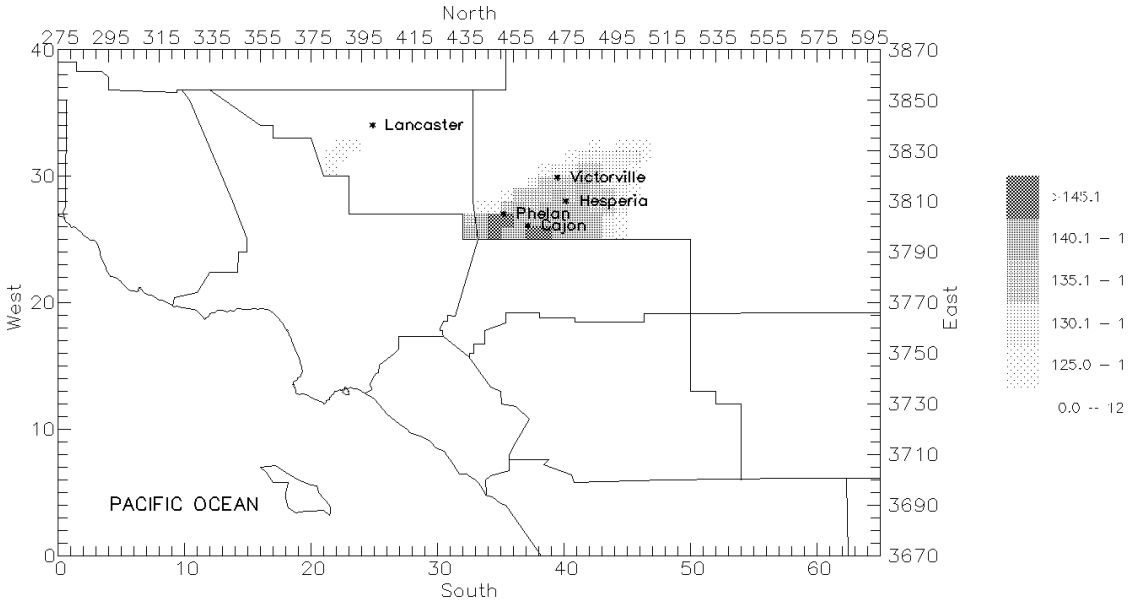

Figure 10 - UAM 2007 simulated ozone concentrations (ppb) for the Antelope Valley and Mojave Desert portion San Bernardino County for the August 6, 1997 meteorological episode

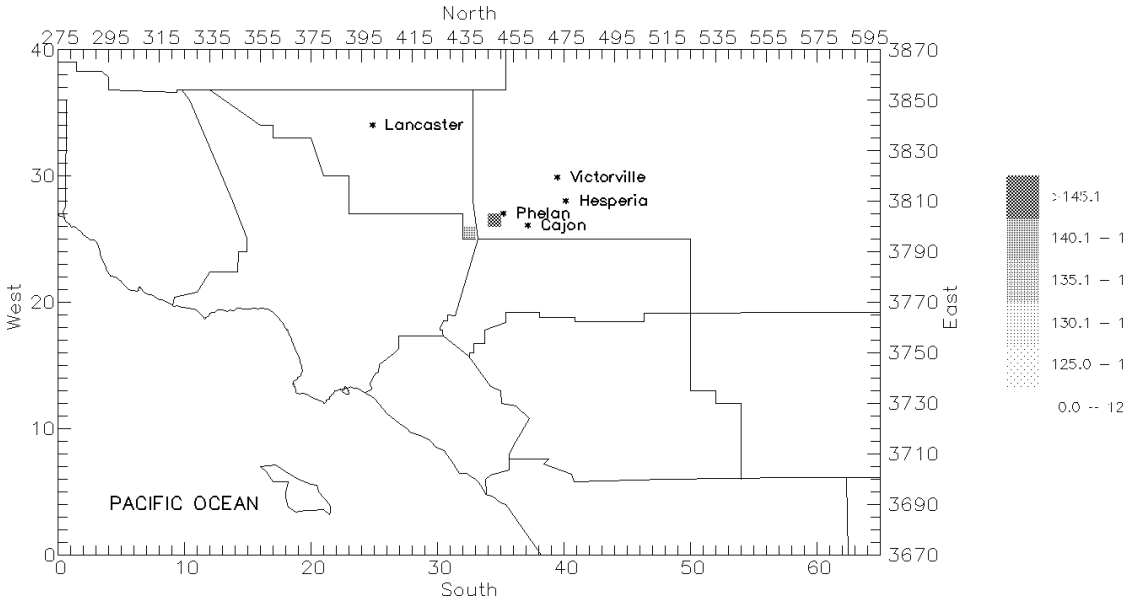

Figure 11 - Grid locations of the UAM 2007 simulated peak ozone concentrations (ppb) for the Antelope Valley and Mojave Desert portion San Bernardino County for the August 6, 1997 meteorological episode

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Appendices

A - Base Year Emission Inventory
B - Future Year Emission Inventories and Point Source Growth Codes
C - Southeast Desert Modified AQMA Transportation Conformity Budget
D - Annual Ambient Monitoring Data Summary

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APPENDIX A - BASE YEAR EMISSION INVENTORY

All emissions are presented in tons per ozone seasonal day (except where noted) for the 1990 base year

Source	**VOC**	**NOx**
Area Sources		
Internal Combustion Engines - Unspecified Fuel	0.02	0.02
Internal Combustion Engines - Natural Gas	0.00	0.08
Internal Combustion Engines - Diesel	0.02	0.54
Manuf and Industrial Combustion - Natural Gas	0.00	0.06
Manuf and Industrial Combustion - Propane	0.00	0.02
Manuf and Industrial Combustion - Diesel	0.00	0.03
Manuf and Industrial Combustion - Unspecified	0.00	0.03
Service and Comm Space Heating - Natural Gas	0.00	0.04
Service and Comm Water Heating - Natural Gas	0.00	0.01
Service and Comm Combustion - Natural Gas	0.04	0.19
Service and Comm Combustion - Diesel	0.01	0.00
Residential Space Heating - Natural Gas	0.00	0.08
Residential Water Heating - Natural Gas	0.00	0.05
Residential Cooking - Natural Gas	0.00	0.04
Residential Combustion - Natural Gas	0.00	0.08
Residential Combustion - Propane	0.00	0.01
Residential Combustion - Wood Stoves	0.02	0.00
Landfill Gas	0.04	0.00
Liquid Waste Disposal	0.01	0.00
Cleaning and Degreasing	4.44	0.00
Surface Coating and Adhesives	4.01	0.00
Natural Gas Transmission Loss	0.11	0.00
Petroleum Dispensing	0.53	0.00
Surface Blasting	0.01	0.00
Consumer Products	2.26	0.00
Architectural Coatings	1.57	0.00
Pesticides/Fertilizers	0.18	0.00
Asphalt Paving and Roofing	0.02	0.00
Livestock Waste	1.73	0.00
Commercial Charbroiling	0.03	0.00
Total Area Sources:	*14.93*	*1.29*
Other Mobile Sources		
General Aviation Civil Aircraft	0.08	0.00
Jet Aircraft - Military	0.35	0.34
Jet Aircraft - Commercial	0.04	0.05
Locomotives	0.11	2.70
Off-Road Recreational Vehicles	0.27	0.03

Lawn and Garden Equipment	0.43	0.04
Truck Refrigeration Units	0.02	0.10
Mobile Equipment - Commercial	0.17	0.27
Mobile Equipment - Industrial	0.04	0.25
Mobile Equipment - Construction	0.80	9.28
Mobile Equipment - Agricultural	0.01	0.07
Gasoline Can Storage and Handling	0.40	0.00
Total Other Mobile Sources:	*2.73*	*13.13*
On-Road Mobile Sources	*21.38*	*20.72*
Point Sources		
Aerospace	0.23	0.55
Batch Plants	0.02	0.25
Fiberglass	0.04	0.00
Institutions	0.01	0.01
Miscellaneous Coating/Manufacturing	0.00	0.00
Miscellaneous Diesel Use	0.02	0.10
Wastewater/Landfills	0.01	0.01
Total Point Sources (tons per annual day):	*0.34*	*0.92*
Total Antelope Valley 1990 (tons per os day):	*39.38*	*36.06*
Detailed Point Sources for 2002 (all emissions in tons per year)		
Boeing NASA (Aerospace)	2.6	0.6
Lockheed Martin (Aerospace)	22.9	10.1
Northrop Grumman (Aerospace)	12.7	82
Antelope Valley Aggregate (Batch Plant)	3.7	46.0
Asphalt Construction Co (Batch Plant)	0.8	1.5
Calmat Vulcan 6851 Ave T (Batch Plant)	4.5	52.0
Calmat Vulcan 7107 Ave T (Batch Plant)	0.9	1.9
Granite Construction (Batch Plant)	0.0	0.1
Hi-Grade Materials Ave T (Batch Plant)	0.1	0.0
Rexhall Industries (Fiberglass)	20.0	0.0
Antelope Valley Healthcare System (Institution)	3.5	3.4
Ca State Prison - Los Angeles County (Institution)	0.4	0.2
LA County Sheriff W 60th (Institution)	0.2	2.6
Magna Color (Misc Coating/Manuf)	0.7	0.0
Mountain High Combined (Misc Diesel Use)	9.6	48.0
Verizon (Misc Diesel Use)	0.0	0.6
LA County Palmdale Water Reclamation Plant	0.6	1.2
LA County Sanitation District #14	3.5	1.0
Lancaster Landfill, Waste Management	0.5	0.1
Total Point Sources 2002 (tons per year):	*87.2*	*251.3*
Total Point Sources 2002 (tons per day):	*0.24*	*0.69*

APPENDIX B - FUTURE YEAR EMISSION INVENTORIES AND POINT SOURCE GROWTH CODES

(all emissions in tons per ozone seasonal day unless otherwise indicated)

	1990	2000	2002	2005	2007
Point VOC	0.34	0.23	0.24	0.41	0.47
Area VOC	14.93	10.15	10.51	10.97	11.70
Other Mobile VOC	2.73	2.96	2.67	2.61	2.58
On-Road Mobile VOC	21.38	8.42	7.44	6.26	5.52
AVAQMD VOC	39.38	21.76	20.86	20.25	20.27

	1990	2000	2002	2005	2007
Point NOx	0.92	0.66	0.69	0.85	0.91
Area NOx	1.29	0.85	0.87	0.90	0.87
Other Mobile NOx	13.13	14.70	13.88	13.19	12.05
On-Road NOx	20.72	12.90	11.99	10.47	9.58
AVAQMD NOx	36.06	29.11	27.43	25.41	23.41

					Base Year					
	1990		2000		2002		2005		2007	
Point Category	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC	NOx
Aerospace	82.4	200.0	37.2	90.2	38.2	92.7	40.1	97.3	39.1	94.9
Batch Plants	9.0	91.8	9.5	96.6	10.0	101.5	10.2	103.9	10.6	107.2
Fiberglass	16.1	0.0	18.2	0.0	20.0	0.0	22.7	0.0	24.3	0.0
Institution	3.4	5.1	4.0	6.0	4.1	6.2	4.2	6.4	4.4	6.6
Misc Coating/Manuf	0.6	0.0	0.6	0.0	0.7	0.0	0.8	0.0	0.9	0.0
Misc Diesel Use	7.1	36.1	8.9	45.1	9.6	48.6	10.6	53.6	10.9	55.4
Wastewater/Landfill	4.2	2.1	4.4	2.2	4.6	2.3	4.9	2.4	5.1	2.5
ERCs	0.0	0.0	0.0	0.0	0.0	0.0	27.6	17.2	27.6	17.2
NSR Growth Allowance	0	0	0	0	0	0	30	30	50	50
Totals (tons per year):	**122.9**	**335.0**	**82.8**	**240.1**	**87.2**	**251.3**	**151.1**	**310.8**	**172.8**	**333.8**
Total (tons per average annual day):	**0.34**	**0.92**	**0.23**	**0.66**	**0.24**	**0.69**	**0.41**	**0.85**	**0.47**	**0.91**

Operation	Growth Code	1990	2002	2005	2007
Aerospace	SIC_372&6out	22.8	10.57	11.09	10.82
		2.16	1.00	1.05	1.02
Batch Plant	SIC_14-out	0.227	0.251	0.257	0.265
		0.90	1.00	1.02	1.06
Fiberglass	SIC_308-out	3.229	4.017	4.569	4.878
		0.804	1.00	1.137	1.214
Institution	SIC_806-I20	6.827	8.283	8.536	8.797
		0.824	1.00	1.031	1.062
Misc Coating/Manuf	DUR_MFG-out	74.21	82.72	94.16	101.3
		0.897	1.00	1.138	1.224
Wastewater/Landfill/Water	SIC_494+-out	0.501	0.547	0.578	0.602
		0.916	1.00	1.057	1.101
Misc Diesel Use	SIC_50&1-I31	30.81	41.52	45.79	47.35
		0.742	1.00	1.103	1.141

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APPENDIX C - SOUTHEAST DESERT MODIFIED AQMA TRANSPORTATION CONFORMITY BUDGET

This budget is presented in units of tons per summer planning inventory day (or tons per ozone seasonal day)

ROG/VOC	*2005*	*2007*
Riverside County portion (Coachella Valley)	4.61	4.05
Los Angeles County portion (Antelope Valley)	6.26	5.52
San Bernardino County portion (Mojave Desert)	15.56	13.46
Total SEDAQMA ROG/VOC Budget	**26.43**	**23.03**

NO_x	*2005*	*2007*
Riverside County portion (Coachella Valley)	12.28	11.14
Los Angeles County portion (Antelope Valley)	10.47	9.58
San Bernardino County portion (Mojave Desert)	45.47	42.43
Total SEDAQMA NO_x Budget	**68.22**	**63.15**

Note that portions of the Southeast Desert Modified AQMA transportation conformity budget are presented for information only. The total for the AQMA is the budget.

On-Road Mobile Source Emissions Inventory Detail
Mojave Desert Federal Ozone Non-attainment Area Portion of the
Southeast Desert Modified AQMA

ROG (tons per ozone seasonal day)				
ON-ROAD MOTOR VEHICLES	**1990**	**2002**	**2005**	**2007**
LIGHT DUTY PASSENGER (LDA)	16.24	6.41	4.97	4.11
LIGHT DUTY TRUCKS - 1 (LDT1)	7.39	3.22	2.59	2.23
LIGHT DUTY TRUCKS - 2 (LDT2)	4.36	2.02	1.74	1.55
MEDIUM DUTY TRUCKS (MDV)	1.15	1.01	0.86	0.77
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	3.77	1.68	1.24	1.08
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.46	0.16	0.14	0.14
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	1.77	1.09	0.91	0.76
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	1.09	1.35	1.22	1.08
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.04	0.04	0.04
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.03	0.06	0.06	0.06
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.05	0.14	0.13	0.12
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.80	0.83	0.76	0.70
MOTORCYCLES (MCY)	1.41	0.51	0.51	0.51
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.00	0.01	0.01	0.01
HEAVY DUTY GAS URBAN BUSES (UB)	0.09	0.11	0.12	0.12
SCHOOL BUSES (SB)	0.05	0.04	0.04	0.04
MOTOR HOMES (MH)	0.37	0.24	0.22	0.13
TOTAL*	39.03	18.92	15.56	13.46

NOx (tons per ozone seasonal day)				
ON-ROAD MOTOR VEHICLES	**1990**	**2002**	**2005**	**2007**
LIGHT DUTY PASSENGER (LDA)	11.77	6.47	5.09	4.30
LIGHT DUTY TRUCKS - 1 (LDT1)	6.78	3.85	3.05	2.60
LIGHT DUTY TRUCKS - 2 (LDT2)	4.26	3.24	2.78	2.46
MEDIUM DUTY TRUCKS (MDV)	1.26	1.74	1.49	1.32
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	1.43	1.19	1.12	1.19
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.50	0.25	0.25	0.27
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.83	0.87	0.82	0.75
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	2.77	3.26	2.87	2.57
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.08	1.17	1.35	1.31
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.34	1.52	1.42	1.30
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	2.19	5.48	5.45	5.20
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	12.35	18.74	18.37	17.71
MOTORCYCLES (MCY)	0.20	0.10	0.12	0.14
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.12	0.20	0.21	0.21
HEAVY DUTY GAS URBAN BUSES (UB)	0.06	0.11	0.12	0.12
SCHOOL BUSES (SB)	0.30	0.38	0.43	0.46
MOTOR HOMES (MH)	0.50	0.54	0.53	0.51
TOTAL*	45.71	49.17	45.47	42.43

* Total may not agree due to roundoff error

On-Road Mobile Source Emissions Inventory Detail
Antelope Valley Portion of the
Southeast Desert Modified AQMA

ROG (tons per ozone seasonal day)				
ON-ROAD MOTOR VEHICLES	**1990**	**2002**	**2005**	**2007**
LIGHT DUTY PASSENGER (LDA)	10.96	3.46	2.71	2.26
LIGHT DUTY TRUCKS - 1 (LDT1)	4.04	1.48	1.27	1.12
LIGHT DUTY TRUCKS - 2 (LDT2)	2.80	1.01	0.90	0.83
MEDIUM DUTY TRUCKS (MDV)	0.63	0.48	0.42	0.38
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	1.06	0.19	0.13	0.12
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.09	0.03	0.03	0.03
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.44	0.16	0.14	0.12
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.19	0.14	0.16	0.16
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.00	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.01	0.01	0.01
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.01	0.01	0.01	0.02
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.16	0.09	0.09	0.09
MOTORCYCLES (MCY)	0.80	0.26	0.26	0.26
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.00	0.01	0.01	0.01
HEAVY DUTY GAS URBAN BUSES (UB)	0.06	0.05	0.05	0.05
SCHOOL BUSES (SB)	0.02	0.01	0.02	0.02
MOTOR HOMES (MH)	0.12	0.05	0.05	0.04
TOTAL*	21.38	7.44	6.26	5.52

NOx (tons per ozone seasonal day)				
ON-ROAD MOTOR VEHICLES	**1990**	**2002**	**2005**	**2007**
LIGHT DUTY PASSENGER (LDA)	8.03	3.23	2.47	2.06
LIGHT DUTY TRUCKS - 1 (LDT1)	3.55	1.62	1.28	1.09
LIGHT DUTY TRUCKS - 2 (LDT2)	2.80	1.53	1.28	1.15
MEDIUM DUTY TRUCKS (MDV)	0.74	0.79	0.66	0.59
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.45	0.17	0.16	0.18
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.12	0.04	0.04	0.04
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.23	0.12	0.11	0.10
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.69	0.48	0.42	0.36
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.02	0.17	0.20	0.20
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.07	0.16	0.16	0.15
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.50	0.64	0.65	0.63
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	2.91	2.41	2.40	2.36
MOTORCYCLES (MCY)	0.11	0.05	0.06	0.06
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.12	0.16	0.16	0.16
HEAVY DUTY GAS URBAN BUSES (UB)	0.04	0.03	0.02	0.02
SCHOOL BUSES (SB)	0.18	0.20	0.22	0.23
MOTOR HOMES (MH)	0.18	0.18	0.17	0.17
TOTAL*	20.72	11.99	10.47	9.58

* Total may not agree due to roundoff error

On-Road Mobile Source Emissions Inventory Detail
Coachella Valley Portion of the
Southeast Desert Modified AQMA

ROG (tons per ozone seasonal day)				
ON-ROAD MOTOR VEHICLES	**1990**	**2002**	**2005**	**2007**
LIGHT DUTY PASSENGER (LDA)	8.30	2.84	2.08	1.77
LIGHT DUTY TRUCKS - 1 (LDT1)	2.71	1.07	0.84	0.75
LIGHT DUTY TRUCKS - 2 (LDT2)	1.96	0.63	0.45	0.40
MEDIUM DUTY TRUCKS (MDV)	0.50	0.34	0.26	0.24
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.87	0.17	0.11	0.09
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.11	0.03	0.03	0.03
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.57	0.25	0.22	0.20
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.33	0.24	0.21	0.19
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.01	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.01	0.01	0.01	0.01
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.02	0.03	0.03	0.03
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.21	0.15	0.15	0.14
MOTORCYCLES (MCY)	0.37	0.12	0.12	0.12
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.01	0.01	0.01	0.01
HEAVY DUTY GAS URBAN BUSES (UB)	0.10	0.05	0.05	0.05
SCHOOL BUSES (SB)	0.06	0.02	0.01	0.01
MOTOR HOMES (MH)	0.14	0.03	0.03	0.02
TOTAL*	16.28	6.00	4.61	4.05

NOx (tons per ozone seasonal day)				
ON-ROAD MOTOR VEHICLES	**1990**	**2002**	**2005**	**2007**
LIGHT DUTY PASSENGER (LDA)	6.17	2.69	1.99	1.70
LIGHT DUTY TRUCKS - 1 (LDT1)	2.52	1.17	0.86	0.73
LIGHT DUTY TRUCKS - 2 (LDT2)	1.98	1.04	0.76	0.66
MEDIUM DUTY TRUCKS (MDV)	0.59	0.61	0.46	0.41
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.37	0.17	0.16	0.17
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.12	0.06	0.05	0.05
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.29	0.22	0.20	0.19
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.89	0.78	0.58	0.46
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.01	0.24	0.27	0.25
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.08	0.26	0.26	0.24
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.69	1.42	1.40	1.32
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	3.52	4.98	4.77	4.45
MOTORCYCLES (MCY)	0.05	0.02	0.03	0.03
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.30	0.16	0.15	0.14
HEAVY DUTY GAS URBAN BUSES (UB)	0.07	0.06	0.06	0.06
SCHOOL BUSES (SB)	0.13	0.13	0.13	0.13
MOTOR HOMES (MH)	0.21	0.16	0.14	0.13
TOTAL*	17.99	14.19	12.28	11.14

* Total may not agree due to roundoff error

On-Road Mobile Source Emissions Inventory Detail

Southeast Desert Modified AQMA Ozone Planning Inventory
Summer On-road Emissions and Vehicle Miles Traveled
(tons per day)

		1990	2000	2002	2005	2007
ROG	**Los Angeles MDAB (AV)**	21.38	8.42	7.44	6.26	5.52
	Riverside SSAB (CV)	16.28	7.99	6.00	4.61	4.05
	San Bern MDAB (VV)	31.36	15.95	14.48	11.76	10.26
	San Bern MDAB (MV)	7.67	4.73	4.44	3.80	3.20
	TOTAL	**76.69**	**37.09**	**32.36**	**26.43**	**23.03**
NOx	**Los Angeles MDAB (AV)**	20.72	12.90	11.99	10.47	9.58
	Riverside SSAB (CV)	17.99	15.85	14.19	12.28	11.14
	San Bern MDAB (VV)	34.49	32.82	31.33	28.18	25.96
	San Bern MDAB (MV)	11.22	18.78	17.84	17.29	16.47
	TOTAL	**84.42**	**80.35**	**75.35**	**68.22**	**63.15**
VMT	**Los Angeles MDAB (AV)**	6,300	6,634	7,302	8,336	9,018
(1000s)	**Riverside SSAB (CV)**	5,241	7,368	7,616	7,990	8,281
	San Bern MDAB (VV)	8,474	11,744	12,644	14,046	14,968
	San Bern MDAB (MV)	1,853	2,778	2,953	3,229	3,410
	TOTAL	**21,868**	**28,524**	**30,515**	**33,601**	**35,677**
HD VMT*	**Los Angeles MDAB (AV)**	365	395	441	501	543
(1000s)	**Riverside SSAB (CV)**	437	582	638	723	766
	San Bern MDAB (VV)	903	1,249	1,359	1,492	1,590
	San Bern MDAB (MV)	461	1,069	1,126	1,294	1,404
	TOTAL	**2,166**	**3,295**	**3,564**	**4,010**	**4,303**

*Vehicles ≥ 8500 lbs. GVWR, including buses and motor homes

San Bern MDAB (MV) refers to the Mojave Valley portion of the federal nonattainment area that ARB staff estimated outside the EMFAC model.

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APPENDIX D - ANNUAL AMBIENT MONITORING DATA SUMMARY

All data is from Lancaster monitoring site (Pondera St, then Division St)

	1-Hr O3 NAAQS		1-Hr O3 CAAQS		1-Hr O3 NAAQS		8-Hr O3 NAAQS	
Year	Fed Exceedances	Fed Trend	State Exceedances	State Trend	Max 1-Hr O3 (ppm)	1-Hr Design Value Trend	Max 8-Hour O3 (ppm)	8-Hr Design Value Trend
1976	29							
1977	33							
1978	35	32						
1979	37	35						
1980	61	44						
1981	82	60						
1982	24	56						
1983	42	49						
1984	48	38						
1985	55	48						
1986	45	49						
1987	30	43						
1988	41	39						
1989	25	32						
1990	7	24	52		0.15	0.14	0.106	0.105
1991	8	13	62		0.14	0.14	0.111	0.105
1992	25	13	78	64	0.17	0.16	0.137	0.110
1993	14	16	59	66	0.16	0.16	0.127	0.113
1994	10	16	62	66	0.14	0.16	0.112	0.113
1995	5	10	61	61	0.14	0.14	0.112	0.108
1996	1	5	40	54	0.13	0.14	0.104	0.103
1997	0	2	14	38	0.12	0.13	0.101	0.098
1998	8	3	24	26	0.16	0.14	0.118	0.097
1999	0	3	1	13	0.10	0.14	0.083	0.089
2000	2	3	35	20	0.14	0.14	0.117	0.092
2001	3	2	37	24	0.15	0.13	0.102	0.091
2002	5	3	46	39	0.16	0.13	0.107	0.100
2003	4	4	50	44	0.16	0.13		

Area Weighted Exposure (ppm-hrs)			Population Weighted Exposure (ppm-hrs)		
	AWE	**3 YR AVG**		**PWE**	**3YR AVG**
1985	13.302		1985	13.327	
1986	12.621		1986	12.617	
1987	8.706	11.543	1987	8.753	11.566
1988	**12.385**	**11.237**	**1988**	**12.227**	**11.199**
1989	9.724	10.271	1989	9.585	10.188
1990	4.647	8.919	1990	3.468	8.426
1991	4.275	6.215	1991	3.553	5.535
1992	6.324	5.082	1992	6.184	4.401
1993	4.286	4.962	1993	3.841	4.526
1994	3.670	4.760	1994	3.263	4.429
1995	1.659	3.205	1995	3.009	3.371
1996	1.886	2.405	1996	1.542	2.605
1997	1.323	1.622	1997	0.872	1.808
1998	2.032	1.747	1998	1.879	1.431
1999	0.096	1.150	1999	0.046	0.932
2000	0.766	0.965	2000	1.134	1.020
2001	0.911	0.591	2001	1.162	0.781
2002	**1.425**	**1.034**	**2002**	**1.764**	**1.353**

APPENDIX E - RATE OF PROGRESS DETAIL

SOUTHEAST DESERT ROP CALCULATIONS -- VOC EMISSIONS

Table 1 - Antelope Valley ROP

	1990	2005	2007
1990 VOC	39.38	39.38	39.38
FMVCP Adjustment		-9.01	-9.33
Adjusted VOC Baseline		30.37	30.05
Percentage Reduction Target		42.00	48.00
Emissions Target		17.61	15.63
Forecast Emissions		20.25	20.27
Excess/Shortfall		-2.64	-4.64

Source: Draft 2004 AVAQMD Ozone Attainment Plan, February 2004, pg. 23

Table 2 - Mojave Desert ROP (Victor Valley & Mojave Valley)

	1990	2005	2007
1990 VOC	61.95	61.95	61.95
FMVCP Adjustment		-20.69	-20.69
Adjusted VOC Baseline		41.26	41.26
Percentage Reduction Target		42.00	48.00
Emissions Target		23.93	21.46
Forecast Emissions		35.95	34.08
Excess/Shortfall		-12.02	-12.62

Source: Draft 2004 MDAQMD Ozone Attainment Plan, February 2004, pg. 24

Table 3 - Coachella Valley ROP

	1990	2005	2007
1990 VOC	35.20	35.20	35.20
FMVCP Adjustment		-8.60	-8.60
Adjusted VOC Baseline		26.60	26.60
Percentage Reduction Target		42.00	48.00
Emission Reduction Target		11.20	12.80
Emissions Target		15.43	13.83
Forecast Emissions		12.70	12.00
Excess/Shortfall		2.73	1.83

Source: SCAQMD AQMP, September 2003, pg. 8-9

Table 4 - SOUTHEAST DESERT MODIFIED AQMA (Combined)

	1990	2005	2007
1990 VOC	136.53	136.53	136.53
FMVCP Adjustment		-38.30	-38.62
Adjusted VOC Baseline		98.23	97.91
Percentage Reduction Target		42.00	48.00
Emissions Target		56.97	50.91
Forecast Emissions		68.90	66.35
Excess/Shortfall		-11.93	-15.44

SOUTHEAST DESERT ROP CALCULATIONS -- NOx EMISSSIONS

Table 1 - Antelope Valley ROP

	1990	2005	2007
1990 NOx	36.06	36.06	36.06
FMVCP Adjustment		0	0
Adjusted NOx Baseline		36.06	36.06
Percentage Reduction Target		N/A	N/A
Emissions Target		36.06	36.06
Forecast Emissions		25.41	23.41
Excess/Shortfall		10.65	12.65

Source: Draft 2004 AVAQMD Ozone Attainment Plan, February 2004, pg. B-1

Table 2 - Mojave Desert FONA ROP

	1990	2005	2007
1990 NOx	151.71	151.71	151.71
FMVCP Adjustment		0	0
Adjusted NOx Baseline		151.71	151.71
Percentage Reduction Target		N/A	N/A
Emissions Target		151.71	151.71
Forecast Emissions		134.89	128.81
Excess/Shortfall		16.82	22.90

Source: Draft 2004 MDAQMD Ozone Attainment Plan, Pg. B-1

Table 3 - Coachella Valley ROP

	1990	2005	2007
1990 NOx *	31.02	31.02	31.02
FMVCP Adjustment		0.00	0.00
Adjusted NOx Baseline		31.02	31.02
Percentage Reduction Target		N/A	N/A
Emissions Target		31.02	31.02
Forecast Emissions		20.05	18.48
Excess/Shortfall		10.97	12.54

Source: Letter from SCAQMD dated December 9, 2003
**Baseline source: SCOS inventory value.*

Table 4 - SOUTHEAST DESERT MODIFIED AQMA (Combined)

	1990	2005	2007
1990 NOx	218.79	218.79	218.79
FMVCP Adjustment		0.00	0.00
Adjusted NOx Baseline		218.79	218.79
Percentage Reduction Target		N/A	N/A
Emissions Target		218.79	218.79
Forecast Emissions		180.35	170.70
Excess/Shortfall		38.44	48.09

SOUTHEAST DESERT NOx SUBSTITUTION CALCULATIONS

Projected Inventories

	1990		2005		2007	
	VOC	NOx	VOC	NOx	VOC	NOx
Antelope Valley	39.38	36.06	20.25	25.41	20.27	23.41
Mojave Desert FONA	61.95	151.71	35.95	134.89	34.08	128.81
Coachella	35.20	31.02	12.70	20.05	12.00	18.48
Total	136.53	218.79	68.90	180.35	66.35	170.70

Target Emission Levels

	VOC	NOx	VOC	NOx	VOC	NOx
Antelope Valley			17.61	36.06	15.63	36.06
Mojave Desert FONA			23.93	151.71	21.46	151.71
Coachella			15.43	31.02	13.83	31.02
Total	0.00	0.00	56.97	218.79	50.91	218.79

Excess reductions (+) and shortfalls (-)

	VOC	NOx	VOC	NOx	VOC	NOx
Antelope Valley			-2.64	10.65	-4.64	12.65
Mojave Desert FONA			-12.02	16.82	-12.62	22.90
Coachella			2.73	10.97	1.83	12.54
Total			-11.93	38.44	-15.43	48.09

1990 NOx/VOC Substitution ratio 1.60
(1990 Total NOx/VOC)

2005 NOx reductions needed to offset VOC shortfall 19.09 tpd NOx
(1990 NOx/VOC ratio X 2005 VOC Shortfall)

Remaining excess NOx reductions in 2007 29.00 tpd NOx
(2007 excess NOx reduction **-** reductions used in 2005 NOx substitution)

2007 NOx reductions needed to offset VOC shortfall 24.73 tpd NOx
(1990 NOx/VOC ratio X 2007 VOC Shortfall)

Excess 2007 NOx reductions with 2005 NOx Substitution 4.25 tpd NOx

The NOx emissions remaining after subtracting the total NOx reductions used for substitution in 2005 and 2007 from the 1990 base year inventory is 175.0 tpd, while the 2007 NOx attainment inventory is 170.7 tpd. This comparison demonstrates that all of the NOx reductions used for substitution in the ROP calculation are necessary for attainment.

Attainment Demonstration Inventory
2007 Ozone Planning Day

	VOC	NOx
Antelope Valley	20.27	23.41
Mojave Desert FONA	34.08	128.81
Coachella	12.00	18.48
Total	66.35	170.7