Appendix E

Triennial Progress Report for the California 1-hour Ozone Standard

This page intentionally blank.

Appendix E: Triennial Progress Report for the California 1-hour Ozone Standard

E.1 INTRODUCTION

In addition to being designated nonattainment for the federal 8-hour ozone standard, the San Joaquin Valley Air Basin is also designated as severe nonattainment for the California 1-hour ozone standard (see Chapter 2, section 2.3 for an explanation of air quality standards). Although the *2007 Ozone Plan* presents the District's strategy for attaining the federal 8-hour ozone standard, this appendix shows that in controlling ozone precursors, this strategy will also help the San Joaquin Valley progress towards attainment of California's 1-hour ozone standard. This appendix satisfies California Clean Air Act (CCAA) and California Health and Safety Code (CH&SC) requirements for reporting progress towards attainment of state ozone standards.

E.1.1 Triennial Plan and Progress Report History

The District adopted the *1991 Air Quality Attainment Plan* to satisfy state requirements for California's 1-hour ozone standard in January 1992. ARB approved this plan in December 1992. Although this plan satisfied requirements for both ozone and carbon monoxide[1], as directed by CH&SC Section 40911, since the San Joaquin Valley now attains the state carbon monoxide standard, the District is not required to address carbon monoxide in subsequent progress reports and plan revisions.

Chapter 10 of the CCAA added CH&SH sections with requirements for plans for attainment of the state ambient air quality standards. CH&SC Section 40924(b) and 40925(a) specifies that every third year following the attainment plan, each district will conduct a triennial review of its attainment plan, strategy, and progress and adopt the findings at a public hearing. The triennial reports are to assess the overall effectiveness of air quality programs, the quantity of emission reductions achieved in the preceding three-year period, the rate of emissions growth experienced in the District and projected into the future, and air quality improvement. The District's first four Triennial Progress Reports are summarized in Table E-1. This appendix demonstrates that in addition to satisfying federal ozone requirements, the *2007 Ozone Plan* satisfies state requirements for the Triennial Progress Report and Plan Revision 2003-2005 (2006 Triennial Update). The original deadline for this update was December 31, 2006; however, ARB revised the deadline to coincide with the 2007 State Implementation Plan (SIP) submittal.

[1] The District was also designated nonattainment for the state particulate matter (PM) standards; however, CH&SC Section 40911 does not require California PM standard nonattainment areas to develop of plans.

Table E-1 Triennial Progress Reports

Title	Years Covered	District Adoption	ARB Approval
1994 Triennial Update (Chapter 8 of the 1994 Ozone Attainment Demonstration Plan)	1992-1994	1994	November 1994
The 1997 Triennial Plan	1995-1997	1998	October 1999
The 2000 Triennial Plan	1997-1999	2001	
California Clean Air Act Triennial Progress Report and Plan Revision 2000-2002 (Chapter 8 in the Extreme Ozone Attainment Demonstration Plan)	2000-2002	2004, Revised in October 2005	October 8, 2004

E.1.2 State Requirements and Guidance

Although state law does not establish attainment dates, it requires evaluation of trends and continued progress in reducing emissions that lead to unhealthy pollutant levels. The CCAA, which was adopted in 1988 and added or amended several sections of the CH&SC, requires areas to report progress in meeting state mandates and revise state attainment plans to reflect changing conditions.

The August 1993 guidance document, *Guidance for Annual and Triennial Progress Reports Under the California Clean Air Act,* directs that these updates not become "burdensome or time consuming." ARB's 2003 Triennial Assessment and Plan Revisions guidance encourages air districts to combine planning efforts to meet state and federal requirements. Deadlines for Triennial Progress Reports and Triennial Plan Revisions generally coincide with federal Clean Air Act (CAA) deadlines. The required components are summarized in Table E-2.

Table E-2 CCAA Requirements for Triennial Progress Reports

Mandate for Severe Areas	Source of Requirement (CH&SC Sections)	Submittal in *2007 Ozone Plan*
Emission Inventory	40913(a)(4-5)	Appendix B
Air Quality Analysis	40913(a)(1-2)	Appendix A
Control Measures, including Reasonably Available Control Technology (RACT), Best Available Retrofit Control Technology (BARCT), area and indirect source controls	40913(a)(6-7), 40920(a)(1), 40918(3-4)	Chapters 6, 7, 8 and Appendix I
Emission Reductions/All Feasible Measures	40913(a)(6-7), 40914(b)(2)	Chapters 6, 7, 8 Appendices H & I
Cost-Effectiveness, including a list which ranks the control measures from least to most cost-effective	40922(a-b)	Chapter 6 Appendix I, Section E.7.1
Reasonably available transportation control measures, reducing passenger vehicle trips and miles traveled	40920(a)(1), 40918(3), 40919(a)(3)	Chapters 7 & 8 Appendix E
Transport	40913(a)(3)	Appendix E
Population Exposure		Appendix E
Contingency Measures	40915	Chapter 10
Public Education	40920(a)(1), 40918(6)	Chapter 4

E.2 AMBIENT AIR QUALITY DATA

Data from the ozone monitors described in Chapter 1 (Section 1.3.2) are used to determine progress towards the federal 8-hour ozone air quality standard (see Appendix A) as well as the State 1-hour ozone standard. Table E-3 provides trend data for the SJVAB with respect to the state 1-hour ozone standard. As shown in Table E-3, the number of days per year with 1-hour ozone levels above the state standard in the SJVAB has decreased slightly from 1990 through 2005. The most improvement occurred between 2003 and 2005.

TABLE E-3 SJVAB State 1-hour Ozone Standard Exceedances

Year	Number of Hours Above State Standard	Number of Days Above State Standard
1990	711	131
1991	788	133
1992	735	127
1993	743	126
1994	814	118
1995	776	124
1996	886	120
1997	572	110
1998	752	90
1999	715	123
2000	680	114
2001	718	123
2002	804	127
2003	848	137
2004	558	106
2005	415	83

E.3 OZONE AIR QUALITY INDICATORS

Hourly ozone data is also used in the calculations for air quality indicators in triennial updates, which are used to analyze the progress being made towards attainment of the state 1-hour ozone standard. ARB's *Guidance for Annual and Triennial Progress Reports Under the California Clean Air Act* (August 1993) identified three air quality indicators for triennial updates:

- **Expected Peak Day Concentration (EPDC)**, which represents the maximum ozone concentration expected to occur once per year, on average, for each monitoring site

- **Population-weighted exposure (PWE)**, which characterizes the potential average outdoor exposure per person to concentrations above the level of the state ozone standard in an air basin
- **Area-weighted exposure (AWE)**, which characterizes the potential average annual outdoor exposure per unit area

The PWE and AWE are exposure indicators intended to reflect the potential for chronic adverse health impacts district-wide. The exposure analysis is based on hourly ambient (outdoor) ozone data for all sites in the air basin.

The calculation methodology assumes that an "exposure" occurs when a person experiences a 1-hour ozone concentration outdoors that is higher than 0.09 ppm, the level of the State 1-hour ozone standard. The PWE and AWE consider both the level and duration of ozone concentrations above the State standard. They are calculated as annual exposures, the sum of all the hourly exposures during the year, with results presented as an annual average per exposed person or unit land area.

In addition to using all available hourly ozone data for the air basin, the exposure computations also incorporate census data collected by the federal government every ten years. For the years from 1985 to 1999, the population statistics are based on the 1990 census. For the years 2000 to 2005, population data from the 2000 census was used.

Each federally defined census tract has:

- The population residing within the census tract
- The land area of the census tract
- A centroid of the census tract

The population within each census tract is used in computing the annual PWE. The land area of the census tract is used in computing the annual AWE. The centroid of the census tract is used in computing both exposure indicators.

ARB staff has prepared EPDC, PWE, and AWE data for many of the monitoring sites in the District that have been in operation long enough to have the necessary data (six years). The following sections discuss the specific calculations used for each indicator and presents indicator trends through 2005.

E.3.1 Expected Peak Day Concentration (EPDC)

The EPDC is calculated by monitor location using daily maximum 1-hour ozone observations for a three-year period (the summary year and two years immediately prior to the summary year). The EPDC is computed using a statistical procedure that fits an exponential-tail model to the upper tail of the distribution of concentrations. The fitted distribution is used to analytically determine the concentration that is expected to recur at a once-in-one year rate. This robust statistical calculation is relatively stable,

providing a trend indicator that is not highly influenced by year-to-year changes in meteorology.

Figures E-1 through E-8 show EPDC trends for select sites in the SJVAB. The nature of the trends varies with monitoring site, and each site's trend reflects emissions and meteorological conditions throughout the SJVAB. Although historical EPDC trends for the SJVAB vary widely, all sites are showing lower EPDCs in 2005 as compared to 2003. Although several sites showed an increase in EPDC for 2002, of the three-year period of interest for this Triennial Progress Report and Plan Revision (2003—2005), the year 2005 seemed to be when most sites experienced a decrease in EPDC values.

Figure E-1 Expected Peak Day Concentration (EPDC) at the Arvin-Bear Site

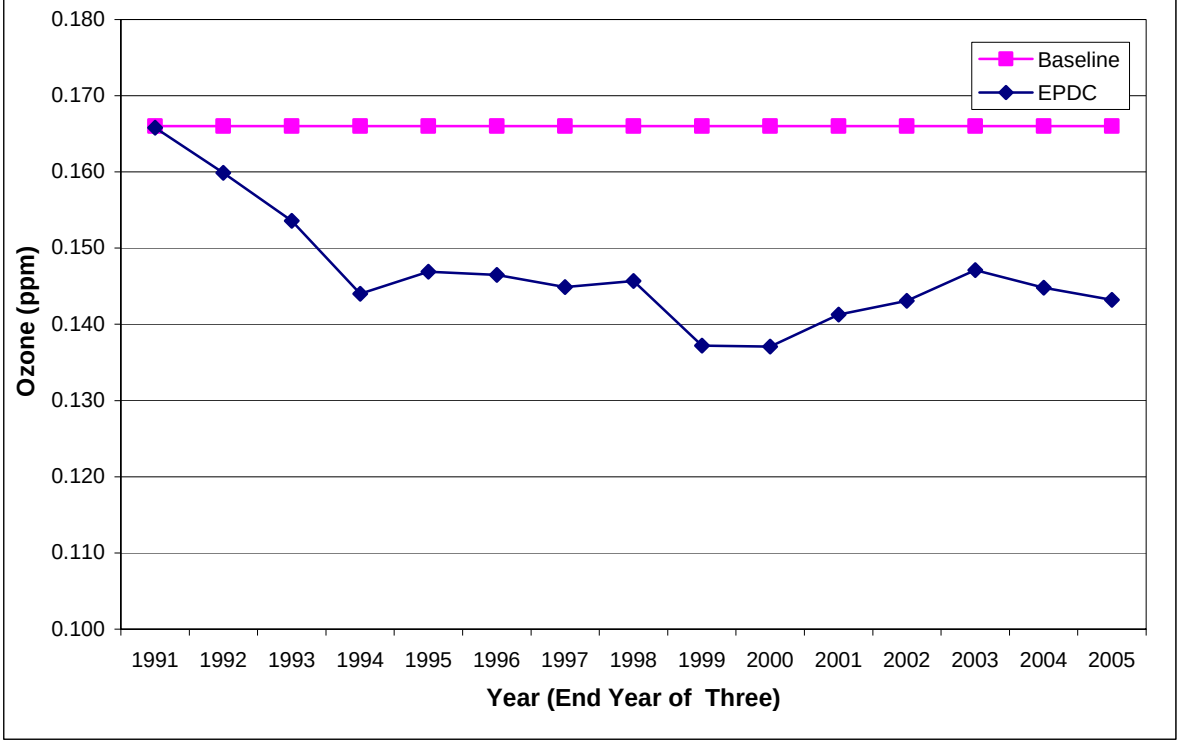


Figure E-2 Expected Peak Day Concentration (EPDC) at the Bakersfield Golden State Site.

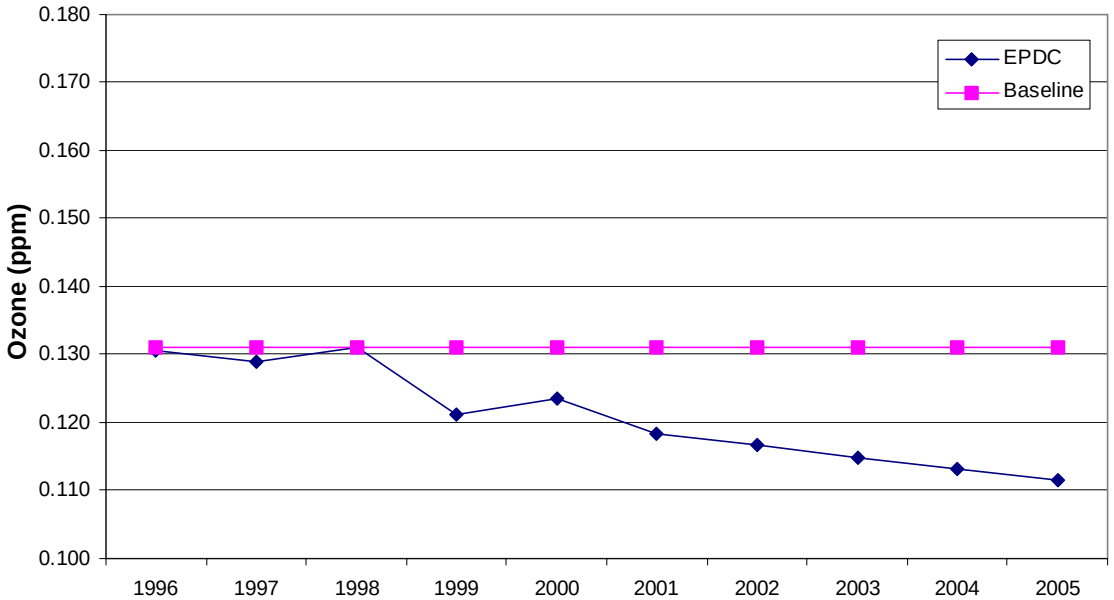
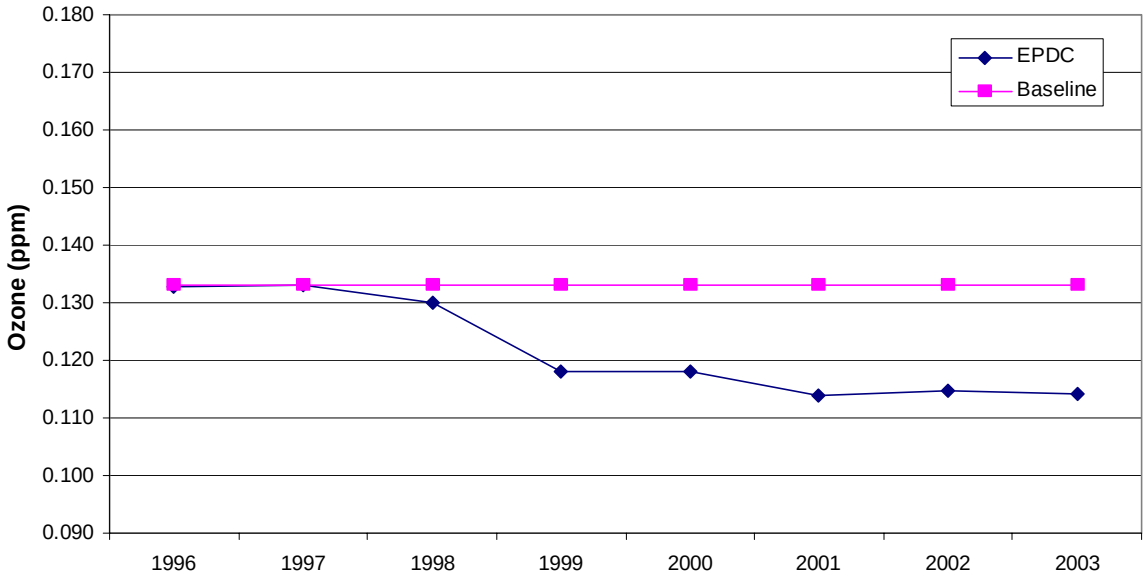


Figure E-3 Expected Peak Day Concentration (EPDC) at the Bakersfield California Ave. Site*



* Due to missing data between July 28, 2004 and August 24, 2004, the EPDC values for 2004 and 2005 are invalid and have thus been excluded here.

Figure E-4 Expected Peak Day Concentration (EPDC) at the Clovis N. Villa Ave. Site

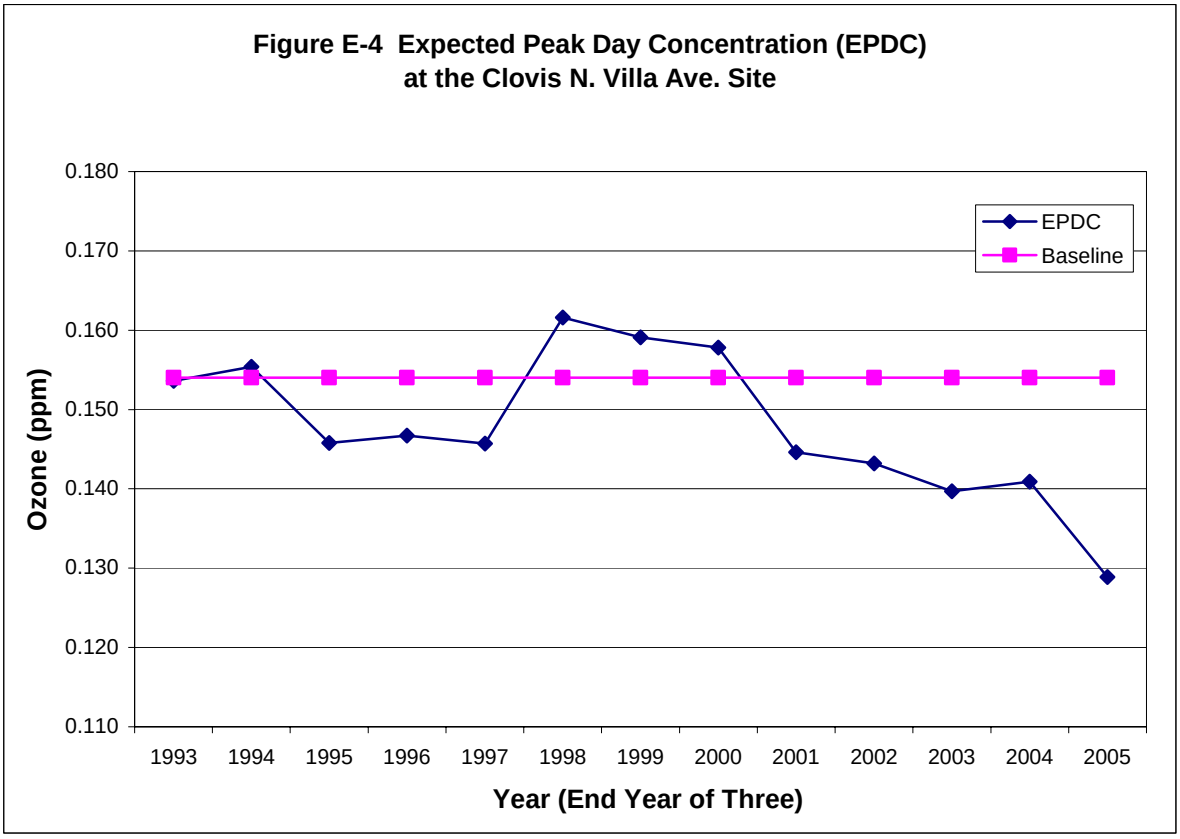


Figure E-5 Expected Peak Day Concentration (EPDC) at the Fresno 1st Street Site

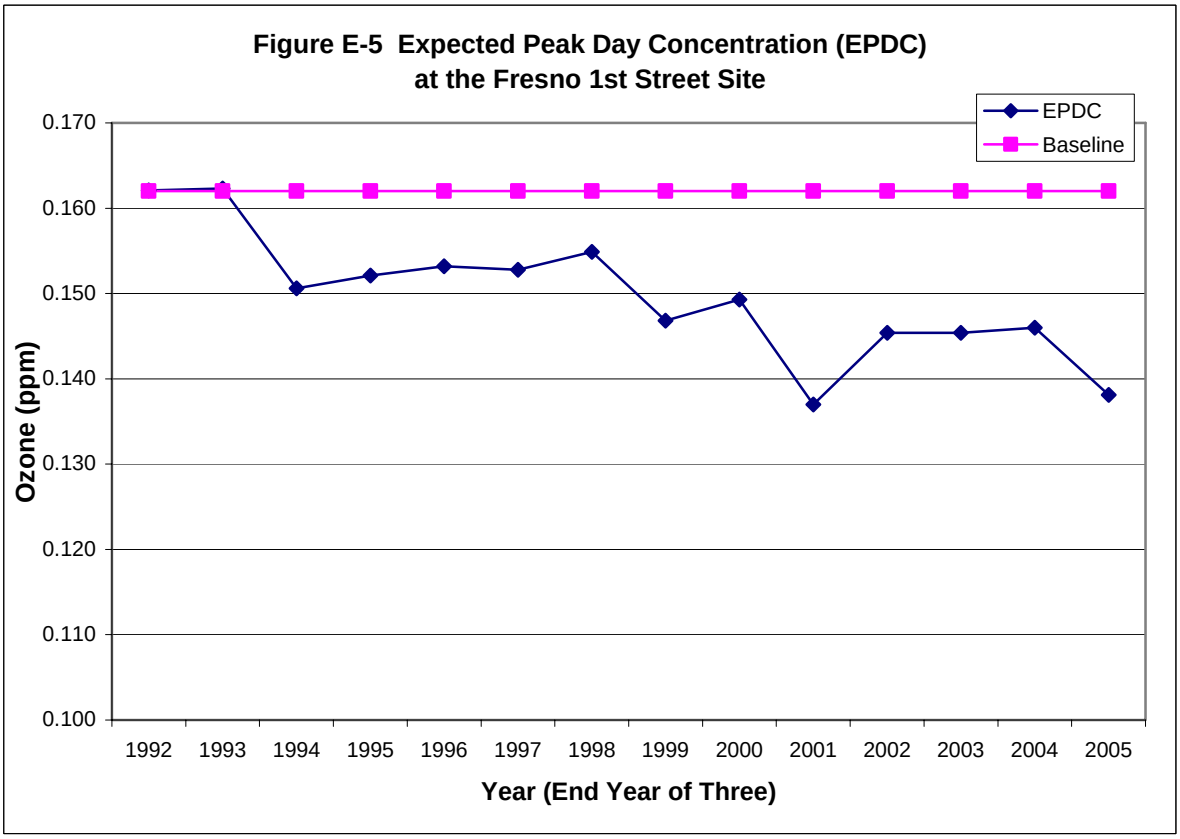


Figure E-6 Expected Peak Day Concentration (EPDC) at the Hanford-Irwin Street Site

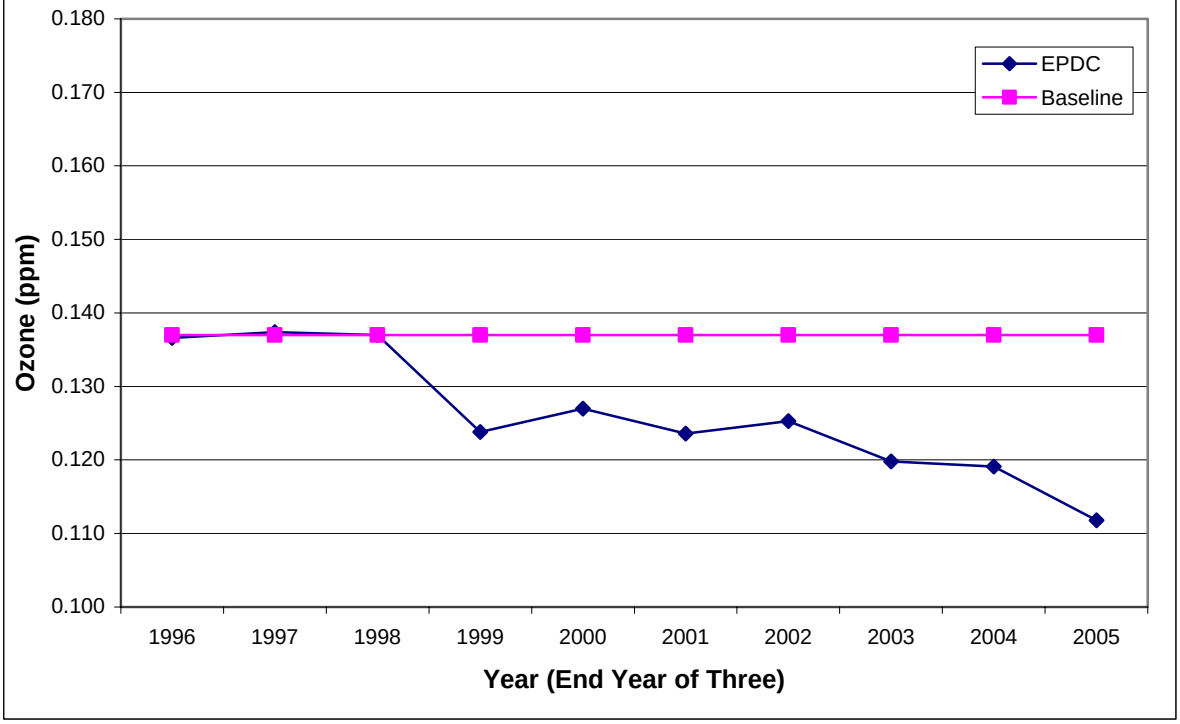


Figure E-7 Expected Peak Day Concentration (EPDC) at the Maricopa-Stanislaus Street Site

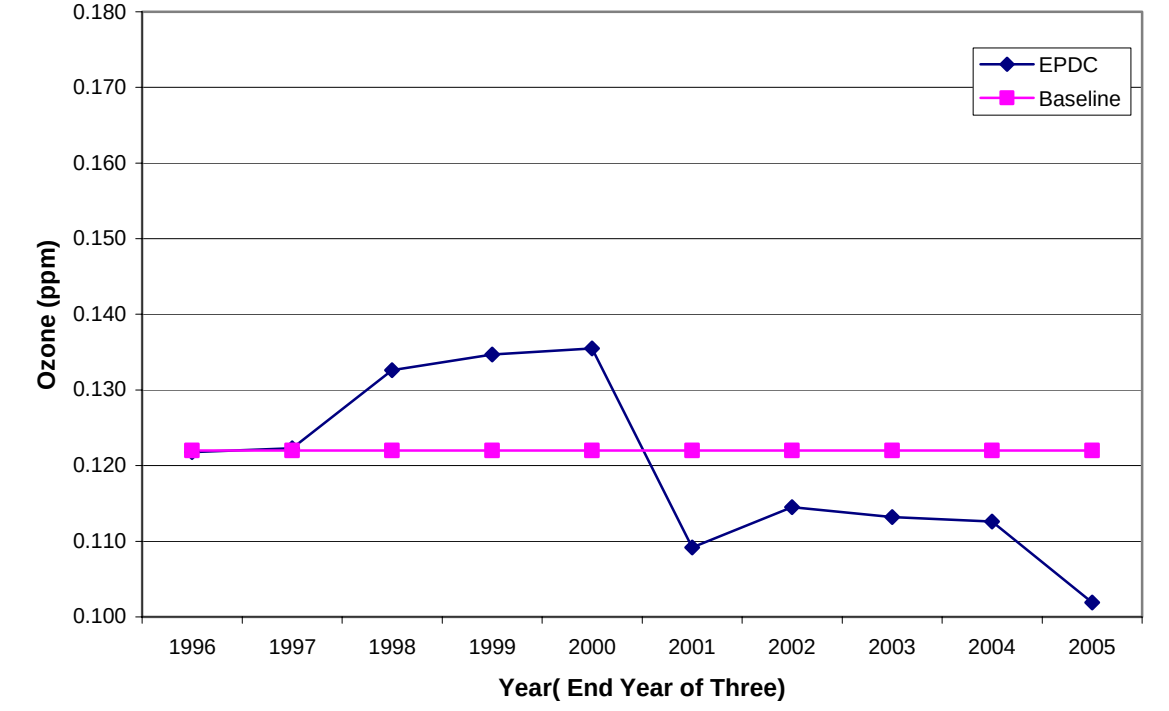
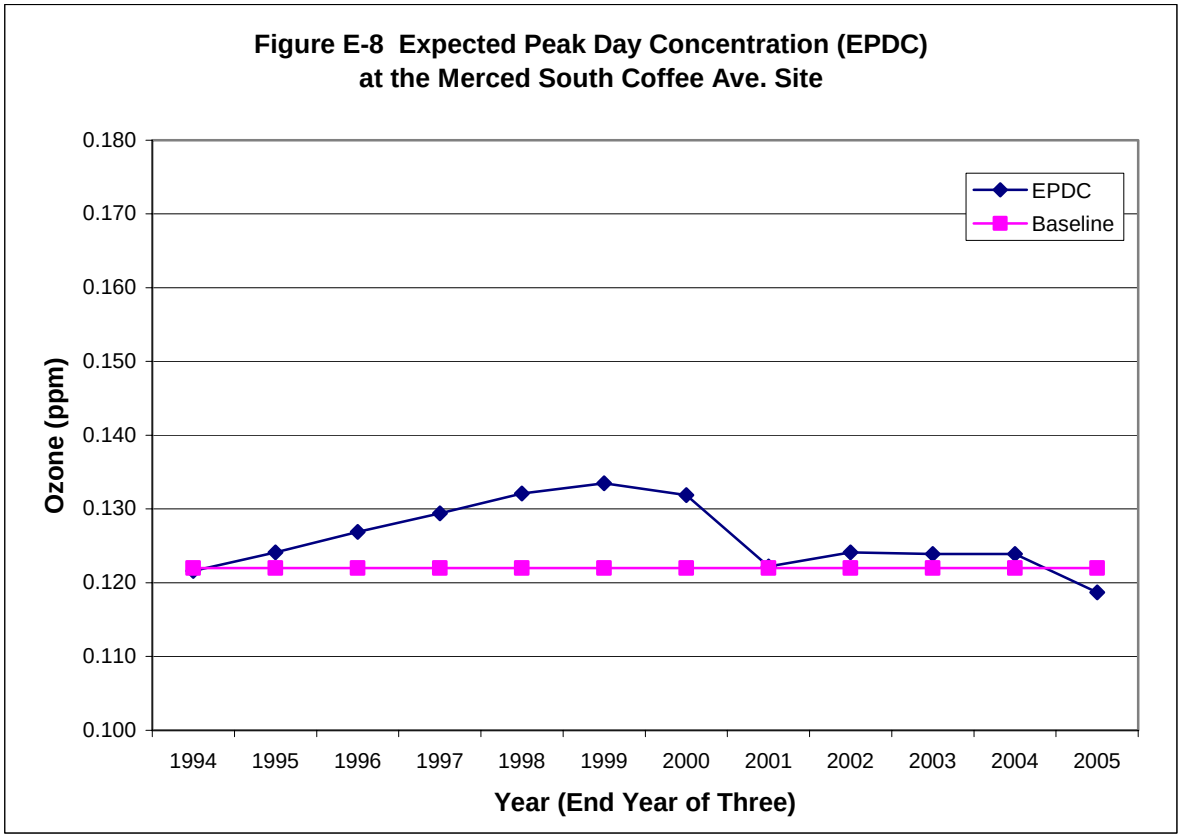


Figure E-8 Expected Peak Day Concentration (EPDC) at the Merced South Coffee Ave. Site



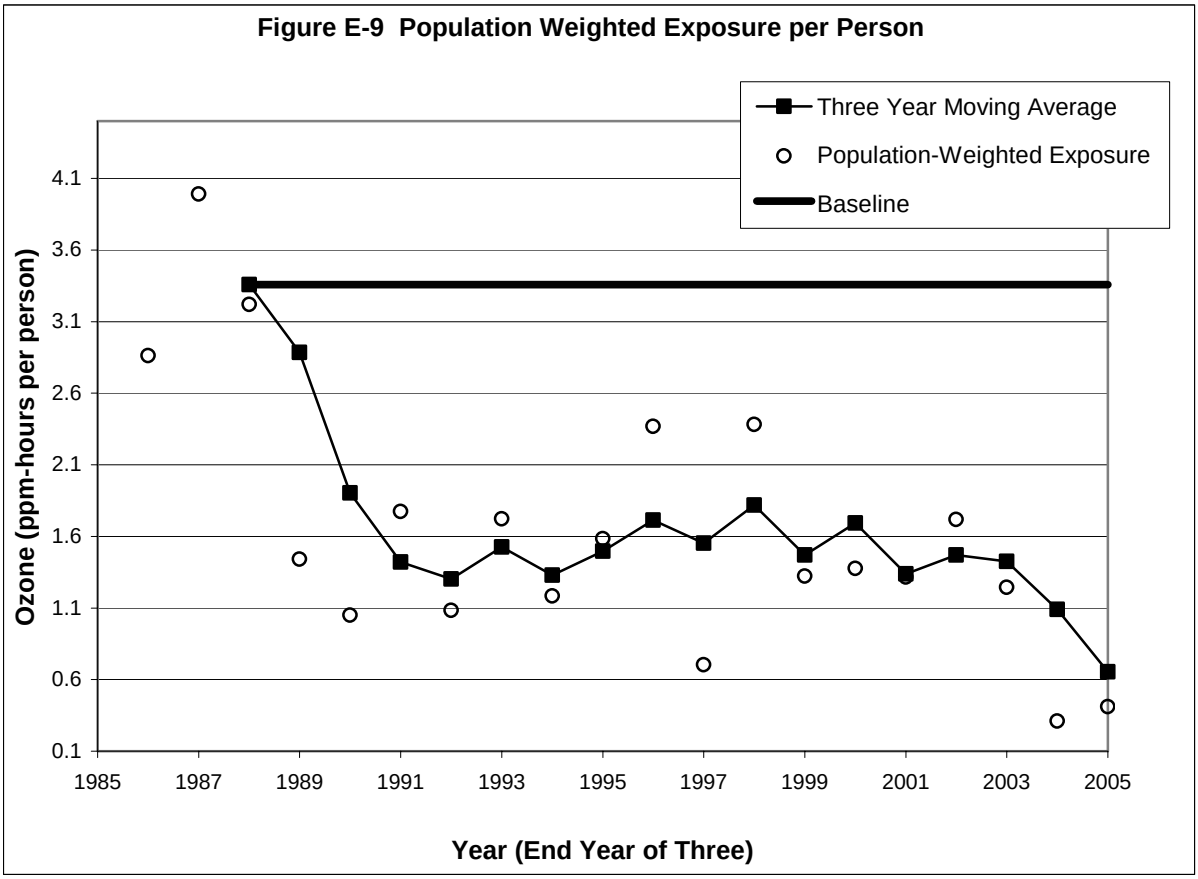
E.3.2 Population-weighted Exposure (PWE)

The annual PWE indicator characterizes the potential average outdoor exposure per person to concentrations above the level of the state ozone standard in an air basin. The PWE is affected by the population in the SJVAB, which has been increasing at a faster rate than the state of California overall. The PWE is calculated for each year from 1985 through 2005, for which data are available. To calculate the PWE:

- Subtract the value of the State ozone standard (0.09 ppm) from each interpolated hourly concentration
- If the value is negative (i.e., the hourly concentration was lower than the level of the State ozone standard), the result is set equal to zero
- Hourly exposures for each census tract are multiplied by the number of people residing in the census tract
- The values for all the census tracts in the air basin are then added together and divided by the total population of all of the census tracts for which interpolated exposure values are available
- The result represents an hourly population-weighted exposure for the air basin
- The hourly exposures are aggregated into a daily population-weighted exposure
- The daily exposures are then aggregated into an annual population-weighted exposure

The population-weighted exposure chart (Figure E-9) shows that exposure to ozone (adjusted to reflect population distribution and to give more "weight" to higher ozone values) declined approximately 100 hours per person per year within the District between 1986 and 1993. Between 1993 and 2002, the metric shows a year-to-year fluctuation near the value of 1.60 ppm-hrs per person. For the most recent reporting period (2003-2005), the metric shows a downward trend. The San Joaquin Valley's population increased by 4.6% between 2003 and 2005.

Figure E-9 Population Weighted Exposure per Person



E.3.3 Area-weighted Exposure (AWE)

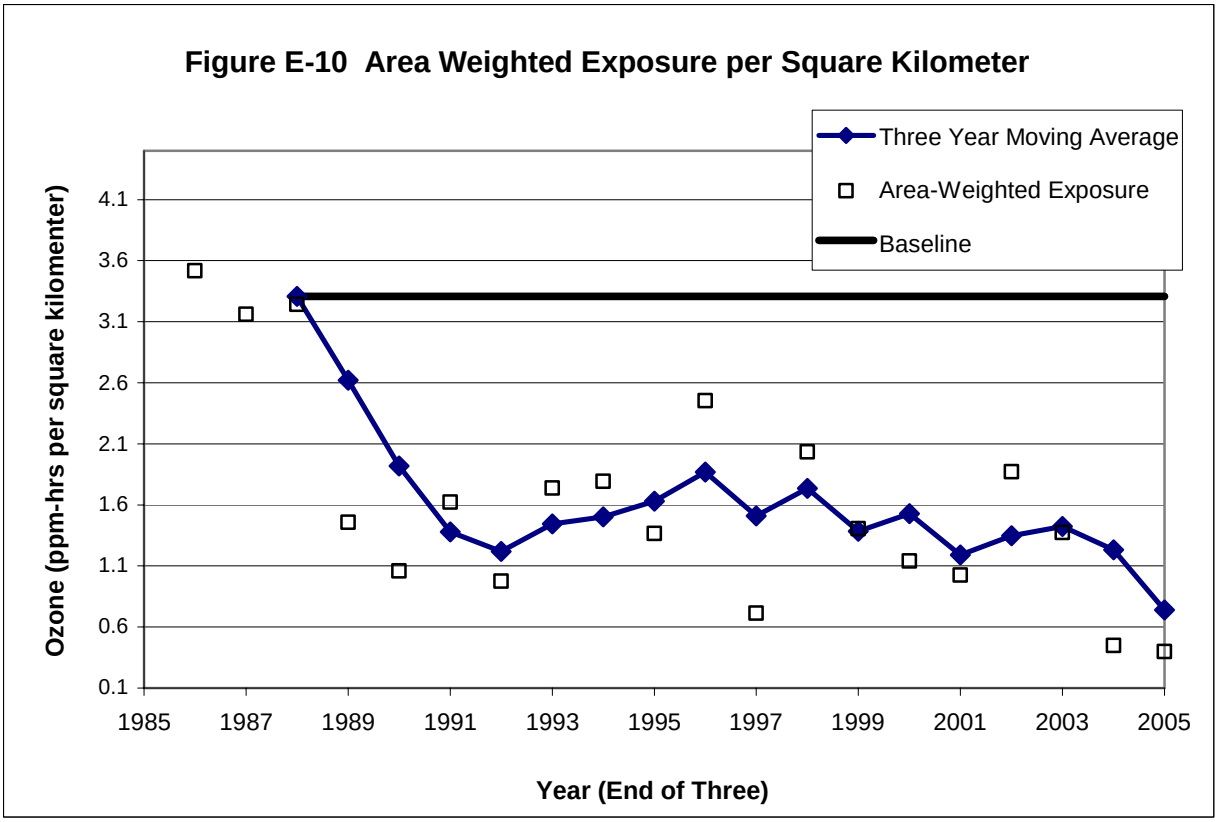
The AWE, the potential average annual outdoor exposure per unit area, represents a composite of exposures at individual locations that have been weighted to emphasize equally the potential exposure in all portions of the District. Like the population-weighted exposure, the area-weighted exposure indicator is computed as an annual value for each year. The AWE is calculated for each year from 1985 through 2005, for which data are available. To calculate the AWE:

- Hourly exposures for each census tract are multiplied by the square kilometer land area of the census tract
- These values are then added together and divided by the total land area of all of the census tracts for which interpolated exposure values are available

- The result represents an hourly area-weighted exposure for the air basin
- Hourly area-weighted exposures are aggregated into a daily area-weighted exposure
- Daily area-weighted exposures are then aggregated into an annual area-weighted exposure

The area-weighted exposure chart (Figure E-10) shows a general improvement in air quality since 1996. There is a downward trend for the most recent reporting period (2003-2005), thereby showing continued improvement.

Figure E-10 Area Weighted Exposure per Square Kilometer



E.4 TRANSPORT MITIGATION

Atmospheric transport is the movement of pollutants (primary or secondary) by the air. In a regulatory context, transport describes how air pollutants move across jurisdictional boundaries. Under the CCAA, ARB, in cooperation with local air districts, is required to evaluate intrastate transport (transport between regions of the state) and suggest mitigation for such transport.

California's air quality management community generally agrees that pollutant transport occurs among the various air districts and air basins in California. Depending on specific weather conditions, wind strength and direction can dramatically change the

influence of transport on the ambient air quality of a region. Windy days tend to allow for pollutants to be transported further, while stagnant days keep emissions closer to their source.

Most violations of ambient ozone air quality standards occur under stagnant weather conditions, when pollutant concentrations build up due to limited dispersion in the atmosphere. For ozone, these conditions occur on hot, summer days when low wind speeds limit horizontal dispersion and atmospheric temperature inversions limit vertical dispersion. Less dispersion usually corresponds to less transport.

Windy days allow prevailing winds to carry air pollutants and precursors from emission sources to downwind locations, mixing with cleaner air or other emissions along the way. Pollutant and precursor concentrations tend to be lower on windy days because emissions are dispersed through larger volumes of ambient air. However, emissions can be transported into a region on windy days and then contribute to air quality problems on subsequent days if stagnation conditions later occur.

ARB issued its most recent assessment of ozone transport in California in April 2001 and concluded that transport from the San Francisco Bay Area Air Basin and the Broader Sacramento Area contributes to some exceedances of the state 1-hour ozone standard in the SJVAB. The degree of contribution ranges from overwhelming to inconsequential. ARB also found that the SJVAB contributes overwhelmingly to ozone exceedances in the Mojave Desert, Mountain Counties, and Great Basin Valley Air Basins, significantly to the North Central Coast, and significantly to inconsequentially to the Broader Sacramento Area and the South Central Coast.

ARB and the San Joaquin Valley Study Agency are analyzing Central California Ozone Study (CCOS) data to better understand transport and develop improved techniques for quantifying mitigation needs. Future triennial progress reports and plan revisions will include the results from this body of work. More information on CCOS is available on ARB's website at <http://www.arb.ca.gov/airways/ccaqs.htm>.

E.5 DISTRICT CONTROL MEASURES

ARB requires upwind transport districts such as the San Joaquin Valley to apply best available retrofit control technology (BARCT) (see Table E-4). Also, to ensure that upwind districts minimize their impact on downwind districts, ARB requires upwind districts to adopt all feasible measures and ensure there are no net increase thresholds for new source review permitting programs. The San Joaquin Valley was already required to comply with these provisions due to other CH&SC requirements.

Table E-4 BARCT Rules

VOC BARCT	
Rule	**Rule Name**
4401	Steam-Enhanced Crude Oil Production Well Vents
4402	Crude Oil Production Sumps
4403	Components Serving Light Crude Oil or Gases at Light Crude Oil and Gas Production Facilities & Components at Natural Gas Processing Facilities
4404	Heavy Oil Test Station - Kern County
4407	In-situ Combustion Well Vents
4451	Valves, Pressure Relief Valves, Flanges, Threaded Connections and Process Drains at Petroleum Refineries and Chemical Plants
4452	Pump/Compressor Seals at Petrol. Refineries and Chemical Plants
4453	Refinery Vacuum Producing Devices or Systems
4454	Refinery Process Unit Turnaround
4601	Architectural Coatings
4602	Motor Vehicle and Mobile Equipment Coating Operations
4603	Surface Coating of Metal Parts and Products
4604	Can and Coil Coating Operations
4605	Aerospace Assembly and Component Manufacturing Operations
4606	Wood Products Coating Operations
4607	Graphic Arts
4621	Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants
4622	Gasoline Transfer into Vehicle Fuel Tanks
4624	Organic Liquid Loading
4625	Wastewater Separators
4641	Cutback, Slow Cure, and Emulsified Asphalt Paving and Maintenance Operations
4642	Solid Waste Disposal Sites
4651	Volatile Organic Compound Emissions from Soil Decontamination
4652	Coatings and Ink Manufacturing
4653	Adhesives
4672	Petroleum Solvent Dry Cleaning Operations
4681	Rubber Tire Manufacturing
4682	Polystyrene Foam, Polyethylene, and Polypropylene Manufacturing
4684	Polyester Resin Operations
4691	Vegetable Oil Processing Operations
NOx BARCT	
4305	Boilers, Steam Generators, and Process Heaters
4352	Solid Fuel Fired Boilers, Steam Generators and Process Heaters
4354	Glass Melting Furnaces
4701	Internal Combustion Engines
4703	Stationary Gas Turbines

The District's strategy for attaining the federal 8-hour ozone standards will also result in progress towards the state 1-hour ozone standard. Control measures reducing ozone precursors are analyzed and presented in Chapter 6 and Appendices H and I of the *2007 Ozone Plan*. The District's rulemaking schedule is in Chapters 6 and 8. The

District's overall control strategy, including land use programs and public outreach, is presented in Chapter 4. Voluntary incentive programs are discussed in Chapter 7.

Section 40924(b)(2) of the CH&SC, as well as ARB's guidance for triennial progress reports and plan revisions, directs districts to report actual emissions reductions achieved for each measure scheduled for adoption in the three year period addressed by each progress report and plan revision. Table E-5 presents this information for the SJVAB for the 2003-2005 time frame that is the focus of this Triennial Progress Report and Plan Revision.

Table E-5 Actual Emission Reductions for District Rules Affecting Ozone Precursor Emissions (2003-2005)[1, 2]

Rule	Date	Title	Pollutant	Reductions (tpd)
4313	3/27/2003	Lime Kilns	NOx	0.1
4610	4/17/2003	Glass Coating Operations	VOC	0.2
4701	8/21/2003	Internal Combustion Engines - Phase 1	NOx	1.7
4604	1/15/2004	Can and Coil Coating Operations	VOC	0.4
4103	9/16/2004	Open Burning	NOx	1.1
4306	9/18/2003, 3/17/2005	Boilers, Steam Generators, and Process Heaters-Phase 3	NOx	7.9
4403	4/20/2005	Components Serving Light Crude Oil or Gasses at Light Crude Oil and Gas Production Facilities and Components at Natural Gas Processing Facilities	VOC	4.8
4409	4/20/2005	Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities	VOC	4.7
4455	4/20/2005	Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants	VOC	0.2
4702	8/21/2003, 6/16/2005	Internal Combustion Engines - Phase 2	NOx	23.3
4308	10/20/2005	Boilers, Steam Generators, and Process Heaters - (0.075 MMBtu/hr to 2.0 MMBtu/hr)	NOx	1.5
4905	10/20/2005	Natural Gas Fired, Fan-type, Residential Central Furnaces	NOx	0.4
4309	12/15/2005	Dryers, Dehydrators, and Ovens	NOx	1.1
4694	12/15/2005	Wine Fermentation and Storage Tanks	VOC	1.4
9510	12/15/2005	Indirect Source Review	NOx	5.9

[1] Rules reducing other pollutants (such as particulate matter) were also adopted over this time period

[2] Reductions listed for informational purposes only. Since data is based on varying years and inventories, this data should not be used in computations.

E.6 MOBILE SOURCE CONTROL MEASURES

Under the CCAA's severe nonattainment classification for the state ozone standard, the District is required to include "reasonably available transportation control measures sufficient to substantially reduce the rate of increase in passenger vehicle trips and miles traveled per trip…" in its state air quality plans.

E.6.1 District Committed Measures

The District is continuing to work with the Transportation Planning Agencies (TPAs) in implementing previously-committed measures and in developing new measures for SIP submittals. District and TPA staffs are working on specific actions and programs to reduce vehicle miles traveled (VMT) or to reduce emissions through other activities. More information is available in Chapter 9 (Section 9.2) and Appendix C.

In addition, the District is working on a number of rules and programs directed at reducing emissions from mobile sources. See Chapters 6, 7 and 8 of the *2007 Ozone Plan* for more information.

E.6.2 Voluntary Programs

The District continued to implement several successful voluntary mobile source emission reduction programs in the 2003-2005 time frame. During 2003, 2004 and 2005, the District received 3,317 calls or report slips regarding smoking vehicles, with about a 15 percent response rate from individuals receiving a "Smoking Vehicle" letter. This voluntary program reduces motor vehicle emissions by encouraging owners of smoking vehicles to have repairs made to correct problems of high emissions.

In 2004, the **RE**duce **MO**tor **V**ehicle **E**missions (REMOVE) Program was replaced with REMOVE II. These programs utilized a portion of a $4 motor vehicle registration surcharge fee allowed by State legislation for nonattainment areas for District-operated planning, monitoring, enforcement, technical studies, and emission reduction projects necessary to implement the California Clean Air Act (CCAA). The REMOVE Programs have funded projects that reduce motor vehicle emissions within the Valley through a competitive request for proposal (RFP) process. REMOVE II Program components include light-and medium-duty vehicles, e-mobility (telecommunications), bicycle infrastructure, public transportation and commuter vanpool subsidies, alternative fuel vehicle mechanic training, and gross polluting vehicle replacements.

The Heavy Duty Vehicle Emission Reduction Program provides financial incentives to municipalities, companies, fleet operators and individuals who purchase new heavy-duty, low-emission on-road vehicles from original equipment manufacturers (OEM); new OEM heavy-duty, low-emission engines for replacements; or retrofit technologies for heavy-duty on-road and non-road vehicles meeting criteria guidelines. The District funds its Heavy Duty Vehicle Emission Reduction Program with Carl Moyer funds,

provided through state legislative action. Implementation has been successful, particularly with the agricultural community. The District has provided Moyer Program incentive funds for projects including agricultural pump engines, refuse haulers, street sweepers, tractors, grape harvesters, delivery trucks, and almond sweepers.

In 2005 alone, the District executed 265 agreements under the Heavy-Duty Program and 50 agreements under the REMOVE program for a total of $14.7 million. Over the course of these projects, these projects are expected to reduce 16,891 tons of NOx, 160 tons of PM and 21 tons of ROG.

Additionally, in 1996, the District began a Spare the Air Program. This voluntary program is designed to encourage ridesharing and discourage use of equipment and products that emit ozone precursors during the ozone season. The program is directed to both employers and the general public. In 1996, 75 employers were enrolled in the employer component. In 2005, about 700 Valley employers participated in Spare the Air.

E.6.3 Land Use Programs

The District reviews California Environmental Quality Act (CEQA) and development proposals received from cities, counties, and other agencies. Whenever development is planned or occurs, the District focuses on potential sources of emissions, including traffic generating sources. The District developed two documents as resources for agencies to use when evaluating potential air quality impacts. The Air Quality Guidelines for General Plans (AQGGP), which were revised in 2005, encourages cities and counties to include air quality elements or air quality goals and policies in general plans in order to reduce mobile and area source emissions and help attain state and federal air quality standards. The Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) which is an advisory document that provides lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents.

In general, new development contributes to the air-pollution problem in the Valley by increasing the number of vehicles and vehicle miles traveled. The purpose of the District's Indirect Source Review (ISR) Program, which was adopted by the District Governing Board in December 2005, is to reduce emissions of NOx and PM10 from new development projects. New development projects are required to mitigate a portion of their emissions with onsite mitigation or by contributing to a mitigation fund that would be used to pay for the most cost-effective projects to reduce emissions. The District estimates that ISR will achieve 3.8 tpd of NOx reductions in 2008.

E.7 PLAN REVISION

The California Clean Air Act requires the District to establish a strategy that will achieve an annual average five percent reduction in ozone precursor emissions, or alternatively, to commit to taking all feasible measures to reduce emissions within its boundaries in an expeditious time frame. The District's adopted strategy is based on the latter alternative. During the 2003-2005 period, the District continued to implement its original control strategy of adopting rules to fulfill the District's SIP commitments and then to address additional measures needed for attainment of the California ozone standard. The District met all of its federally required emission reduction rates (three percent per year) for 8-hr ozone precursors for the 2003-2005 period addressed by this report.

During the 2006-2008 planning cycle, the District is continuing its efforts to improve its emissions inventory with in-house efforts, joint efforts with ARB, and contracting with consultants for updating or developing inventories for specific sources. The District continues to participate with ARB and other districts on analyzing CCOS data and developing modeling tools to improve ozone standard attainment planning.

E.7.1 Control Strategy

The District's control strategy to reduce ozone pollution is driven by emissions reductions needed to attain the federal 8-hour ozone and PM2.5 standards. The District's rulemaking schedule for attaining the 8-hour ozone standard is presented in Chapters 6 & 8 of the *2007 Ozone Plan*. Further study measures are also included in those chapters. The District's *PM2.5 Plan*, which may include further NOx reductions, is due to EPA in April 2008.

Table E-6 District Stationary Source Control Measure Cost Effectiveness Rankings

CM#	Measure Name	Product	Completion Date	Compliance Date	Reduction Start	Cost Effectiveness Ranking
S-GOV-1	Composting Biosolids	Rule	2007 1Q	2008	2008	Medium
S-AGR-1	Open Burn	Rule	2007 2Q 2010 2Q	2007 2010	2007 2010	Low
S-SOL-11	Solvents	Rule	2007 3Q	2010	2010	Low
S-COM-5	Gas Turbines	Rule	2007 3Q	2010	2010	High
S-IND-24	Soil Decontamination	Rule	2007 3Q	2008	NA	High
S-IND-6	Polystyrene Foam	Rule	2007 3Q	2010	2011	Low
S-PET-1&2	Gasoline Storage & Transfer	Rule	2007 4Q	2009	2009	Medium
S-PET-3	Aviation Fuel Storage	Rule	2007 4Q	2010	2010	Medium
S-COM-1	Large Boilers	Rule	2008 3Q	2011	2011	High
S-COM-2	Medium Boilers	Incentives/ Rule Backstop	2008 3Q	2020	2012 from incentives	Medium
S-SOL-20	Graphic Arts	Rule	2008 4Q	2011	2011	Low
S-COM-7	Glass Melting	Rule	2009 1Q	Upon rebuild or possibly on the fly	2015+	Medium
S-COM-9	Residential Water Heaters	Rule	2009 1Q	Attrition	2011	Medium
S-GOV-5	Composting Green Waste	Rule	2009 1Q	2012	2012	High
S-IND-21	Flares	Rule	2009 2Q	NA	NA	Low
S-IND-14	Brandy & Wine Aging	Rule	2009 3Q	NA	NA	Low
S-SOL-1	Architectural Coatings	Rule	2009 4Q	2012	2012	Low
S-AGR-2	CAFO	Rule	2010 2Q	2011	2011	High
S-SOL-6	Adhesives	Rule	2010 3Q	2012	2012	Low

Cost Effectiveness Key:

High: Require capital investment to purchase & Install controls. May also be reflective the lack of surplus reductions available

Medium: Control measure requires capital investment, but measure has potential for significant emission reductions

Low: Control measure is a management practice or low cost control option

E.7.2 Expected Reductions

As ARB requested in the 2003 "Triennial Assessment and Plan Revisions" guidance, the District has included projections of the planning inventory out to the year 2020. Table E-6 presents the requested years of 2010, 2015, and 2020 by primary source sector of stationary, area, and mobile sources to provide a long-term view of how emissions are expected to change in the future in the SJVAB. ARB projects total SJVAB emissions to decline over the long term (see Table E-6). The significant downward trend in NOx emissions for on-road and off-road mobile sources reflects state and federal emissions controls on engines. Area and stationary sources do not show much change here because the District's commitments for future controls have not been included (see Chapters 6 and 8 for reductions from new control measures). NOx from stationary sources has shown great improvement since 2000, when the stationary source inventory for NOx was 146.1 tpd.

Table E-7 Planning Emissions Inventories (summer, tons/day)*

Source Category	2010 VOC	2015 VOC	2020 VOC	2010 CO	2015 CO	2020 CO	2010 NOx	2015 NOx	2020 NOx
Stationary	82.3	84.7	87.3	45.9	46.8	48.4	108.6	110.2	110.8
Area	146.4	156.4	166.6	175.6	174.2	172.8	11.1	11.0	11.0
On-Road Mobile	77.4	57.8	45.7	642.3	451.4	336.7	296.2	203.0	140.1
Other Mobile	67.6	60.9	58.4	421.6	423.7	438.3	140.1	111.9	90.0
Total	373.8	359.8	358.1	1285.3	1096.1	996.2	556.0	436.1	351.9

* O3SIP 1.06 (RF980); no local or state line item adjustments were made.

This page intentionally blank.