

## **APPENDIX III: PRIOR AIR QUALITY CONTROL EFFORTS**

### **AIR QUALITY ATTAINMENT PLANS**

#### **1979 Kings County Air Quality Plan**

Following the Federal Clean Air Act Amendments of 1977, the Kings County Air Pollution Control Board prepared and adopted the "Nonattainment Area Plan for Ozone". This air quality plan made several findings and requests, and recommended several actions in an attempt to meet attainment by 1982. No specific TCMs were identified beyond the request to the California Legislature to authorize and fund the implementation of an annual motor vehicle inspection and maintenance program in Kings County.

Since attainment was not expected before the December 31, 1982 deadline, the air quality plan identified additional measures necessary for attainment before December 31, 1987. The air quality plan recommended nine actions, including the analysis of emissions and the development of TCMs to reduce reactive organic gas (ROG) emissions.

#### **1991 Air Quality Attainment Plan**

The SJVAPCD prepared and adopted the "1991 Air Quality Attainment Plan" to satisfy the requirements of the CCAA to reach ozone attainment standards by December 31, 1997. The strategy outlined in this Plan included all feasible control measures to reduce emissions and specifically included TCMs to address mobile source emissions.

This Plan identified the TCMs recommended for implementation by applicable areas, including: traffic flow improvements; public transit; passenger rail and support facilities; rideshare; park-and-ride lots; bicycling programs; trip reduction programs; parking management programs; telecommunications; alternative work schedules; alternative fuels; and rapid rail and support facilities.

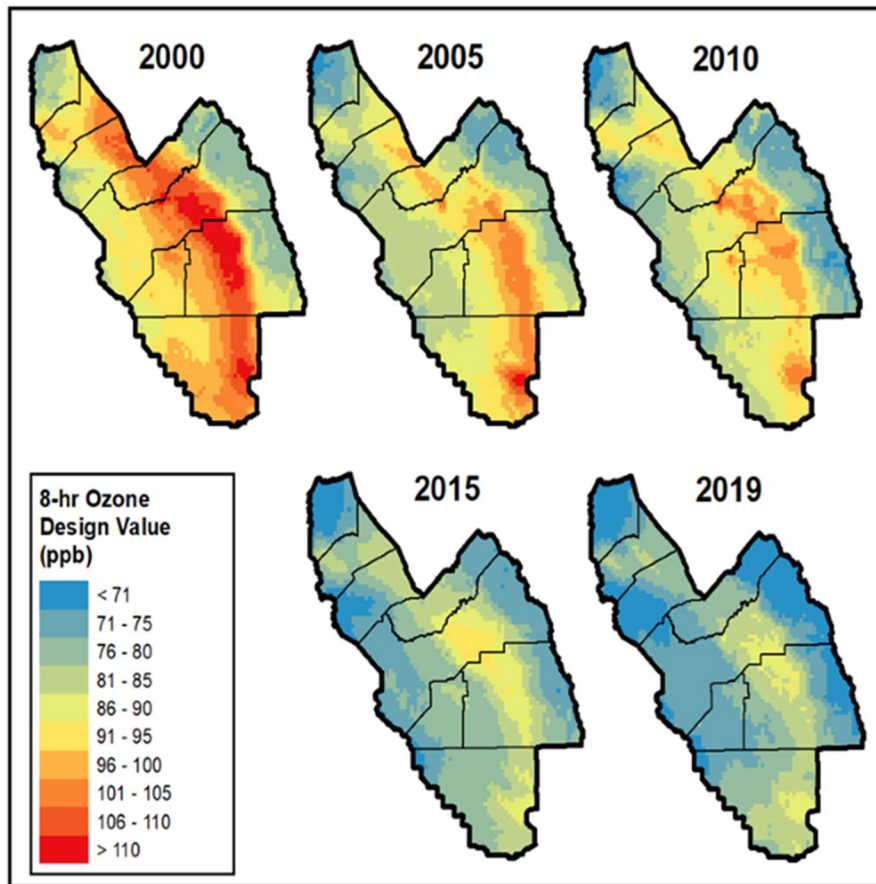
#### **San Joaquin Valley Transportation Control Measure Program**

The TCMs identified in the "1991 Air Quality Attainment Plan" were further evaluated for their effectiveness, implementation, funding, monitoring, and enforcement with the preparation of the "San Joaquin Valley Transportation Control Measure Program". This document was prepared for the SJVAPCD and the eight regional transportation planning agencies in the Valley to provide guidance for jurisdictions to develop and implement local TCMs.

## Rate of Progress Plans

As required by the FCAA, the SJVAPCD adopted the "1993 Rate of Progress Plan" to provide a base year inventory of volatile organic compound (VOC) emissions and to show how the District would achieve a 15% reduction in these emissions between 1990 and 1996 through the adoption of rules and contingency measures. The "1993 Rate of Progress Plan" included as contingency measures, Rule 9001 - Commute Based Trip Reduction and the Auto Buy-Back program.

The SJVAPCD was also required to prepare and submit a "Post 1996 Rate of Progress Plan" to demonstrate how the District would achieve a 9% reduction in VOC emissions between 1996 and 1999. Applicable TCMs included in the San Joaquin Valley Transportation Control Measure Program were identified in the "Post 1996 Rate of Progress Plan" as a means to meet this mandate.



**FIGURE 1: VALLEY PROGRESS IN OZONE CONTROL**

*Source: SJVAPCD*

## **Ozone Standards and Attainment Demonstration Plans**

Ozone (O<sub>3</sub>) forms from the reaction between nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight. Cars, trucks, buses, engines, industries, power plants and products such as solvents and paints are among the major manmade sources of ozone-forming emissions. Ozone can inflame the airways, damaging the respiratory system with symptoms such as chest pain, coughing, wheezing and shortness of breath. The groups considered most vulnerable to ozone are children, people with asthma and other lung diseases, older adults, and adults work outside. Figure 1 shows ozone control progress in the valley.

### 1-Hour Ozone

The 1990 Federal Clean Air Act Amendments required the SJVAPCD to develop a plan to show how it would achieve attainment of the federal ozone standard by November 15, 1999. The "Ozone Attainment Demonstration Plan" was prepared and adopted in 1994. The plan showed how it would demonstrate attainment and included TCMs as Rules 9001 - Commute Based Trip Reduction; Rule 9010 - Fleet Inventory; and Rule 9011 - Light and Medium Duty Low Emission Fleet Vehicles, in addition to contingency measures identified as TCM projects already programmed and funded by the RTPAs.

The San Joaquin Valley Basin (SJVAB) did not attain the federal air quality standard for ozone by November 15, 1999. As a result, in November 2001, the Environmental Protection Agency (USEPA) reclassified the SJVAB from Serious to Severe. The USEPA at this time also required implementation of six emission control measures from the 1994 Ozone Plan and established a May 31, 2002 deadline for a Severe ozone nonattainment plan. This plan was to document attainment of the federal 1-hour ozone standard by November 15, 2005.

The SJVAPCD was not able to demonstrate the federal 1-hour ozone standard by the May 2002 target. In October 2002, the USEPA issued Severe area requirements which included the outstanding 1-hour ozone attainment plan by November 15, 2005, creditable emission reductions, Reasonably Available Control Technology for lime kilns, an emissions inventory, and contingency measures. In addition, the EPA's 2002 action triggered both 18- and 24-month timetables or "clocks" for imposing emissions and highway funding sanctions, respectively. A Federal Implementation Plan was also to be prepared within a 24-month period from October 2002. The 1-hour ozone attainment was required to be submitted by March 18, 2004. Failure to put forth this document by the extension would trigger sanctions. All of the USEPA requirements were submitted in 2003, except the plan demonstrating the federal 1-hour ozone standard.

In preparation for the federal 1-hour ozone plan, computer modeling illustrated that reductions from the SJVAB alone would not be enough to attain the ozone standard. For the SJVAB to show attainment, the SJVAPCD and CARB would have to implement rules for emission reductions. As many of CARB's upcoming rules were scheduled for enactment after November 15, 2005, other options had to be explored. On December 18, 2003 after much research and discussion with applicable parties, USEPA was asked by the SJVAPCD and CARB to reclassify the SJVAB from Severe to Extreme nonattainment for the federal 1-hour ozone

standard. This designation reflects a more serious air quality problem for the ozone health-based standard, but allows for more time to demonstrate attainment.

The reclassification to Extreme nonattainment for the federal 1-hour ozone standard became final on May 17, 2004. The attainment date for the SJVAB is now November 15, 2010. Any previously imposed sanctions or the Federal Implementation Plan have been superseded by the Extreme nonattainment classification. The "Extreme Ozone Attainment Demonstration Plan" was adopted on October 8, 2004 and amended in October 2005.

On May 6, 2014, the SJVAPCD submitted a formal request that the USEPA determine that the SJVAB has attained the federal 1-hour ozone standard. The EPA concurred in July 2016 that the District had met the 1-hour ozone standard and has granted "attainment" status.

### 8-Hour Ozone

#### *2007 Plan for the 1997 8-hour Ozone Standard*

On April 15, 2004, the EPA designated and classified the SJVAB as Serious nonattainment for the federal 8-hour ozone standard. As of June 15, 2004, the Valley officially became a Serious nonattainment area and had until June 15, 2013 to show that it can achieve the 8-hour ozone standard. The initial 8-hour ozone plan for the Valley, 2007 Ozone Plan, was due to EPA by June 15, 2007. This plan is the first step in the Valley's path towards attainment to be followed by subsequent plans, rules, and programs that reduce emission to bring the area into attainment.

While many areas of the SJVAB currently meet this standard, several areas, including Arvin and northwest Fresno, would not reach attainment by June 2013. Based on the evidence, it was necessary to reclassify the SJVAB to an Extreme nonattainment classification. On April 30, 2007 the governing board of the SJVAPCD approved an 8-hour ozone plan that would extend the attainment date from June 15, 2013 to June 15, 2024. The SJVAB must reduce 75% of nitrogen oxides, which come from such sources as motor vehicles. Under an Extreme classification, an 8-hour ozone plan can take advantage of future advancements in technology in regards to emission reduction.

The SJV was reclassified from a Serious nonattainment area for the 8-hour ozone standard to Extreme effective June 4, 2010. The SIP has identified subarea budgets for each MPO in the nonattainment area. For this Conformity Analysis, the SJV will continue to conduct determinations for subarea emission budgets as established in the applicable implementation plan. The 2007 Ozone Plan (as revised in 2011) was approved by EPA on March 1, 2012 (effective April 30, 2012).

#### *2016 Plan for the 2008 8-hour Ozone Standard*

On March 12, 2008, EPA revised the primary and secondary 8-hour ozone standard at 75 ppb. Effective July 20, 2012, EPA designated the SJVAB as Extreme nonattainment area of the 2008 8-hour ozone. The 2016 Ozone Plan, for the 2008 standard is due on July 20, 2016, and the attainment date is December 31, 2013 using data from calendar years 2029, 2030, and 2031. The 2016 Ozone Plan builds upon the SJV Air Pollution Control District's 1-hour

ozone, 8-hour zone and particulate matter (PM) strategies and satisfies Federal Clean Air Act (CAA) requirements under EPA's 2008 8-hour ozone standard. The 2016 Ozone Plan was adopted by the District in June 2016 and subsequently approved by the Air Resource Board (ARB) in July 2016.

On October 1, 2015, EPA strengthened the 8-hour ozone standard from 75 ppb to 70 ppb, based on extensive scientific evidence about ozone's effects on public health and welfare. This updated ozone standard will essentially eliminate children's exposure to ozone at 70 ppb. The designation and State Implementation Plan Requirements Rule for 2015 8-hour ozone standard have not published yet. However, EPA anticipates designation areas in late 2017, and nonattainment areas will have from 2020 to 2037 to meet the standards.

In 2020, the District completed the "Reasonably Available Control Technology" (RACT) analysis for the 2015 8-hour rule in preparation for its 2022 Ozone Plan Update. The District will continue to develop new attainment plans to address the latest federal ozone standards. In future plans, significant additional emission reductions are expected, particularly with respect to mobile sources under ARB and EPA jurisdiction that make up over 85% of remaining emissions in the Valley.

### **PM-10 Attainment Demonstration and Maintenance plan**

PM-10 refers to particulate matters with diameter less than 10 microns – about 1/7th the thickness of the human hair. These particles are small enough to be inhaled into the deepest parts of the lung that threatens both our health and the environment.

#### PM-10 Nonattainment Area Plan of 1991

The FCAA classified the San Joaquin Valley as a Moderate PM-10 nonattainment area, thus requiring the adoption and implementation of a "PM-10 Nonattainment Area Plan" to reach attainment by 1994.

On-road mobile sources of emissions do not contribute greatly to the problem of primary PM-10. However, mobile sources do contribute to the oxides of nitrogen (NOx) and reactive organic gases (ROG), which are considered to be significant precursors affecting the creation of PM-10. Therefore, the implementation of TCMs to reduce VMT and increase vehicle occupancy can aid in the attainment of PM-10 standards.

The SJVAPCD submitted a plan that contained reasonable available control measures as required for Moderate nonattainment areas, but was unable to demonstrate attainment by the December 31, 1994 deadline. Due to the magnitude of the PM-10 problem, it was determined that SJVAB could not feasibly achieve the standard, and therefore was reclassified as a Serious nonattainment area effective February 8, 1993.

#### 1994 Serious Area PM-10 Plan

Classification as a Serious nonattainment area mandated the SJVAPCD to adopt a plan that contains more stringent strategies and rules which would enable attainment of the PM-10

standard by December 31, 2001. Specifically the plan was to include implementable best available control measures (BACM).

The SJVAPCD adopted the "1994 Serious Area PM-10 Plan" on September 13, 1994 which identified the only TCM considered to provide measurable benefits for PM-10 reductions as the Trip Reduction Ordinance. Individual TCMs would provide insignificant reductions in PM-10 emissions. Since several TCMs are included as part of any trip reduction program, their cumulative effect would produce favorable results.

#### PM-10 Attainment Demonstration Plan

Because the SJVAPCD could not show that the air basin could reach attainment by 2001, a "PM-10 Attainment Demonstration Plan" was prepared to describe existing and future efforts pursued by the District to attain the standard by December 31, 2006. The plan was finally submitted by the SJVAPCD on May 15, 1997 and requested an extension until 2006 to attain the 24-hour standard at all monitoring sites.

The EPA indicated that it intended to disapprove this Plan, because it did not include an adequate BACM demonstration and a "most stringent measures" demonstration required for an extension. Realizing that there was insufficient time to correct the deficiencies, the SJVAPCD withdrew the Plan.

#### 2003 PM-10 Plan

Because of the failure to submit the previously required PM-10 Plan, the SJVAPCD adopted the "2003 PM-10 Plan" on June 19, 2003 and approved amendments on December 18, 2003. The EPA approved the plan effective June 25, 2004 under the condition that the SJVAPCD would submit a SIP revision. This was required to evaluate if the identified emission reductions in the 2003 Plan would be enough to obtain the air quality standards for PM 10.

#### 2006 PM-10 Plan

The "2006 PM-10 Plan" includes the SIP revision as stipulated for approval of the "2003 PM-10 Plan". The SIP revision is to specifically include from the California Regional Particulate Air Quality Study an inventory, the latest technical information, monitoring data, and modeling evaluation. The SJVAPCD was to submit the plan to the EPA by March 31, 2006. The EPA has six months to determine if the plan was complete and one year to find the plan in compliance within finding it complete. The plan was adopted by the SJVAPCD on February 16, 2006.

In May of 2006, it was requested by California that the EPA consider the SJVAB in attainment of the PM-10 standards. This request of attainment was based on the air quality data from the years 2003-2005. The EPA concluded on October 17, 2006 that indeed the Valley had reached attainment and that the related contingency measures would be suspended. The SJVAB's maintenance plan was approved by the EPA and subsequently published in the November 12, 2008 Federal Register.

### 2007 PM-10 Maintenance Plan

The 2007 PM-10 Maintenance Plan was approved (with minor technical corrections to the conformity budgets) by EPA on November 12, 2008, which contains motor vehicle emission budgets for PM-10 and NO<sub>x</sub>, as well as a trading mechanism. Motor vehicle emission budgets are established based on average annual daily emissions. The motor vehicle emissions budget for PM-10 includes regional reentrained dust from travel on paved roads, vehicular exhaust, travel on unpaved roads, and road construction.

California Air Resources Board and the San Joaquin Valley Air Pollution Control District will continue with their commitment to keep the SJVAB in attainment of the PM-10 standard and work towards the attainment of all other identified air quality standards.

### **PM-2.5 Standards and Attainment Demonstration Plans**

PM-2.5 refers to tiny particles or droplets in the air that are two and one half microns or less in width. Particles in this size are able to travel deeply into respiratory tract, reaching the lungs. Emission of PM-2.5 from road vehicles is one of major direct sources. PM-2.5 can also be formed from the chemical reactions of gases.

### 2008 PM-2.5 Plan and 2015 PM-2.5 Plan for the 1997 PM-2.5 Standard

EPA established the first national air quality standards for the fine fraction of particulates, PM-2.5, in July 1997 and designated the Valley as nonattainment for the 1997 standard based on ambient air quality data collected from 2001-2003. The 1997 standard has two limits of attainment: an annual PM-2.5 standard at 15 µg/m<sup>3</sup> and the 24-hour PM-2.5 standard at 65 µg/m<sup>3</sup>. During the process of developing the 2008 PM-2.5 Plan, the Valley was already projected to attain the 1997 24-hour standard based on the air quality data collected from 2004-2006. Therefore, the District focused on the demonstration of how the Valley will attain the 1997 PM-2.5 standard in the 2008 PM-2.5 Plan.

The District's Governing Board adopted the 2008 PM-2.5 Plan to address the 1997 annual PM-2.5 standard and directed staff to forward the adopted 2008 PM-2.5 Plan to ARB for approval and submittal to EPA. The 2008 PM-2.5 Plan was approved by EPA in November 2011, effective January 2012.

However, a court ruling in 2013 found that EPA erred in implementing the federal PM-2.5 standard pursuant solely to the general implementation provisions of Subpart 1 without also considering the particulate matter-specific provisions of Subpart 4, which requires a nonattainment area classification system and contains requirements specific to particulate matters. As a result, in June 2014, EPA classified the Valley and all other PM-2.5 nonattainment areas as a Moderate nonattainment area under Subpart 4, and required the District to submit additional documentation to fulfill all Subpart 4 requirements.

The District submitted an official request to EPA for reclassification from Moderate nonattainment to Serious nonattainment, with a demonstration of impracticability to attain the 1997 PM-2.5 standard by the April 5, 2015 deadline. The demonstration explained the situation that the Valley was on track to attain the 1997 PM-2.5 standard until the extreme

weather conditions over the winter of 2013-2014 overwhelmed emissions controls and led to abnormally high PM-2.5, which made the attainment of the 1997 annual PM-2.5 standard impractical based on 2012-2014 data. EPA evaluated the air quality data provided by the District and proposed the action of reclassification in February 2015. EPA finalized the Valley's reclassification to Serious Nonattainment in April 2015, effective May 2015, and thus extended the attainment date to no later than December 2015.

Due to the extreme drought, stagnation, strong inversions, and historically dry conditions experienced over the winter of 2013-2014, which made the attainment deadline of December 2015 impractical for the Valley to reach, the District requested a one-time extension of the attainment deadline for the 24-hour PM-2.5 standard to 2018 and the annual PM-2.5 standard to 2020.

#### 2012 PM-2.5 Plan for the 2006 PM-2.5 Standard

EPA revised the 24-hour average PM-2.5 standard to 35  $\mu\text{g}/\text{m}^3$  in October 2006 and initially designated the Valley as nonattainment area for the 2006 PM-2.5 standard in 2009, effective December 2009. The due date for the attainment demonstration plan is December 14, 2012. Similarly, due to the court ruling in 2013 that EPA did not consider the particulate matter-specific provisions of Subpart 4, in June 2014, EPA classified the Valley as Moderate nonattainment area under Subpart 4 for the 2006 PM-2.5 standard.

Subsequently, EPA reclassified the Valley nonattainment area from Moderate nonattainment to Serious nonattainment for the 2006 PM-2.5 standard based on a determination that the area cannot practicably attain the 2006 PM-2.5 standard by the Moderate area attainment date of December 31, 2015. Within 18 months of this reclassification, the State must submit a Serious area plan to demonstrate the attainment of the 2006 PM-2.5 standard in the Valley as expeditiously as practicable as and no later than December 31, 2019. The District's Governing Board approved the 2012 PM-2.5 Plan for the 2006 PM-2.5 standard in December 2012. The California Air Resources Board (ARB) approved the District's 2012 PM-2.5 Plan at a public hearing in January 2013.

#### 2016 Moderate Area Plan for the 2012 PM 2.5 Standard

In June 2012, EPA revised the national annual average of PM-2.5 standard to 12  $\mu\text{g}/\text{m}^3$ . In April 2015, EPA designated the Valley as a Moderate nonattainment area for the 2012 PM-2.5 standards within an initial attainment date of December 2021. The 2016 Moderate Area Plan for the 2012 PM-2.5 Standard was developed to address the latest PM-2.5 standard and satisfy Subpart 1 and Subpart 4 requirements for a Moderate nonattainment area. The 2016 Plan includes an impracticability demonstration and a request that the Valley be classified as a Serious nonattainment area, which will establish a new attainment deadline of December 2025.

In October 2016, the CARB conducted a public meeting to consider the District's 2016 PM-2.5 Plan. ARB staff continually conduct workshops in the Valley to assess opportunities for further reductions from stationary and mobile sources. ARB staff reported back to the Board with recommendations and next steps for continued strategy development.



### 2017 PM Plans and 2021 Plan Revision

The District's 2018 PM<sub>2.5</sub> Attainment Plan was approved by the EPA on June 30, 2020. Challenges from wildfire smoke and data collection issues necessitated an attainment plan update, approved by the District on August 31, 2021. District data indicates that attainment was likely reached without these additional challenges, and the District believes that attainment can be reached on or before the revised attainment date of 2023.

The district continues to strive towards PM<sub>2.5</sub> attainment for the health and wellness of all living in the Valley.