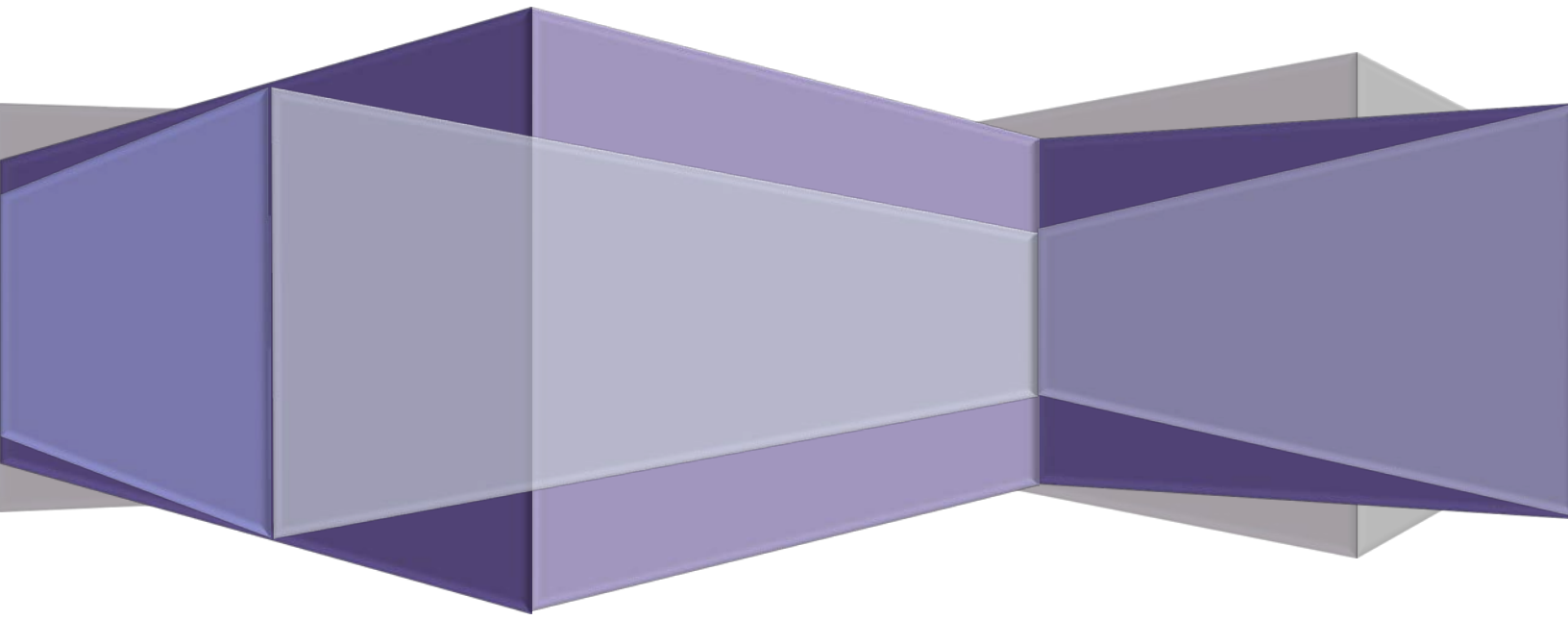
Chapter 3

Demonstration of Federal Clean Air Act Requirements

PROPOSED 2016 Moderate Area Plan for the 2012 PM2.5 Standard



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Chapter 3: Demonstration of Federal Clean Air Act Requirements

The federal Clean Air Act (CAA), Title 1, Part D Subpart 1 (Subpart 1) and CAA, Title 1, Part D Subpart 4 (Subpart 4) require California to submit documentation to the U.S. Environmental Protection Agency (EPA) that is specific to the San Joaquin Valley (Valley) to address the 2012 National Ambient Air Quality Standards (NAAQS, or standard) for PM2.5. This *2016 Moderate Area Plan for the 2012 PM2.5 Standard* (*2016 PM2.5 Plan)* satisfies federal Clean Air Act requirements for the Valley as an area classified as a Moderate nonattainment area for the 2012 PM2.5 standard.

The CAA requirements summarized and demonstrated in this chapter are based on CAA language and on EPA's only guidance for PM2.5 Moderate nonattainment area under Subpart 4 – the Implementation Rule.[1] Unfortunately for the Valley, and all other areas classified Moderate for the 2012 PM2.5 NAAQS, EPA did not finalize the implementation rule until August 2016. Any Moderate area nonattainment plan for the 2006 PM2.5 national ambient air quality standards (standard, or NAAQS) would be due to EPA no later than October 2016. For states to follow federal Clean Air Act public noticing requirements, the states must publish proposed plans and/or other demonstrations 30 days before the state can hold a public hearing and adopt said plan. In short, EPA actions only allowed the District less than one month to draft this plan pursuant to new guidance.

3.1 FEDERAL REQUIREMENTS FOR PM2.5 MODERATE NONATTAINMENT AREAS

3.1.1 Federal Air Quality Standards for PM2.5

EPA has promulgated three standards for PM2.5. The first PM2.5 standard was promulgated in July 1997,[2] with an annual PM2.5 standard of 15 micrograms per cubic meter (µg/m^3) and a 24-hour PM2.5 standard of 65 µg/m^3. In October 2006, EPA revised the 24-hour average PM2.5 standard to 35 µg/m^3.[3] In 2012, EPA revised the annual PM2.5 standard to 12 µg/m^3.[4]

The Valley was initially designated as a nonattainment area for the 1997 and 2006 standards under Subpart 1. A classification was not issued at that time because EPA

[1] Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements Proposed Rule. 80 Fed. Reg. 55, (pp. 15340-15474) (2015, March 23) (to be codified as 40 CFR Parts 50, 51, and 93) http://www.epa.gov/airquality/particlepollution/pdfs/20150311proposal.pdf

[2] National Ambient Air Quality Standards for Particulate Matter, 62 Fed. Reg. 138, pp. 38651-38701. (1997, July 18). (to be codified at 40 CFR Part 50) https://www.gpo.gov/fdsys/pkg/FR-1997-07-18/pdf/97-18577.pdf

[3] National Ambient Air Quality Standards for Particulate Matter; Final Rule. 71 Fed. Reg. 200, pp. 6114-61233. (2006, October 17). (to be codified at 40 CFR Part 50) http://www.gpo.gov/fdsys/pkg/FR-2006-10-17/html/06-8477.htm

[4] National Ambient Air Quality Standards for Particulate Matter; Final Rule. 78 Fed. Reg. 10, pp. 3086-3287. (2013, January 15). (to be codified at 40 CFR Parts 50, 51, 52, 53 and 58) http://www.gpo.gov/fdsys/pkg/FR-2013-01-15/pdf/2012-30946.pdf

was only requiring states to satisfy Clean Air Act requirements for PM2.5 under the general requirements of Subpart 1. The District subsequently adopted the *2008 PM2.5 Plan* and the *2012 PM2.5 Plan* to address Subpart 1 requirements for the standards following EPA's guidance.

In January 2013, the D.C. Circuit Court found that EPA erred in implementing the federal PM2.5 standard pursuant solely to the general implementation provisions of Subpart 1 without also considering the particulate matter-specific provisions of Subpart 4. As the result, EPA began requiring states and air districts to satisfy Subpart 1 and Subpart 4 requirements for PM2.5 standards. In addition to the PM-specific requirements, Subpart 4 also requires a nonattainment area classification system (i.e., Moderate and Serious classifications). Consequently, on June 2, 2014, EPA classified the Valley as Moderate nonattainment under Subpart 4 for the 1997 and 2006 PM2.5 standards, and required the District to submit additional documentation to fulfill all Subpart 4 requirements.[5]

Pursuant to Subpart 4, the Valley was classified as a Moderate nonattainment area for the 2012 PM2.5 standard effective April 15, 2015.[6] This *2016 PM2.5 Plan* addresses this newest PM2.5 standard and satisfies Subpart 1 and Subpart 4 requirements for a Moderate nonattainment area; provides a demonstration of impracticability of attainment by the Moderate area attainment date of 2021; and includes a request for reclassification to Serious nonattainment.

3.1.2 EPA Implementation Rule

When EPA revises an air quality standard, it considers the extent to which existing EPA regulations and guidance are sufficient to implement the standard and whether any revisions or updates to those regulations and guidance would be helpful or appropriate in facilitating the implementation of the revised standards. Where the nature of revisions to a standard indicates that additional regulations or guidance may be helpful, EPA provides those regulations and guidance to facilitate preparation of air quality plans (also called state implementation plans, or SIPs).

On March 23, 2015, EPA issued a proposed Implementation Rule in the Federal Register for implementing the PM2.5 NAAQS pursuant to both Subpart 1 and Subpart 4 requirements.[7] However, EPA did not promulgate a final implementation rule until August 2016 giving the District less than one month to draft this plan pursuant to new guidance.

[5] All areas designated nonattainment for PM2.5 are classified as Moderate by order of law (CAA §188(a))
[6] Air Quality Designations for the 2012 Primary Annual Fine Particle (PM2.5) NAAQS; Final Rule 80 RF. Vol.80 No10. pp. 2206-2284 (2015, January 15) (to be codified at 40 CFR part 81) http://www.gpo.gov/fdsys/pkg/FR-2015-01-15/pdf/2015-00021.pdf
[7] Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements Proposed Rule. 80 Fed. Reg. 55, (pp. 15340-15474) (2015, March 23) (to be codified as 40 CFR Parts 50, 51, and 93) http://www.epa.gov/airquality/particlepollution/pdfs/20150311proposal.pdf

3.1.3 Federal Requirements for PM2.5 Moderate Nonattainment Areas

Table 3-1 below provides a summary of the federal Clean Air Act requirements applicable to this *2016 PM2.5 Plan*.

Table 3-1 Summary of Federal Requirements for PM2.5 Moderate Nonattainment Areas

Requirement	Federal Regulation/ Guidance	Summary
CAA Subpart 1 – Nonattainment Areas in General		
Reasonable Further Progress (RFP)	§172(c)(2)	Demonstrate reasonable further progress
Emissions Inventory	§172(c)(3)	An accurate and current emission inventory
Contingency Measures	§172(c)(9)	Contingencies if area fails to meet reasonable further progress or attain by the attainment date
CAA Subpart 4 – Additional Provisions for Particulate Matter Nonattainment Areas		
Attainment Date	§188(c)(1)	As expeditiously as practicable, but no later than end of 6th calendar year after designation as nonattainment
Permit Program	§189(a)(1)(A)	A permit program providing that permits are required for the construction and operation of new and modified major stationary sources
Attainment Demonstration	§189(a)(1)(B)	Demonstration of attainment by the applicable attainment date **or a demonstration that attainment by such date is impracticable**
Reasonably Available Control Measures (RACM)	§189(a)(1)(C)	Implement Reasonably Available Control Measures no later than four years after designation
Plan Submissions	§189(a)(2)(B)	No later than 18 months after designation as nonattainment
Extension of Attainment Date	§188(d)	No more than two one-year extensions may be issued
Request Reclassification to Serious	§188(b)	EPA may reclassify areas to Serious nonattainment
Quantitative Milestones	§189(c)(1)	Plan revisions demonstrating attainment submitted to EPA shall contain quantitative milestones which are to be achieved every three years until the area is redesignated attainment and which demonstrate reasonable further progress toward attainment by the applicable date
Precursors	§189(e)	The control requirements in effect under Subpart 4 for major stationary sources of PM10 shall also apply to major stationary sources of PM10 precursors, except where EPA determines that such sources do not contribute significantly to PM10 levels that exceed the standard.

3.2 CALIFORNIA STATE AMBIENT AIR QUALTY STANDARDS

California also sets ambient air quality standards for several pollutants, including PM2.5. California's annual average PM2.5 standard is currently 12 µg/m^3. There is no California standard for 24-hour average PM2.5. California has no specific attainment date for state air quality standards, nor does it require attainment plans. In fact, California Health and Safety Code §39602 states, "Notwithstanding any other provision of this division, the state implementation plan shall only include those provisions necessary to meet the requirements of the [federal] Clean Air Act." Federal standards thus provide the framework for SIPs, and progress toward attainment of the federal standards also brings the Valley closer to the more stringent California standards.

3.3 PRECURSOR DEMONSTRATION

In its implementation rule, EPA provides three approaches for demonstrating that a particular precursor is not a significant contributor to ambient PM2.5 levels that exceed the standard:

- **Comprehensive Precursor Demonstration**. A particular precursor would not need to be addressed in control measures, RFP, quantitative milestones, or contingency measures for this plan if it is demonstrated that emissions of that precursor from all existing stationary, area, and mobile sources do not contribute significantly to PM2.5 levels.

- **Major Stationary Source Precursor Demonstration**. A particular precursor would not need to be addressed in control measures, RFP, quantitative milestones, or contingency measures for this plan for existing major stationary sources if it is demonstrated that emissions of that precursor from all existing major stationary sources do not contribute significantly to PM2.5 levels.

- **Nonattainment New Source Review (NNSR) Demonstration**. All new and modified Major stationary sources of a particular precursor would be exempt from regulation under the NNSR program if it is demonstrated that emissions of that precursor from new and modified Major stationary sources would not contribute significantly to PM2.5 levels.

This *2016 PM2.5 Plan* demonstrates that VOC, SOx, and ammonia are not significant precursors to exceedances of the PM2.5 standard through the *Comprehensive Precursor Demonstration* approach. As such, per EPA guidance, the District is not required to adopt control measures nor address RFP, quantitative milestones, or contingency measures for VOC, SOx, and ammonia.

The first type of analysis required for the *Comprehensive Precursor Demonstration* is an existing source contribution analysis that would demonstrate whether emissions of a precursor from all existing sources in the nonattainment area significantly contribute to PM2.5 concentrations that exceed the standard in the area. However, EPA failed to

provide the necessary guidance to perform this analysis, committing to forthcoming technical guidance.

As a result, the California Air Resources Board (ARB) performed a precursor sensitivity analysis in accordance with EPA's implementation rule. A sensitivity analysis demonstrates the degree to which concentrations in a nonattainment area are impacted by reductions in a particular precursor. The sensitivity analysis for this *2016 PM2.5 Plan* demonstrates that in the Valley, ammonia, VOC, and SOx are not significant precursors (Appendix A).

3.4 REASONABLY AVAILABLE CONTROL MEASURES (RACM)

The Clean Air Act requires attainment plan provisions to assure that Reasonably Available Control Measures (RACM) are implemented.

3.4.1 District RACM

The District has adopted two attainment plans in less than 17 months, *2015 Plan for the 1997 PM2.5 Standard*[8] (adopted April 16, 2015) and the *2016 Plan for the 2008 8-Hour Ozone Standard*[9] (adopted June 16, 2016). Each of these attainment plans contains comprehensive analyses to identify all potential emission reduction opportunities and determine if any of the identified potential emission reduction opportunities are technologically and economically feasible to implement in the Valley. In fact, the *2015 Plan for the 1997 PM2.5 Standard* goes beyond Moderate nonattainment area requirements in that it demonstrates Best Available Control Measures (BACM) and Most Stringent Measures (MSM).

As a part of the development of this *2016 PM2.5 Plan* the District followed EPA guidance for the control measure evaluation process for RACM, RACT, and additional reasonable measures. The District identified and evaluated all existing and potential control measures for direct PM2.5 and PM2.5 precursors to determine if there are any emission reduction opportunities that would qualify as RACT or as an additional feasible measure that could be made into commitments for rule amendments or rule adoptions to expedite attainment in the Valley and demonstrate RACM. As part of the District's evaluation, no new rules or regulations were found to be adopted at the federal, state, or local level since the adoption of the two plans. In addition, the District did not find any new emission control technologies that could further reduce emissions from source categories in the Valley. Furthermore, the cost of technologies that were recently determined not to be cost effective has not changed; therefore those technologies remain economically infeasible to implement in the Valley. As such, the District has determined that the analyses and the feasibility determinations presented in the two aforementioned plans are still current and correct. In light of these determinations, this

[8] SJVUAPCD. *2015 Plan for the 1997 PM2.5 Standard. (2015, April 16).* http://www.valleyair.org/Air_Quality_Plans/docs/PM25-2015/2015-PM2.5-Plan_Bookmarked.pdf

[9] SJVUAPCD. 2016 Plan for the 2008 8-Hour Ozone Standard. (2016, June 16). http://www.valleyair.org/Air_Quality_Plans/Ozone-Plan-2016/Adopted-Plan.pdf

2016 PM2.5 Plan includes the stationary source control measure analyses from each of the two attainment plans as attachments (Attachments 1 and 2).

The *2016 PM2.5 Plan* therefore satisfies RACM.

3.4.2 ARB RACM

Given the severity of California's air quality challenges, ARB has implemented the most stringent mobile source emissions control program in the nation. ARB's comprehensive strategy to reduce emissions from mobile sources includes stringent emissions standards for new vehicles, in-use programs to reduce emissions from existing vehicle and equipment fleets, cleaner fuels that minimize emissions, and incentive programs to accelerate the penetration of the cleanest vehicles beyond that achieved by regulations alone. ARB staff's analysis of these currently in place measures are presented in the District's *2015 Plan for the 1997 PM2.5 Standard* and the *2016 Plan for the 2008 8-Hour Ozone Plan,* and are included as Attachment 2.

ARB finds there are no additional reasonably available control measures that would advance attainment of the PM2.5 standard in the Valley. There are no reasonable regulatory control measures excluded from use in this plan; therefore, there are no emission reductions associated with unused regulatory control measures. Taken together, California's mobile program meets RACM requirements in the context of a Moderate area PM2.5 Plan.

3.4.3 Metropolitan Planning Organizations (MPOs) RACM:

As a part of the development of this *2016 PM2.5 Plan,* the Valley MPO's identified and evaluated all transportation control measures, as described in Section 3.9.6. As such, the District has determined that, at this time, all reasonable transportation control measures under MPO jurisdiction are being implemented and the adoption of any additional transportation control measures would not expedite attainment. Additionally, since the adoption of the District's *2015 Plan for the 1997 PM2.5 Standard* and the *2016 Plan for the 2008 8-Hour Ozone Plan*, no new control measures have been adopted. There are no reasonable regulatory control measures excluded from use; therefore, there are no emissions reductions associated with unused regulatory control measures.

3.5 REASONABLE FURTHER PROGRESS (RFP)

CAA §171(1) defines reasonable further progress (RFP) as incremental emission reductions leading to the attainment date. Pursuant to EPA guidance provided in the Implementation Rule, the state must submit an RFP plan that includes three components: (1) an implementation schedule; (2) RFP projected emissions for each quantitative milestone year (in this case, 2019 and 2022); and (3) an analysis demonstrating this schedule of aggregate emissions reductions achieves sufficient progress.

3.5.1 Implementation Schedule

Pursuant to the final Implementation Rule, an area that demonstrates impracticability of attainment shall provide an implementation schedule for all control measures identified as RACM and RACT and additional reasonable measures.

This requirement is demonstrated in Section 3.4 and in Table 3-2 and Table 3-3. All measures that demonstrate RACM and RACT for stationary, area, and mobile sources have been identified and adopted pursuant to commitments in previously adopted District attainment plans. Table 3-2 identifies many of the adopted District rules achieving new emissions reductions after 2013, the base year for this plan. However, even pre-2013 adopted/amended rules will continue to contribute emissions reductions that will assist the Valley in its progress toward attainment.

Table 3-2 Adopted District Rules Achieving Reductions Post-2013 and Contributing to PM2.5 Attainment Progress

District Rules		*Date Adopted or Last Amended*
4103	Open Burning	4/15/2010
4307	Boilers, Steam Generators, and Process Heaters 2 to 5 MMBtu/hr	5/19/2011
4308	Boilers, Steam Generators, and Process Heaters 0.075 to <2 MMBtu/hr	11/14/2013
4311	Flares	6/18/2009
4306/ 4320	Boilers, Steam Generators, and Process Heaters >5 MMBtu/hr	10/16/2008
4352	Solid Fuel Fired Boilers, Steam Generators and Process Heaters	12/15/2011
4354	Glass Melting Furnaces	5/19/2011
4702	Internal Combustion Engines	8/18/2011
4905	Natural Gas-Fired, Fan-Type Residential Central Furnaces	1/22/2015
9610	State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs	6/20/2013

Table 3-3 Adopted or Amended ARB Regulations Contributing to Attainment

ARB Regulation	Adoption Date	Category
Revisions to On-Board Diagnostics System Requirements	09/24/2015	On-Road
2015 Low Carbon Fuel Standard Amendments	02/19/2015	Fuel
Commercialization of Alternative Diesel Fuels Regulation	02/19/2015	Fuel
2014 Amendments to Zero Emission Vehicle Regulation	10/23/2014	On-road
Amendments to Low Emission Vehicle III Criteria Pollutant Requirements for Light-and Medium-Duty Vehicles the Hybrid Electric Vehicle Test Procedures, and the Heavy-Duty Otto-Cycle and Heavy-Duty Diesel Test Procedures	10/23/2014	On-road
Amendments to the Enhanced Fleet Modernization Program Regulation	06/26/2014	On-road
Truck and Bus Rule Update	04/24/2014	On-road

ARB Regulation	Adoption Date	Category
Heavy-Duty Greenhouse Gas Phase 1: On-Road Heavy Duty Greenhouse Gas Emissions Rule, Tractor-Trailer Rule, Commercial Motor Vehicle Idling Rule, Optional Emission Standards	12/12/2013	On-road
Minor Modifications to the Zero Emission Vehicle Regulation	10/24/2013	On-road
Alternative Fuel Certification Procedures	09/26/2013	Fuel
Gasoline and Diesel Fuel Test Methods	01/25/2013	Fuel
Low Emission Vehicle III Greenhouse Gas and Zero Emission Vehicle Regulation Amendments for Federal Compliance Option	11/15/2012	On-road
Amendments to On-Board Diagnostics (OBD I and II) Regulations	08/23/2012	On-road
Amendments to Verification Procedures, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines	08/23/2012	On-road
Emergency Regulatory Amendments to the Tractor-Trailer Greenhouse Gas Regulation	02/29/2012	On-Road
Zero Emission Vehicle Standards for 2009 through 2017	01/26/2012	On-road
Advanced Clean Car Program	1/27/2012	On-road
Expanded Off-Road Recreational Vehicle Emission Standards	12/16/2011	Off-road
Cleaner In-Use Off-Road Equipment	12/17/2010	Off-road
Port Truck Modernization	12/17/2010	Off-road
Cleaner In-Use Heavy-Duty Trucks	12/16/2010	On-road
Accelerated Introduction of Cleaner Line-Haul Locomotives	06/24/2010	Other
Enhanced Fleet Modernization Program (formerly called the Expanded Vehicle Retirement Program)	06/24/2010	On-road
Smog Check Improvements	08/31/2009	On-road
Portable Outboard Marine Tanks	09/25/2008	Off-road
In-Use Heavy-Duty Trucks Regulation	12/11/2008	On-road
On-Road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Rail Yard Facilities	12/6/2007	On-road
In-Use Off-Road diesel Equipment Regulation	07/26/2007	Off-road
Clean Up Existing Harbor Craft	11/15/2007	Other
Voluntary Accelerated Retirement Regulation	12/07/2006	On-road
Emergency Regulation for Portable Equipment Registration Program, Airborne Toxic Control Measures and Portable and Stationary diesel-Fueled Engines	12/06/2006	Off-road
Airborne Toxic Control Measure for Stationary Compression Ignition Engines (Agricultural Eng. Exemption removal)	11/16/2006	Other
Distributed Generation Guidelines and Regulations	10/19/2006	Other
Zero Emission Bus Regulation	10/19/2006	On-road
Heavy-Duty In-Use Compliance Regulation	09/28/2006	On-road
On-Board Diagnostic II	09/28/2006	On-road
Off-Highway Recreational Vehicles and Engines	07/20/2006	Off-road
California Motor Vehicle Service Information Rule	06/22/2006	On-road
Portable Equipment Registration Program	06/22/2006	Off-road
Fork Lifts and Other Industrial Equipment (Large Off-Road Spark Ignition Engines > 1 liter)	05/26/2006	Off-road
Technical Amendments to Evaporative Exhaust and Evaporative Emissions Test Procedures	05/25/2006	On-road
Diesel Verification Procedure, Warranty & In-Use	03/23/2006	On-road
AB1009 Heavy-Duty Vehicle Smoke Inspection Program	01/26/2006	On-road
Diesel Particulate Matter Control Measure for On-Road Heavy-Duty Diesel-Fueled Vehicles Owned or Operated by Public Agencies and Utilities	12/08/2005	On-road
Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards	12/08/2005	Off-road
Marine Inboard Sterndrive Engines	11/17/2005	Off-road

ARB Regulation	Adoption Date	Category
Requirements to Reduce Idling Emissions from New and In-Use Trucks, Beginning in 2008	10/20/2005	On-road
2007-2009 Model-Year Heavy Duty Urban Bus Engines and the Fleet Rule for Transit Agencies	09/15/2005	On-road
Portable Fuel Containers (PFC) [Part 1 of 2]	09/15/2005	Off road
Portable Fuel Containers (PFC) [Part 2 of 2]	09/15/2005	Off road
On-Board Diagnostic System Requirements for 2010 and Subsequent Model-Year Heavy-Duty Engines (HD OBD)	07/21/2005	On-road
Airborne Toxic Control Measure for Stationary Compression Ignition Engines amendments	05/26/2005	Other
Transit Fleet Rule	02/24/2005	On-road
Off-Road Compression Ignition Engines	12/09/2004	Off-road
Emergency Regulation for Temporary Delay of Diesel Fuel Lubricity Standard	11/24/2004	Fuels
Diesel Fuel Standards for Harbor Craft & Locomotives	11/18/2004	Fuels
Greenhouse Gas	09/23/2004	On-road
Airborne Toxic Control Measure for Diesel Particulate from Diesel Fueled Commercial Vehicle Idling	07/22/2004	On-road
Urban Bus Engines/Fleet Rule for Transit Agencies	06/24/2004	On-road
Engine Manufacturer Diagnostic System Requirements for 2007 and Subsequent Model Heavy Duty Engines	05/20/2004	On-road
Heavy Duty Diesel Engine-Chip Reflash	03/27/2004	On-road
Airborne Toxic Control Measure for Diesel-Fueled Portable Engines	02/26/2004	Off-road
Modifications to the Statewide Portable Equipment Registration Program (PERP) Regulations	02/26/2004	Off-road
CA Motor Vehicle Service Information Rule	01/22/2004	On-road
Airborne Toxic Control Measure for Diesel Particulate for Transport Refrigeration Units	12/11/2003	On-road
Airborne Toxic Control Measure for Stationary Compression Ignition Engines	12/11/2003	Other
Diesel Retrofit Verification Procedure, Warranty and In-Use Compliance Requirements Amendments	12/11/2003	On-road
Small Off-Road Engines (SORE)	09/25/2003	Off-road
Solid Waste Collection Vehicles	09/24/2003	On-road
Off-Highway Recreation Vehicles	07/24/2003	Off-road
Specifications for Motor Vehicle Diesel Fuel	07/24/2003	Fuels
Zero Emission Vehicle Amendments for 2003	03/25/2003	On-road
Airborne Toxic Control Measure for Diesel Particulate from School Bus Idling	12/12/2002	On-road
Low Emission Vehicles II. Align Heavy Duty Gas Engine Standards with Federal Standards; minor administrative changes	12/12/2002	On-road
Revision to Transit Bus Regulations Amendments	10/24/2002	On-road
Diesel Retrofit Verification Procedure, Warranty and In-Use Compliance Requirements	05/16/2002	On-road
On-Board Diagnostic II Review Amendments	04/25/2002	On-road
Airborne Toxic Control Measure for Outdoor Residential Waste Burning	02/21/2002	Other
Voluntary Accelerated Light Duty Vehicle Retirement Regulations	02/21/2002	On-road
California Motor Vehicle Service Information Rule	12/13/2001	On-road
Distributed Generation Guidelines and Regulations	11/15/2001	Other
Low Emission Vehicle Regulations	11/15/2001	On-road
Heavy Duty Diesel Engine Standards for 2007 and Later	10/25/2001	On-road
Marine Inboard Engines	07/26/2001	Off-road
Zero Emission Vehicle Infrastructure and Standardization of Electric Vehicle Charging Equipment	06/28/2001	On-road
Zero Emission Vehicle Regulation Update	01/25/2001	On-road

ARB Regulation	Adoption Date	Category
Heavy Duty Diesel Engines "Not-to-Exceed (NTE)" Test Procedures	12/07/2000	On-road
Light-and Medium Duty Low Emission Vehicle Alignment with Federal Standards. Exhaust Emission Standards for Heavy Duty Gas Engines	12/07/2000	On-road
Air Toxic Control Measure for Chlorinated Toxic Air Contaminants from Automotive Maintenance and Repair Facilities	04/27/2000	Other
Transit Bus Standards	02/24/2000	On-road
Off-Road Compression Ignition Engines	01/27/2000	Off-road

3.5.2 RFP projected emissions for direct PM2.5 and all PM2.5 plan precursors for each applicable milestone year

The emissions inventory for direct PM2.5 and PM2.5 precursors for the two applicable milestone years (2019 and 2022) are included in Appendix B (Emissions Inventory).

3.5.3 Reasonable Further Progress Demonstration

CAA §171(1) defines RFP as incremental emission reductions leading to the attainment date. Pursuant to the Final Implementation Rule issued by EPA, for areas that demonstrate impracticability of attainment by the Moderate area deadline "the state must demonstrate either generally linear or stepwise emissions reductions toward the full amount of reductions that will be achieved by that deadline, *i.e*., the amount that reflects implementation of all of the control measures identified as RACM and RACT and additional reasonable measures for the entire period of the applicable attainment plan."

Additionally, in the EPA proposed approval of the District's *2012 PM2.5 Plan,* EPA states that it is reasonable to find that full implementation of a control strategy that satisfies the Moderate area control requirements represents reasonable further progress toward attainment.[10]

Since the entire period of this plan is through 2022, and the Final Implementation Rule does not require an attainment date when the Moderate area is demonstrating impracticability, the RFP demonstration shows linear progress from the base year through the 2019 milestone year to the 2022 planning horizon. RFP is demonstrated for direct PM2.5 and for NOx. VOC, SOx, and ammonia are not significant precursors (see Appendix A) and are therefore not included in this demonstration. This RFP is demonstrated for the nonattainment area as a whole and is shown below:

[10] Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; San Joaquin Valley Moderate Area Plan and Reclassification as Serious Nonattainment for the 2006 PM2.5 NAAQS; Proposed Rule. 80 Fed. Reg. 8, pp. 1816-1846. (2015, January 13) (to be codified at 40 CFR Parts 52 and Part 81). http://www.gpo.gov/fdsys/pkg/FR-2015-01-13/pdf/2015-00270.pdf

Step 1: Determine the total reductions from the 2013 baseline emission inventory that must be achieved to show progress toward the full amount of reductions projected for the entire period of this plan (2022).

Table 3-4 Total Reductions Necessary to Show Progress Toward 2022 (annual average tpd)

Pollutant	2013 Baseline Emissions Inventory	Emissions Level in 2022	Reductions with Implemented Control Measures
Direct PM2.5	63.4	59.5	3.9
NOx	318.1	185.2	132.9

Step 2: Determine the fraction of reductions that are achieved in each RFP milestone year. The base year of 2013 and final plan year of 2022 span a 9-year period.

- 2019 occurs at year six of nine (6÷9), so **67%** of emissions reductions must occur by 2019.
- 2022 occurs at year nine of nine (9÷9), so **100%** of emissions reductions must occur by 2022.

Step 3: Determine the RFP target emissions levels using reduction fractions.

Table 3-5 Target Emissions Levels for RFP (annual average tpd)

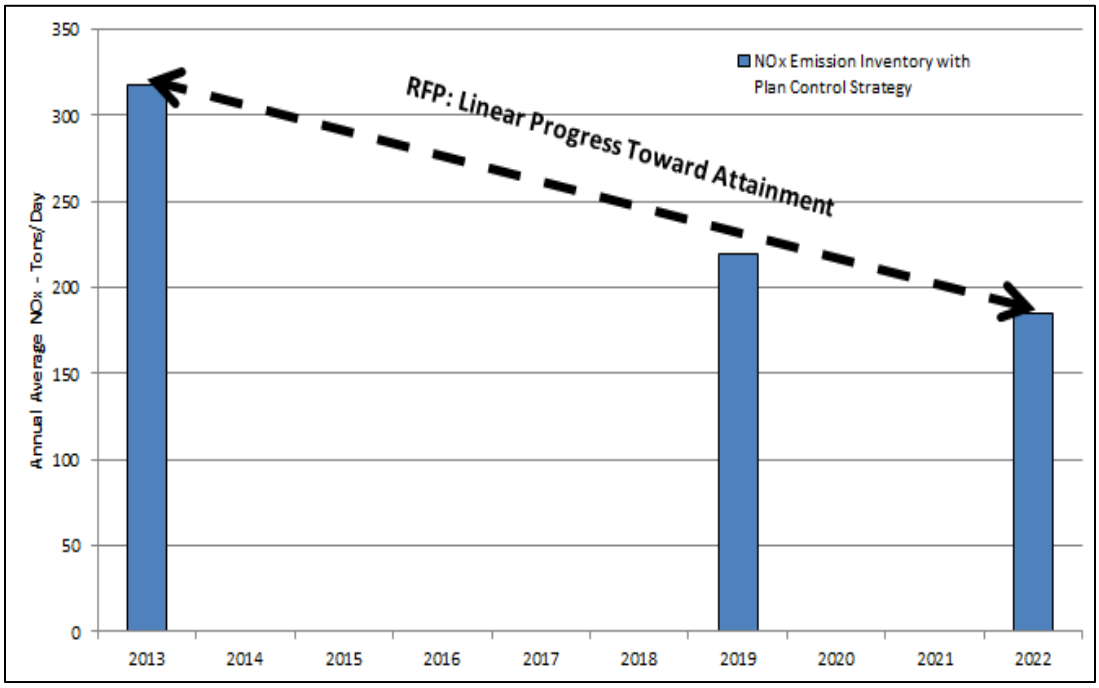
Pollutant	2013 Emissions Inventory	Reductions with Implemented Control Measures	2019		2022	
			Tons to be reduced *(B x 67%)*	RFP target emissions level *(A-C)*	Tons to be reduced *(B x 100%)*	RFP target emissions level *(A-E)*
	A	*B*	*C*	*D*	*E*	*F*
Direct PM2.5	63.4	3.9	2.6	60.8	3.9	59.5
NOx	318.1	132.9	88.6	229.5	132.9	185.2

Step 4: Compare RFP target emissions level (Table 3-5) to the projected emissions inventory (Table 3-4) to determine compliance with RFP targets.

Table 3-6 RFP Target Demonstration (2019 and 2022)

	2019			2022		
	RFP target emissions level	Projected emissions inventory	RFP target met?	RFP target emissions level	Projected emissions inventory	RFP target met?
Direct PM2.5	60.8	60.2	**Yes**	59.5	59.5	**Yes**
NOx	229.1	219.4	**Yes**	185.2	185.2	**Yes**

Figure 3-1 NOx Emissions Required to Demonstrate Reasonable Further Progress



3.6 QUANTITATIVE MILESTONES

Pursuant to CAA §189(c)(1), states must demonstrate quantitative milestones which are to be achieved every three years until the area is redesignated attainment and which demonstrate reasonable further progress toward attainment of the applicable attainment date. Additionally, under CAA §189(c)(2), no later than 90 days after the date on which a milestone applicable to the area occurs, each State in which all or part of such area is located shall submit to EPA a demonstration that all measures in the approved plan have been implemented and that the milestone has been met. The quantitative milestone years for this *2016 PM2.5 Plan* are 2019 and 2022.

These milestones focus on implementation of regulatory efforts, as well as characterization of ongoing air quality progress. Together they supplement the emission inventory reporting and serve as a quantifiable means to measure progress towards attainment. The District will submit reports to EPA at a later date documenting the following milestones:

2019 Milestone:

1. A list of measures in the SIP control strategy and key implementation requirements through 2019, in accordance with the RFP plan, including:
    a. Compliance milestones in the ARB Truck and Bus Rule and related implementation or enforcement actions that ARB will complete in 2019.
    b. Compliance milestones in District Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) and related implementation or enforcement actions that the District will complete in 2019.
2. Updated emission inventories.

2022 Milestone:

1. A list of measures in the SIP control strategy and key implementation requirements through 2022, in accordance with the RFP plan, including:
    a. Compliance milestones in the ARB Truck and Bus Rule and related implementation or enforcement actions that ARB will complete in 2022.
2. Updated emissions inventories.

3.7 CONTINGENCY MEASURES

Contingency measures are extra emissions reductions that go into effect without further regulatory action in the event the State fails to reach an RFP target or attainment. The measures must be "extra" in the sense that the reductions are not accounted for in RFP or in the attainment demonstration. Contingency reductions must be fully adopted rules or controls that are ready to be implemented upon a determination of failure to meet RFP, a quantitative milestone (or report), or to attain. Per the EPA implementation rule, crediting an area for "excess" emission reductions to satisfy contingency is not allowable for Moderate areas that cannot practicably attain. For areas that cannot attain by the attainment date, states must implement all control measures determined to be reasonable. In such cases, the contingency measures for attainment for such nonattainment areas would necessarily exceed the criteria for determining whether a measure is reasonable for purposes of RACM/RACT and additional reasonable measures. Contingency measures should occur with minimal to no further regulatory action by local, state, or federal governments. The *2016 PM2.5 Plan* should contain trigger mechanisms and a schedule for the contingency measure implementation.

3.7.1 Contingencies for Failure to Attain

Per EPA guidance, this *2016 PM2.5 Plan* does not include contingencies for failure to attain. Contingencies for attainment are implemented if a region fails to attain a NAAQS by the attainment date. Attainment year contingencies for nonattainment by the

Moderate area date are not applicable to the Valley for this *2016 PM2.5 Plan.* As stated in the final implementation rule, EPA does not interpret the requirement for contingency measures for failing to attain the NAAQS by the applicable attainment date to apply to a Moderate area that a state demonstrates cannot practicably attain the NAAQS by the statutory attainment date. Rather, it is appropriate for the state to identify and adopt contingency measures for failing to attain the NAAQS in a timely way as part of the Serious area attainment plan that will be developed once the EPA reclassifies such area. This approach is further supported by the EPA proposed approval of the District's *2012 PM2.5 Plan* whereby EPA determines that contingency measures for failure to attain need not be included as part of a Moderate area plan. "Section 189(b)(1)(A) differentiates between attainment plans that provide for timely attainment and those that demonstrate that attainment is impracticable. Where the SIP includes a demonstration that attainment by the applicable attainment date is impracticable, the state need only submit contingency measures to be implemented if an area fails to meet RFP."[11]

3.7.2 Contingency Demonstration

The contingency year for this *2016 PM2.5 Plan* is 2019. Since the District does not have an attainment date per the impracticability demonstration, the year 2022 was used in lieu of an attainment date strictly for the purpose of calculating the linear reductions needed for the RFP milestone of 2019, and is therefore not a milestone year requiring a contingency demonstration. As demonstrated in Appendix A, SOx, VOC, and ammonia are not significant precursors and are therefore not included in this demonstration. Per the EPA Implementation Rule, contingency should be equivalent to one year's worth of reductions needed for RFP. In the rare event that an area is unable to identify contingency measures, the state should provide a reasoned justification why a smaller amount of emissions reductions is appropriate.

Areas, like the Valley, that have significant nonattainment challenges have developed several generations of aggressive and far-reaching emission reduction measures to meet various Clean Air Act requirements. The result of this "no stone left unturned" policy is that when viable emission reductions are identified, they are implemented to contribute to expeditious attainment. Reductions are not usually held in reserve to be used only if an area fails to meet a milestone. As a result, contingency measure demonstrations in the Valley have been a challenge, historically. Table 3-7 shows how these approaches together generate enough emissions reductions to meet the contingency reductions required for this plan.

[11] Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; San Joaquin Valley Moderate Area Plan and Reclassification as Serious Nonattainment for the 2006 PM2.5 NAAQS; Proposed Rule. 80 Fed. Reg. 8, pp. 1816-1846. (2015, January 13) (to be codified at 40 CFR Parts 52 and Part 81). http://www.gpo.gov/fdsys/pkg/FR-2015-01-13/pdf/2015-00270.pdf

Table 3-7 Demonstration of Sufficient Contingency Reductions

	2019	Data reference
PM2.5		
Surplus from RFP	*0.6*	Table 3-9
Subtract PM2.5 reductions, trade for NOx	*-0.2*	1:8.8 trading ratio*
Total contingency reductions achieved	0.4	
Contingency reductions required	0.4	Table 3-8
Contingency need met?	**YES**	
NOx		
Surplus from RFP	*9.7*	Table 3-9
Surplus from amendments to Rule 4905	*0.3*	Section 3.7.2
Substitute PM2.5 reductions	*1.8*	1:8.8 trading ratio*
SIP-creditable Incentives	*3.0*	n/a
Total contingency reductions achieved	14.8	
Contingency reductions required	14.8	Table 3-8
Contingency need met?	**YES**	
* 1 ton of direct PM2.5 emissions reduced is equivalent to 8.8 tons of NOx reductions as demonstrated in Appendix A and summarized in Section 3.7.3. These ratios are conservative estimates summarizing the plan as a whole, not reflecting ratios appropriate for New Source Review (NSR)		

This demonstration was made using the following steps:

Step 1: Determine 1-Year's worth of RFP

Table 3-8 Contingency Emissions Reductions Target (in tons per day, or tpd)

	A	B	C	D
Pollutant	**2013 Inventory**	**2022 Inventory**	**Emissions Reduced**	**1 year's worth of RFP**
	(Appendix B)	(Appendix B)	(A-B)	(C / 9 years)
PM2.5	63.4	59.5	3.9	0.4
NOx	318.1	185.2	132.9	14.8

Step 2: Identify surplus reductions to satisfy contingency

Contingency measures can include measures already adopted and scheduled for implementation, as long as these measures are not relied on to provide emission reductions needed to provide for RFP or expeditious attainment. Based on general contingency requirements, the District is utilizing two types of contingency measures:

A. Surplus reductions from implementation of traditional regulations
B. SIP-creditable incentive based emissions reductions

Step 2A: Quantify surplus reductions from implementation of traditional regulations

As shown in the RFP demonstration, more emissions reductions than the minimum needed to demonstrate RFP in 2019 are being achieved. The difference between the RFP target emissions level and the actual projected emissions level can serve as

contingency reductions. The control measures achieving the contingency reductions are summarized in Tables 3-2 and 3-3.

Table 3-9 Reductions Surplus to RFP (2019, tpd)

	A	B	C
	RFP target emissions level	**Projected emissions inventory**	**Surplus to RFP** (A-C)
PM2.5	60.8	60.2	0.6
NOx	229.1	219.4	9.7

In addition to the emissions in the emission inventory that are surplus to the RFP (see Table 3-9) an additional source of surplus reductions from RFP include the NOx emissions reduced from the January 2015 amendments to District Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces). These reductions are not included in the inventory for this *2016 PM2.5 Plan* and are therefore surplus. Amendments to Rule 4905 resulted in a reduction of 0.32 tpd of NOx in 2019.

Step 2B: Quantify SIP-creditable incentive based emission reductions

Voluntary incentive programs achieve emissions reductions beyond those achieved by regulations alone. Incentive programs accelerate the adoption of cleaner technologies and encourage the use of cleaner technologies by those not yet subject to air quality regulations. Incentives allow the District to reduce emissions from source categories outside of the District's traditional regulatory authority, as well as source categories where financial hardship would otherwise prevent traditional control strategies from being implemented. The District will continue to seek opportunities for additional incentive reductions Valley-wide to achieve emissions reductions for contingency and expedite public health benefits.

The District proposes to claim **3.0 tpd of NOx reductions** through Rule 9610 and related incentive programs to use as contingency for 2019. The specific grant programs expected to provide the requisite emission reductions, and provides the documentation and related enforceable commitments necessary to support a SIP submission that relies on incentive programs for SIP emission reductions credits, similar to the ARB *Report on Reductions Achieved from Incentive-Based Emission Reduction Measures in the San Joaquin Valley* as approved by EPA on August 12, 2016,[12] are included in Appendix C.

[12] EPA. R*evision to the California State Implementation Plan; San Joaquin Valley; Demonstration of Creditable Emission Reductions from Economic Incentive Programs.* Final Action. 81 Fed. Reg. 156, pp. 53300-53309. (2016, August 12) (to be codified at 40 CFR Part 52). https://www.gpo.gov/fdsys/pkg/FR-2016-08-12/pdf/2016-18903.pdf

3.7.2.1 Demonstration of Sufficient Contingency Reductions

3.7.3 Trading Ratios

Results from sensitivity simulations involving ±15% scaling of controllable $PM_{2.5}$ precursors were also used to calculate inter-pollutant trading ratios. The inter-pollutant trading ratios (relative to NO_x) were calculated as the ratio in the reduction of annual $PM_{2.5}$ DV at a particular location by reducing a ton of other $PM_{2.5}$ precursors (i.e., primary $PM_{2.5}$, SO_x, NH_3, and VOCs) emissions as compared to a ton of NO_x emission reductions. To be consistent with past trading ratio determination in the SJV, here, we focused on the response of $PM_{2.5}$ concentrations at the two Bakersfield sites to emission reductions. Among them, the Bakersfield – Planz site has the highest future year annual $PM_{2.5}$ DV. Table 3-10 shows the trading ratios at Bakersfield – Planz and Bakersfield – California as well as the average ratio of these two sites. The primary $PM_{2.5}$ to NO_x trading ratio was determined to be approximately 9, which is consistent with that from the 2008 PM2.5 SIP.[13]

Table 3-10 Inter-pollutant trading ratios for annual PM2.5 in the Valley

	$PM_{2.5}$ relative to NO_x	NH_3 relative to NO_x	SO_x relative to NO_x	VOC relative to NO_x
Bakersfield – Planz	8.9	0.06	2.8	0.0
Bakersfield – California	8.7	0.06	2.5	0.0
Average	8.8	0.06	2.7	0.0

3.8 PERMITTING PROGRAM

Pursuant to CAA §189(a)(1)(A), a Moderate nonattainment area shall submit a SIP that includes a permit program meeting the requirements of §173 for the construction and operation of new and modified major sources of PM10. The District's April 21, 2011 version of Rule 2201 (New and Modified Stationary Source Review Rule) fully complies with and satisfies Subpart 4 requirements for Moderate areas.

On April 21, 2011, the District's NSR rule (Rule 2201) was amended to address the federal PM2.5 nonattainment NSR permitting requirements of Subpart 1. These amendments were based on EPA's two final rules called "Clean Air Fine Particle Implementation" (promulgated on April 25, 2007, 72 FR20586)[14] and "Implementation of the New Source Review (NSR) Program for Particulate Matter Less than 2.5 Microns" (PM2.5 NSR Rule) requirements (promulgated on May 16, 2008, 73 FR28321[15]) which outlined the necessary requirements of Subpart 1 of Part D of Title I of the CAA. Items addressed in the April 2011 amendments to Rule 2201 included defining major sources

[13] SJVAPCD (2013), Quantification of Contingency Reductions for the 2008 PM2.5 Plan, available at http://www.valleyair.org/air_quality_plans/docs/American-Lung-Association.pdf
[14] https://www.gpo.gov/fdsys/pkg/FR-2007-04-25/pdf/E7-6347.pdf
[15] https://www.gpo.gov/fdsys/pkg/FR-2008-05-16/pdf/E8-10768.pdf

of PM2.5 at 100 tons per year, establishing PM2.5 significant emissions rates to determine when NSR requirements apply to modified sources, establishing the PM2.5 offset ratio, and allowing for PM2.5 interpollutant emission offset ratios.

Rule 2201 requirements are more stringent than those required to satisfy Subpart 4 for areas designated as Moderate nonattainment. On February 18, 2016, District Rule 2201 was amended to comply with federal requirements for Serious nonattainment areas for federal PM2.5 standards by lowering the PM2.5 major source emission threshold from 100 tpy to 70 tpy. Although the 2016 amendments have not been forwarded by ARB to EPA for inclusion into the SIP, the District is fully implementing the rule as a locally and federally enforceable program that implements the Serious area NSR requirements.

3.8.1 Permitting PM2.5 Precursors at Major Sources

Clean Air Act §189(e) requires the control of PM10 precursors at major stationary sources "except where the Administrator determines that such sources do not contribute significantly to PM10 levels which exceed the standard in the area." By definition, PM2.5 is a subset of PM10 and therefore this section of the Clean Air Act is also applicable to PM2.5.[16]

PM2.5 precursors are emissions that potentially contribute to PM2.5 formation, including NOx, SOx, VOC or ammonia. In the Valley, VOC and ammonia are not precursors that contribute significantly to the formation of PM2.5, as demonstrated in the multiple District attainment plans already adopted and submitted to EPA.

Under the current SIP-approved Rule 2201, section 3.31, NOx and SOx are currently identified and controlled as precursors to PM2.5, and thus Rule 2201 meets the requirements of Subpart 4 with respect to NOx and SOx as precursors.

3.8.1.1 Precursor Sensitivity Analysis for Ammonia and VOC

The CAA recognized that there may be circumstances in which it is not appropriate to subject certain precursors to permitting control requirements. Based on the scientific data and modeling analyses outlined for this plan, VOC, SOx and ammonia do not significantly contribute to PM2.5 formation in the Valley (see Appendix A) for plan-development purposes.

However, the newly revised guidance on precursor sensitivity analyses for NSR purposes in EPA's recently signed (July 29, 2016) PM2.5 implementation rule comes too late to be implemented with this plan. Therefore, the District expects to submit such precursor sensitivity modeling as a SIP amendment with the District's next NSR Rule adoption staff report. This rule adoption process, to address Serious area NSR requirements, is expected to take place prior to August of 2017. In the meantime, no

[16] U.S. Court of Appeals, District of Columbia Circuit. Natural Resources Defense Council (NRDC) and Sierra Club, Petitioners v. EPA January 4, 2013. D.C. Circuit Court

interpollutant trading of precursors for PM 2.5, or visa versa, will be allowed under the District's NSR rule requirements until such time as the District's NSR rule can be updated to include the appropriate NSR precursor sensitivity modeling.

3.8.1.2 Major Source and Major Modification Thresholds

On June 2, 2014, EPA classified the Valley as a Moderate nonattainment area for PM2.5 under Subpart 4. Under this classification, major sources of PM2.5 are defined as sources with a potential to emit equal to or greater than 100 tons per year (tpy). Rule 2201, as amended April 2011, includes this threshold.

In addition, Rule 2201 specifically identifies SOx and NOx as precursors of PM2.5, and includes appropriate thresholds for determining whether proposed emission increases of PM2.5, SOx or NOx constitute a major modification of a major PM2.5 source under Subpart 4. Rule 2201 also includes all the appropriate federal requirements for proposed major sources and major modifications (notification, BACT, offsets, etc.), none of which are specific to Subpart 4 and are therefore already included in the latest SIP-approved version of Rule 2201.

3.9 TRANSPORTATION CONFORMITY

Section 176(c) of the Federal Clean Air Act (CAA) establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with air quality progress. The CAA requires that transportation plans, programs, and projects that obtain federal funds or approvals *conform to* applicable state implementation plans (SIP) before being approved by a Metropolitan Planning Organization (MPO). Conformity to a SIP means that proposed activities must not:

(1) Cause or contribute to any new violation of any standard,
(2) Increase the frequency or severity of any existing violation of any standard in any area, or
(3) Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

A SIP analyzes the region's total emissions inventory from all sources for purposes of demonstrating rate of progress (RFP), attainment, or maintenance. The portion of the total emissions inventory from on-road highway and transit vehicles in these analyses becomes the "motor vehicle emissions budget." [17] Motor vehicle emissions budgets are the mechanism for ensuring that transportation planning activities conform to the SIP. Budgets are set for each criteria pollutant or its precursors, and it is set for each RFP milestone year and the attainment year. Subsequent transportation plans and programs produced by transportation planning agencies are required to conform to the SIP by

[17] Federal transportation conformity regulations are found in 40 CFR Part 51, Subpart T – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. of the Federal Transit Laws. Part 93, Subpart A of this chapter was revised by the EPA in the August 15, 1997 Federal Register.

demonstrating that the emissions from the proposed plan, program, or project do not exceed the budget levels established in the applicable SIP.

3.9.1 PM2.5 Requirements for Conformity

On April 25, 2007 EPA published in the Federal Register the *Clean Air Fine Particle Implementation Rule* (Final Rule) implementing the 1997 PM2.5 NAAQS (see 72 FR 20586). The Final Rule addresses the types of motor vehicle emissions that must be addressed when setting transportation conformity budgets. In the Final Rule, EPA notes that: "RFP plans, attainment demonstrations, and maintenance plans must include a budget for direct PM2.5 emissions, except for certain cases as described below. All PM2.5 SIP budgets would include directly emitted PM2.5 motor vehicle emissions from tailpipe, brake wear, and tire wear. States should also consider whether re-entrained road dust or highway and transit construction dust are significant contributors and should be included in the PM2.5 budget." (72 FR 20645) The rule goes on to state that: 'Under certain circumstances, directly emitted PM2.5 from on-road mobile sources may be found an insignificant contributor to the air quality problem and NAAQS.'

The conformity rule applies for particles with aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM2.5). NOx must also be addressed as a precursor unless there is a finding of insignificance.

Section 93.102(b)(2)(iv and v) of the conformity rule also identifies Volatile Organic Compounds (VOC), SOx, and/or ammonia as PM2.5 precursor pollutants that must also have a motor vehicle emissions budget if that precursor is deemed significant. In addition, Section 93.102(b)(3) identifies re-entrained road dust from paved and unpaved roads as PM2.5 emissions that must also have a motor vehicle emissions budget if deemed significant. While the applicability section of the rule does not address fugitive dust from road construction specifically, the rule does indicate that the interagency consultation process should be used during the development of PM2.5 SIPs to determine when construction emissions are a significant contributor.

3.9.2 Factors for Determining Significance

The conformity rule states that the following factors will be considered in making significance or insignificance findings for PM2.5 precursors: the contribution of on-road emissions of the precursor to the total 2013 baseline SIP inventory; the current state of air quality for the area; the results of speciation monitoring for the area; the likelihood that future motor vehicle control measures will be implemented for a given precursor; and projections of future on-road emissions of the precursor.

Significance findings for re-entrained road dust emissions will be based on a review of the following factors: the contribution of road dust to current and future PM2.5 nonattainment; an area's current design value for the PM2.5 standard; whether control of road dust appears necessary to reach attainment; and whether increases in re-entrained dust emissions may interfere with attainment. Such a review would include

consideration of local air quality data, air quality modeling results, or emissions modeling results.

3.9.3 Assessment of Significance

This SIP submittal establishes motor vehicle emission budgets for primary emissions of PM2.5 from vehicle exhaust, tire and brake wear, and the precursor NOx. Other precursors are not considered significant for the reasons discussed in the following sections.

VOC: On-road mobile emissions account for approximately 10 percent of the Valley's total VOC emissions in the budget years. Air quality modeling for this *2016 PM2.5 Plan* indicates that control of VOC is generally ineffective in the control of PM2.5 and in some cases may actually result in increases in PM2.5 levels. Therefore, on road VOC emissions are considered insignificant and this *2016 PM2.5 Plan* does not establish VOC motor vehicle emissions budgets for conformity purposes.

SOx: On road mobile exhaust estimates are less than 1 ton per day Valley-wide in the budget years which equates to less than 10 percent of the total SOx emissions inventory. SOx controls are focused on industrial sources, which contribute almost 80 percent of the total inventory. Therefore, on road SOx emissions are considered insignificant and this *2016 PM2.5 Plan* does not establish SOx motor vehicle emissions budgets for conformity purposes.

Paved Road Dust: Paved road dust PM2.5 emissions account for up to 10 percent of the Valley's total direct PM2.5 emissions inventory in the budget years. While there are no additional fugitive dust controls included in the attainment demonstration for this *2016 PM2.5 Plan*, paved road dust is controlled through the PM10 Plan and evaluated as part of PM10 conformity determinations. Analysis of average composition data from ambient air monitoring show paved road dust contributes about 2 percent to the design values in the Valley. Therefore, paved road dust emissions are considered insignificant and this *2016 PM2.5 Plan* does not establish paved road dust motor vehicle emissions budgets for conformity purposes.

Unpaved Road Dust: Total unpaved road dust is less than 10 percent of the Valley's total direct PM2.5 emissions inventory in the budget years. Local roads are one of seven subcategories of unpaved road dust, and as noted above on-road dust makes a small contribution to design values in the Valley. While there are no additional fugitive dust controls included in the *2016 PM2.5 Plan*, unpaved road dust is controlled via the PM10 Plan, (including the prohibition of any new local unpaved roads), and unpaved road dust is evaluated as part of PM10 conformity determinations. Analysis of average composition data from ambient air monitoring shows unpaved road dust contributes less than 2 percent to the design values in the Valley. Therefore, unpaved road dust is considered insignificant and this *2016 PM2.5 Plan* does not establish emissions budgets for unpaved road dust for conformity purposes.

Construction Dust: Total construction and demolition dust is less than 5 percent of the Valley's total direct PM2.5 emissions inventory in the budget years. Because road construction is one of five subcategories of construction dust, its contribution to the total direct PM2.5 inventory would be even less than the total construction and demolition category. While there are no additional fugitive dust controls included in the *2016 PM2.5 Plan*, road construction dust is controlled extensively via the PM10 Plan and is evaluated as part of PM10 conformity determinations. Therefore, road construction dust is considered insignificant and this *2016 PM2.5 Plan* does not establish emissions budgets for road construction dust for conformity purposes.

Ammonia: The contribution of ammonia from on-road motor vehicles is approximately 1 percent of the total valley-wide ammonia inventory and is therefore considered insignificant. This *2016 PM2.5 Plan* also establishes ammonia is not a limiting precursor in the formation of PM2.5. Therefore, ammonia on road emissions budgets are not established by this *2016 PM2.5 Plan*.

3.9.4 Conformity Budgets

This *2016 PM2.5 Plan* includes reasonable further progress demonstrations for 2019 and 2022. Annual average daily emissions are used in the plan consistent with the way the standard is measured. Consequently, conformity budgets have been set with EMFAC2014 for annual average daily emissions in the analysis years 2019 and 2022.

Section 93.124(e) of the federal conformity rule states that nonattainment areas with more than one MPO may establish motor vehicle emission budgets for each MPO in the non-attainment area. This *2016 PM2.5 Plan* establishes county-level emission budgets for each MPO in the Valley.

The transportation conformity budgets developed for this *2016 PM2.5 Plan* include more recent travel activity projections provided by the Valley MPOs. This travel activity is consistent with the Draft 2017 Federal Transportation Improvement Plan (2017 FTIP) for each of the eight Valley MPOs. Using this more recent activity results in on road emissions less than one percent lower in 2018 and less than two percent lower than the 2020 attainment demonstration inventory.

The budgets have been constructed to be consistent with the on-road emissions inventory using the following method:

1) Sum the emissions results for each county.
2) Calculate the budget by rounding each county's values to the nearest tenth ton (for both NOx and PM2.5) using conventional rounding.

This *2016 PM2.5 Plan* establishes subarea county emission budgets for PM2.5 and NOx for the horizon years 2019 and 2022 and are summarized in Table 3-11. The attachment on the following page provides more detailed calculations.

Table 3-11 San Joaquin Valley Transportation Conformity Budgets* (Annual average tons per day)

County	2019		2022	
	PM2.5	NOx	PM2.5	NOx
Fresno	0.9	27.6	0.9	21.3
Kern (SJV)	0.8	25.1	0.8	19.4
Kings	0.2	5.1	0.2	4.1
Madera	0.2	4.6	0.2	3.4
Merced	0.3	9.4	0.3	7.5
San Joaquin	0.6	12.7	0.6	9.3
Stanislaus	0.4	10.5	0.4	8.0
Tulare	0.4	9.3	0.4	6.9

* Budgets based on Draft 2017 FTIP data from each of the 8 Valley MPOs. Budgets are rounded up to the nearest tenth of a ton.

3.9.5 Emissions Trading Mechanism

Section 93.124(b) of the federal conformity rule allows for the SIP to establish emissions trading mechanisms between budgets for pollutants or precursors, or among budgets allocated to mobile and other sources. The *2008 PM2.5 Plan* (as revised in 2011) included an emissions trading mechanism, which was approved by EPA effective January 9, 2012, to be used for analysis years after 2014. This SIP allows trading from the motor vehicle emissions budget for the PM2.5 precursor NOx to the motor vehicle emissions budget for primary PM2.5 using a 9 to 1 ratio. See *Appendix A Air Quality Modeling* for details on the air quality modeling that supports the trading ratio.

The NOx emissions reductions available for trading are only those remaining after the NOx budget is met. For example, for a proposed plan that has a total of 7 tons of NOx, and a NOx budget of 10 tons, there are 3 tons of NOx available to meet the PM2.5 emissions budget. Each agency responsible for demonstrating transportation conformity shall clearly document the calculations used in the trading, along with any additional reductions of NOx or PM2.5 emissions in the conformity analysis.

3.9.6 Local Transportation Control Measures

Transportation Control Measures (TCMs) in CAA §108(f) are currently being implemented by the Valley MPOs as part of the adopted Congestion Mitigation and Air Quality (CMAQ) cost effectiveness policy and in the development of each Regional Transportation Plan (RTP). In addition, existing and new transportation legislation (MAP-21 and FAST Act) include enhanced emphasis on funding PM2.5 projects.

Valley MPOs continue to implement the adopted San Joaquin Valley CMAQ Policy, which was included in the District's *2007 Ozone Plan* and *2008 PM2.5 Plan*. The CMAQ policy includes a standardized process for distributing 20 percent of the CMAQ funds to projects that meet a minimum cost effectiveness beginning in fiscal year 2011. This policy focuses on achieving the most cost effective emissions reductions, while

maintaining flexibility to meet local needs. The minimum cost effectiveness standard was revisited in 2016 as part of the 2017 Federal Transportation Improvement Program (FTIP) development, consistent with the Valley CMAQ Policy. As shown in the Adopted Transportation Control Measures tables in Attachment 2, the Valley MPOs are implementing all reasonable transportation control measures at this time.

Each Valley MPO is required to update its RTP every four years. The RTP is a long-term regional transportation plan that provides a vision for transportation investments throughout the Valley. The 2014 RTPs integrate land use and transportation planning to achieve, where feasible, regional greenhouse gas (GHG) targets set by ARB pursuant to Senate Bill 375 (SB-375).

To further illustrate the eight SJV MPOs commitment to the implementation of TCMs throughout the Valley, the RTPs contains a host of improvements to every component of the regional multimodal transportation system including:

- Active transportation (non-motorized transportation, such as biking and walking)
- Transportation demand management (TDM)
- Transportation system management (TSM)
- Transit
- Passenger rail
- Goods movement
- Aviation and airport ground access
- Highways
- Arterials
- Operations and maintenance

Included within these transportation system improvements are TCM projects that reduce vehicle use or change traffic flow or congestion conditions. TCMs include the following categories of transportation improvement projects and programs:

- Improved Transit
- High Occupancy Vehicle Lanes
- Traffic Flow Improvements
- Park and Ride Lots
- Ridesharing/Trip Reduction Programs
- Bicycle/Pedestrian Facilities

3.9.7 SB-375

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities, SB-375) enhances California's strategy to reduce GHG emissions through the coordination of transportation and land-use to reduce vehicle miles traveled per person through the development of a Sustainable Community Strategy. SB-375 identifies specific reduction goals for each of California's MPOs in 2020 and 2035 which the Sustainable Community Strategy must meet, if feasible. For the Valley, the current SB-375 target reductions are a 5% per capita GHG emissions reduction from 2005 by 2020 and a 10% per capita GHG emissions reduction from 2005 by 2035. The strategies contained in the RTP/SCS produce benefits for the region far beyond simply reducing GHG emissions. The SCS integrates the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. As a result, Sustainable Community Strategy development is anticipated to complement the *2016 PM2.5 Plan*.

Table 3-12 2019 Motor Vehicle Emissions Budgets

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx
EMFAC2014 V1.0.7 exhaust, tire and brake wear	0.88	27.53	0.76	25.04	0.14	5.09	0.16	4.54	0.26	9.31	0.58	12.68	0.38	10.43	0.35	9.22
Total	0.88	27.53	0.76	25.04	0.14	5.09	0.16	4.54	0.26	9.31	0.58	12.68	0.38	10.43	0.35	9.22
Budget*	**0.9**	**27.6**	**0.8**	**25.1**	**0.2**	**5.1**	**0.2**	**4.6**	**0.3**	**9.4**	**0.6**	**12.7**	**0.4**	**10.5**	**0.4**	**9.3**

Table 3-13 2022 Motor Vehicle Emissions Budgets

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx
EMFAC2014 V1.0.7 exhaust, tire and brake wear	0.81	21.24	0.71	19.39	0.13	4.02	0.14	3.37	0.26	7.44	0.53	9.27	0.35	7.96	0.32	6.89
Total	0.81	21.24	0.71	19.39	0.13	4.02	0.14	3.37	0.26	7.44	0.53	9.27	0.35	7.96	0.32	6.89
Budget*	**0.9**	**21.3**	**0.8**	**19.4**	**0.2**	**4.1**	**0.2**	**3.4**	**0.3**	**7.5**	**0.6**	**9.3**	**0.4**	**8.0**	**0.4**	**6.9**

*tons per average annual day, based on Draft 2017 FTIP data from each of the 8 Valley MPOs. Budgets are rounded up to the nearest tenth of a ton.