

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 52 and 81

[EPA-R09-OAR-2021-0543; FRL-8846-01-R9]

Clean Air Plans; California; San Joaquin Valley Moderate Area Plan and Reclassification as Serious Nonattainment for the 2012 PM_{2.5} NAAQS; Contingency Measures for the 2006 PM_{2.5} NAAQS

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) proposes to take action on portions of four state implementation plan (SIP) revisions submitted by California to address Clean Air Act (CAA or “Act”) requirements for the 2012 fine particulate matter (PM_{2.5}) national ambient air quality standards (NAAQS or “standards”) and for the 2006 PM_{2.5} NAAQS in the San Joaquin Valley (SJV) PM_{2.5} nonattainment area. Specifically, the EPA proposes to approve all but the contingency measure element of the submitted Moderate area plan for the 2012 PM_{2.5} NAAQS, as updated by the submitted Serious area plan and related Valley State SIP Strategy, as meeting all applicable Moderate area plan requirements for the 2012 PM_{2.5} NAAQS and to approve 2022 motor vehicle emissions budgets for use in transportation conformity analyses for the 2012 PM_{2.5} NAAQS. The EPA proposes to disapprove the contingency measure element with respect to the “Moderate” area requirements for the 2012 PM_{2.5} NAAQS. The EPA also proposes to reclassify the SJV PM_{2.5} nonattainment area, including reservation areas of Indian country and any other area of Indian country within it where the EPA or a tribe has demonstrated that the tribe has jurisdiction, as a “Serious” nonattainment area for the 2012 PM_{2.5} NAAQS based on the EPA’s determination that the area cannot practicably attain the standard by the applicable Moderate area attainment date of December 31, 2021. Upon final reclassification of the SJV as a Serious area for this NAAQS, California would be required to submit a Serious area plan for the area that includes a demonstration of attainment by the applicable Serious area attainment date, which is no later than December 31, 2025, or by the most expeditious alternative date practicable. However, we note that California has already submitted such Serious area plan that

the EPA will address in a separate rulemaking. Lastly, the EPA is proposing to disapprove the contingency measure element in the Serious area plan for the 2006 PM_{2.5} NAAQS.

DATES: Any comments on this proposal must be received by October 1, 2021.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R09-OAR-2021-0543 at <https://www.regulations.gov>, or via email to mays.rory@epa.gov. For comments submitted at [Regulations.gov](https://www.regulations.gov), follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from [Regulations.gov](https://www.regulations.gov). For either manner of submission, the EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (e.g., audio or video) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system). For additional submission methods, please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <https://www.epa.gov/dockets/commenting-epa-dockets>. If you need assistance in a language other than English or if you are a person with disabilities who needs a reasonable accommodation at no cost to you, please contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

FOR FURTHER INFORMATION CONTACT: Rory Mays, Air Planning Office (AIR-2), EPA Region IX, by phone at (415) 972-3227 or email at mays.rory@epa.gov.

SUPPLEMENTARY INFORMATION:

Throughout this document, “we,” “us,” or “our” refer to the EPA.

Table of Contents

- I. Background for Proposed Action
- II. Summary of San Joaquin Valley 2016 and 2018 PM_{2.5} Plans
 - A. 2016 PM_{2.5} Plan Summary
 - B. 2018 PM_{2.5} Plan Summary
 - C. Procedural Requirements for SIPs and SIP Revisions
- III. Clean Air Act Requirements for Moderate PM_{2.5} Nonattainment Area Plans

- IV. Review of San Joaquin Valley Plans for Moderate Area Requirements
 - A. Emissions Inventory
 - B. PM_{2.5} Precursors
 - C. Air Quality Modeling
 - D. Reasonably Available Control Measures and Control Strategy
 - E. Nonattainment New Source Review Requirements Under CAA Section 189(e)
 - F. Demonstration That Attainment by Moderate Area Attainment Date Is Impracticable
 - G. Reasonable Further Progress and Quantitative Milestones
 - H. Contingency Measures
 - I. Motor Vehicle Emissions Budgets
- V. Reclassification as Serious Nonattainment and Serious Area SIP Requirements
 - A. Reclassification as Serious and Applicable Attainment Date
 - B. Clean Air Act Requirements for Serious Area Plans
 - C. Statutory Deadline for Submission of Serious Area Plan
- VI. Reclassification of Areas of Indian Country
- VII. Review of Contingency Measure Element for the 2006 PM_{2.5} NAAQS
 - A. Requirements for Contingency Measures
 - B. Summary of State’s Contingency Measure Element for 2006 PM_{2.5} NAAQS
 - C. EPA Evaluation and Proposed Action
- VIII. Summary of Proposed Actions and Request for Public Comment
- IX. Statutory and Executive Order Reviews

I. Background for Proposed Action

On January 15, 2013, the EPA strengthened the primary annual NAAQS for particulate matter with a diameter of 2.5 microns or less (PM_{2.5}) by lowering the level from 15.0 micrograms per cubic meter (µg/m³) to 12.0 µg/m³ (“2012 PM_{2.5} NAAQS”).¹ The EPA established these standards after considering substantial evidence from numerous health studies demonstrating that serious health effects are associated with exposures to PM_{2.5} concentrations above these levels.

Epidemiological studies have shown statistically significant correlations between elevated PM_{2.5} levels and premature mortality. Other important health effects associated with PM_{2.5} exposure include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits,

¹ 78 FR 3086 and 40 CFR 50.18. The EPA first established NAAQS for PM_{2.5} on July 18, 1997 (62 FR 38652), including annual standards of 15.0 µg/m³ based on a 3-year average of annual mean concentrations and 24-hour (daily) standards of 65 µg/m³ based on a 3-year average of 98th percentile 24-hour concentrations (40 CFR 50.7) (“1997 PM_{2.5} NAAQS”). In addition, on October 17, 2006, the EPA strengthened the 24-hour (daily) NAAQS for PM_{2.5} by lowering the level from 65 µg/m³ to 35 µg/m³ (“2006 PM_{2.5} NAAQS”). 71 FR 61144 and 40 CFR 50.13. Unless otherwise noted, all references to the PM_{2.5} standards in this notice are to the 2012 annual NAAQS of 12.0 µg/m³ codified at 40 CFR 50.18.

absences from school or work, and restricted activity days), changes in lung function, and increased respiratory symptoms. Individuals particularly sensitive to PM_{2.5} exposure include older adults, people with heart and lung disease, and children.² PM_{2.5} can be emitted directly into the atmosphere as a solid or liquid particle (“primary PM_{2.5}” or “direct PM_{2.5}”) or can be formed in the atmosphere (“secondary PM_{2.5}”) as a result of various chemical reactions among precursor pollutants such as nitrogen oxides (NO_x), sulfur oxides (SO_x), volatile organic compounds (VOC), and ammonia (NH₃).³

Following promulgation of a new or revised NAAQS, the EPA is required by CAA section 107(d) to designate areas throughout the nation as attaining or not attaining the NAAQS. Under subpart 4 of part D of title I of the CAA and applicable implementing regulations, the EPA designates areas found to be violating the PM_{2.5} NAAQS, and areas with emissions that contribute to such violations, as nonattainment and classifies them initially as Moderate.⁴ States with Moderate areas have to attain the NAAQS as expeditiously as practicable, but not later than the end of the sixth calendar year after the date of designation.⁵ The EPA reclassifies as Serious those Moderate areas that cannot practicably attain the NAAQS by the latest statutory attainment date and those areas that fail to attain the NAAQS by the applicable attainment date. States with Serious areas are subject to more stringent SIP revision requirements and must attain the NAAQS as expeditiously as practicable, but not later than the end of the tenth calendar year after designation.

On January 15, 2015, the EPA designated and classified the SJV as Moderate nonattainment for the 2012 PM_{2.5} NAAQS.⁶ With respect to the 1997 PM_{2.5} NAAQS and the 2006 PM_{2.5} NAAQS, the SJV is designated nonattainment and is classified as Serious.⁷ The SJV PM_{2.5} nonattainment area encompasses over 23,000 square miles and includes all or part of eight counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings,

and the valley portion of Kern.⁸ The area is home to four million people and is the nation’s leading agricultural region. Stretching over 250 miles from north to south and averaging 80 miles wide, it is partially enclosed by the Coast Mountain range to the west, the Tehachapi Mountains to the south, and the Sierra Nevada range to the east. Under State law, the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD or “District”) has primary responsibility for developing plans to provide for attainment of the NAAQS in this area. The District works cooperatively with the California Air Resources Board (CARB) in preparing these plans. Authority for regulating sources under state jurisdiction in the SJV is split between the District, which has responsibility for regulating stationary and most area sources, and CARB, which has responsibility for regulating most mobile sources and some categories of consumer products.

States with areas designated as nonattainment are required to submit SIP revisions that address various requirements, including the requirement to demonstrate attainment of the NAAQS as expeditiously as practicable but no later than the maximum attainment date established in the CAA or EPA’s implementing regulations. However, states with Moderate PM_{2.5} nonattainment areas may submit an impracticability demonstration, in lieu of a modeled attainment demonstration, if the state can establish that the area cannot practicably attain a particular PM_{2.5} NAAQS by the outermost statutory Moderate area attainment date.⁹

On May 10, 2019, CARB made two SIP submissions intended to address the attainment plan requirements for areas designated as nonattainment for the 2012 PM_{2.5} NAAQS.¹⁰ First, the “2016 Moderate Area Plan for the 2012 PM_{2.5} Standard” (“2016 PM_{2.5} Plan”) addresses the Moderate area attainment plan requirements and includes a demonstration of impracticability of attaining the 2012 PM_{2.5} NAAQS in the SJV by the latest permissible Moderate area attainment date of December 31, 2021. In this document, the EPA is proposing action on all portions of the 2016 PM_{2.5} Plan. Second, the “2018 Plan for the 1997, 2006, and 2012 PM_{2.5}

Standards” (“2018 PM_{2.5} Plan”) addresses the Serious area attainment plan requirements for the 2012 PM_{2.5} NAAQS, in anticipation of the reclassification of SJV from Moderate to Serious for that PM_{2.5} NAAQS. The 2018 PM_{2.5} Plan incorporates by reference the “San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan” (“Valley State SIP Strategy”), a related plan adopted by CARB on October 25, 2018, and submitted to the EPA with the 2018 PM_{2.5} Plan on May 10, 2019. For the purposes of this action, the relevant portion of the Valley State SIP Strategy includes the control measure commitments associated with the quantitative milestones for 2019 and 2022.

The 2018 PM_{2.5} Plan updates several elements in the 2016 PM_{2.5} Plan, including the base year emissions inventory, plan precursor demonstration, controls analysis, reasonable further progress (RFP) and quantitative milestones, and motor vehicle emission budgets (MVEBs or “budgets”). In this document, the EPA is proposing action on those portions of the 2018 PM_{2.5} Plan that apply to the Moderate area plan requirements for the 2012 PM_{2.5} NAAQS. However, the EPA is not, at this time, proposing to act on those portions of the 2018 PM_{2.5} Plan that are not relevant to our evaluation of compliance with Moderate area plan requirements for 2012 PM_{2.5} NAAQS, such as the best available control measures (BACM) demonstration, control strategy commitments, attainment demonstration, RFP demonstration and quantitative milestones for later years, and MVEBs for later years.

The 2018 PM_{2.5} Plan also addresses attainment plan requirements for areas classified as Serious for the 2006 PM_{2.5} NAAQS. In 2020, we approved those portions of the 2018 PM_{2.5} Plan that pertain to the 2006 PM_{2.5} NAAQS, excluding the contingency measures element for the 2006 PM_{2.5} NAAQS.¹¹ In this document, we are proposing action on the portion of the 2018 PM_{2.5} Plan that addresses the contingency measure requirement for the 2006 PM_{2.5} NAAQS.

Lastly, the 2018 PM_{2.5} Plan addresses the contingency measure requirement for the 2006 PM_{2.5} NAAQS by reference to, among other things, a District contingency measure, and emissions estimates for the year following the attainment year for use in evaluating whether the emissions reductions from the contingency measure are

² 78 FR 3086, 3088.

³ EPA, Air Quality Criteria for Particulate Matter, No. EPA/600/P-99/002aF and EPA/600/P-99/002bF, October 2004.

⁴ CAA section 188(a) and 40 CFR 51.1002(a).

⁵ CAA section 188(c)(1) and 40 CFR 51.1004(a)(1)(i).

⁶ 80 FR 2206 (codified at 40 CFR 81.305).

⁷ See the tables of area designations for the 1997 and 2006 PM_{2.5} NAAQS in 40 CFR 81.305.

⁸ For a precise description of the geographic boundaries of the SJV PM_{2.5} nonattainment area, see 40 CFR 81.305.

⁹ 40 CFR 51.1002(b)(1).

¹⁰ CARB submitted the two plans electronically on May 10, 2019, as an attachment to a letter dated May 9, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX.

¹¹ 85 FR 44192 (July 22, 2020).

sufficient.¹² With respect to the District contingency measure, the 2018 PM_{2.5} Plan calls for the District to amend District Rule 4901 (“Wood Burning Fireplaces and Wood Burning Heaters”) to include a requirement in the rule with a trigger that would activate the requirement should the EPA issue a final rulemaking that SJV failed to meet a regulatory requirement necessitating implementation of a contingency measure.

In response to the commitment made in the 2018 PM_{2.5} Plan, in June 2019 the District adopted amendments to Rule 4901, including a new provision (codified as section 5.7.3 of the amended rule) that is a contingency measure. On July 19, 2019, CARB submitted the amended rule to the EPA for approval.¹³ We have already taken final action to approve the amended Rule 4901 (including the new section 5.7.3) into the California SIP, but in our approval we noted that we were not evaluating the contingency measure in section 5.7.3 of revised Rule 4901 for compliance with all requirements of the CAA and the EPA’s implementing regulations that apply to such measures.¹⁴ Rather, we approved the new provision (section 5.7.3) into the SIP as part of our approval of the entire amended rule because the provision strengthens the rule by providing a possibility of additional curtailment days and thus potentially additional emissions reductions. We indicated that we would evaluate whether section 5.7.3, in conjunction with other submitted provisions, meets the statutory and regulatory requirements for contingency measures in a future action. In this document, we are evaluating District Rule 4901, and in particular section 5.7.3, in the context of our action on the contingency measure element in the 2016 PM_{2.5} Plan for the 2012 PM_{2.5} NAAQS and the contingency measure element in the 2018 PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS.

II. Summary of San Joaquin Valley 2016 and 2018 PM_{2.5} Plans

A. 2016 PM_{2.5} Plan Summary

The SJVUAPCD Governing Board adopted the 2016 PM_{2.5} Plan on September 15, 2016, and CARB adopted

the plan on January 24, 2019.¹⁵ CARB submitted the plan to the EPA on May 10, 2019.

The 2016 PM_{2.5} Plan is organized into three chapters, five appendices, and two attachments. Chapter 1 (“Introduction”) provides general background, including discussion of the federal PM_{2.5} standards, PM_{2.5} pollution and health effects in the SJV, challenges to attaining the standards, and the District’s public process. Chapter 2 (“Impracticability Demonstration and Request for Reclassification”) presents CARB and the District’s demonstration, based on air quality modeling, that attaining the 2012 PM_{2.5} NAAQS by the latest permissible attainment date of December 31, 2021, is impracticable, and a request for reclassification to Serious. Chapter 3 (“Demonstration of Federal Clean Air Act Requirements”) describes how the 2016 PM_{2.5} Plan addresses the federal requirements for Moderate PM_{2.5} nonattainment areas, including a plan precursor demonstration, reasonably available control measures, RFP, quantitative milestones, contingency measures, stationary source permitting, and transportation conformity. The 2016 PM_{2.5} Plan includes the following five technical appendices:

- Appendix A (“Air Quality Modeling”) provides the State’s photochemical air quality modeling in support of the plan’s impracticability demonstration and precursor demonstration;
- Appendix B (“Emissions Inventory”) presents the base year and future year emissions inventory for direct PM_{2.5}, NO_x, ammonia, SO_x, and VOC;
- Appendix C (“SIP Creditable Incentive-Based Emission Reductions”) provides a demonstration of NO_x emission reductions from heavy-duty off-road vehicle engine vehicle replacements under the 2011 Carl Moyer Guidelines in support of the plan’s Moderate contingency measure element;
- Appendix D (“New Source Review and Emission Reduction Credits”) discusses the use of emission reduction credits (ERCs) in the context of the plan; and
- Appendix E (“Summary of Significant Comments and Responses”) summarizes significant comments received during the District’s 2016 public review period and the District’s responses thereto.

In addition, the 2016 PM_{2.5} Plan includes Attachment 1 (“Stationary and Area Source Control Measure Analyses”) and Attachment 2 (“Mobile Source Control Measure Analyses”), which together resubmit the State’s 2015 analyses that the District’s stationary and area source control measures and CARB’s mobile source control measures represent BACM and most stringent measures (MSM).

Lastly, on December 13, 2019, CARB submitted the following two additional documents that CARB had prepared for the 2016 PM_{2.5} Plan and made available for public review along with the plan, but had inadvertently omitted them from the May 10, 2019 SIP submission to the EPA:¹⁶ (i) The “Staff Report, ARB Review of the San Joaquin Valley 2016 Moderate Area Plan for the 2012 PM_{2.5} Standard,” released September 16, 2016 (“CARB 2016 Staff Report”), that provides CARB’s staff review of the 2016 PM_{2.5} Plan, including brief summaries for each of the Moderate area plan requirements; and (ii) the “Modeling Emission Inventory for the PM_{2.5} State Implementation Plan in the San Joaquin Valley,” August 23, 2016 (“2016 Modeling Emissions Inventory”) that describes the development of the 2016 PM_{2.5} Plan’s modeling emissions inventory, estimation of the 2013 base year emissions inventory, the methodology used to develop the base year and baseline emissions inventory, and quality assurance of the modeling emissions inventory.

B. 2018 PM_{2.5} Plan Summary

The SJVUAPCD Governing Board adopted the 2018 PM_{2.5} Plan on November 15, 2018, and CARB adopted the plan on January 24, 2019.¹⁷ CARB submitted the 2018 PM_{2.5} Plan to the EPA on May 10, 2019, concurrently with the 2016 PM_{2.5} Plan.

The following portions of the 2018 PM_{2.5} Plan and related support documents apply to the Moderate area attainment plan requirements for the 2012 PM_{2.5} NAAQS in the SJV: (i) Chapter 4 (“Attainment Strategy for PM_{2.5}”); (ii) Chapter 7 (“Demonstration of Federal Requirements for the 2012 PM_{2.5} Standard”);¹⁸ (iii) numerous

¹⁶ Letter dated December 11, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX, with enclosures.

¹⁷ SJVUAPCD Governing Board Resolution 18–11–16, November 15, 2018, and CARB Resolution 19–1, January 24, 2019.

¹⁸ Chapter 5 (“Demonstration of Federal Requirements for the 1997 PM_{2.5} Standard”) and Chapter 6 (“Demonstration of Federal Requirements for the 2006 PM_{2.5} Standard”) of the 2018 PM_{2.5} Plan pertain to the 1997 PM_{2.5} NAAQS and 2006 PM_{2.5} NAAQS, respectively. The EPA has acted on

¹² 2018 PM_{2.5} Plan, App. H (revised February 11, 2020), H–24 to H–26.

¹³ Letter dated July 19, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX.

¹⁴ 85 FR 44206 (July 22, 2020) (final approval of District Rule 4901); 85 FR 11311, 1132–33 (January 9, 2020) (proposed approval of District Rule 4901).

¹⁵ SJVUAPCD Governing Board Resolution 16–9–10, September 15, 2016, and CARB Resolution 19–1, January 24, 2019.

appendices to the 2018 PM_{2.5} Plan; (iv) CARB's "Staff Report, Review of the San Joaquin Valley 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards," release date December 21, 2018 ("CARB 2018 Staff Report");¹⁹ and (v) the State's and District's board resolutions adopting the 2018 PM_{2.5} Plan.²⁰

The appendices to the 2018 PM_{2.5} Plan, in order of their evaluation in this proposal, include the following: (i) Appendix ("App.") B ("Emissions Inventory"); (ii) a plan precursor demonstration and clarifications, including App. G ("Precursor Demonstration") and Attachment A ("Clarifying information for the San Joaquin Valley 2018 Plan regarding model sensitivity related to ammonia and ammonia controls") to the CARB 2018 Staff Report; (iii) control strategy appendices, including App. C ("Stationary Source Control Measure Analyses") and App. D ("Mobile Source Control Measures Analyses"); and (iv) App. H ("RFP, Quantitative Milestones, and Contingency"). The 2018 PM_{2.5} Plan addresses requirements for MVEBs in the "Transportation Conformity" section of App. D.²¹

The 2018 PM_{2.5} Plan also includes an Executive Summary, Introduction (Ch. 1), chapters on "Air Quality Challenges and Trends" (Ch. 2) and "Health Impacts and Health Risk Reduction Strategy" (Ch. 3), and appendices on "Public Education and Technology Advancement" (App. F), "Ambient PM_{2.5} Data Analysis" (App. A), "New Source Review and Emission Reduction Credits" (App. I) and "Summary of Significant Comments and Responses" (App. M), as well as other chapters and appendices that are primarily relevant to the Serious area plan requirements, including App. E ("Incentive-Based Strategy"), App. J ("Modeling Emission Inventory"), App. K ("Modeling Attainment Demonstration"), and App. L ("Modeling Protocol").

Chapter 6 in our rulemaking for the 2006 PM_{2.5} NAAQS. See 80 FR 44192 (July 22, 2020). The EPA has proposed to act on Chapter 5 as part of a separate rulemaking on the 1997 annual PM_{2.5} NAAQS. See 86 FR 38652 (July 22, 2021).

¹⁹ The CARB 2018 Staff Report includes CARB's review of, among other things, the 2018 PM_{2.5} Plan's control strategy and attainment demonstration. Letter dated December 11, 2019 from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX, transmitting the CARB 2018 Staff Report [on the 2018 PM_{2.5} Plan].

²⁰ CARB Resolution 19-1, "2018 PM_{2.5} State Implementation Plan for the San Joaquin Valley," January 24, 2019, and SJVUAPCD Governing Board Resolution 18-11-16, "Adopting the [SJVUAPCD] 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards," November 15, 2018.

²¹ See D-119 to D-131.

Lastly, on February 11, 2020, CARB submitted, via the EPA State Planning Electronic Collaboration System, a revised version of App. H ("RFP, Quantitative Milestones, and Contingency") that replaces the version submitted with the 2018 PM_{2.5} Plan on May 10, 2019. All references to App. H of the 2018 PM_{2.5} Plan in this proposed rule are to the revised version of Appendix H submitted February 11, 2020.

C. Procedural Requirements for SIPs and SIP Revisions

Sections 110(a)(1) and (2) and 110(l) of the CAA require each state to provide reasonable public notice and an opportunity for a public hearing prior to the adoption and submittal of a SIP or SIP revision to the EPA. To meet this requirement, every SIP submission should include evidence that adequate public notice was given and an opportunity for a public hearing was provided consistent with the EPA's implementing regulations in 40 CFR 51.102.

Both the District and CARB satisfied applicable statutory and regulatory requirements for reasonable public notice and hearing prior to adoption and submission of the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan. The District provided public notice and opportunity for public comment prior to its September 15, 2016 public hearing on and adoption of the 2016 PM_{2.5} Plan.²² CARB also provided public notice and opportunity for public comment prior to its October 20, 2016 public hearing,²³ where the 2016 PM_{2.5} Plan was tabled.

Subsequently, the District provided public notice and opportunity for public comment prior to its November 15, 2018 public hearing on and adoption of the 2018 PM_{2.5} Plan.²⁴ CARB also provided public notice and opportunity for public comment prior to its January 24, 2019 public hearing,²⁵ when CARB adopted the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan.²⁶ The SIP submission includes proof of publication of notices for the

²² SJVUAPCD, "Notice of Public Hearing, Adopt the Proposed 2016 Moderate Area Plan for the 2012 PM_{2.5} Standard," August 16, 2016, and SJVUAPCD Governing Board Resolution 16-9-10.

²³ CARB, "Notice of Public Meeting to Consider the 2016 PM_{2.5} State Implementation Plan for the San Joaquin Valley," September 20, 2016.

²⁴ SJVUAPCD, "Notice of Public Hearing for Adoption of Proposed 2018 PM_{2.5} Plan for the 1997, 2006, and 2012 Standards," October 16, 2018, and SJVUAPCD Governing Board Resolution 18-11-16.

²⁵ CARB, "Notice of Public Meeting to Consider the 2018 PM_{2.5} State Implementation Plan for the San Joaquin Valley," December 21, 2018.

²⁶ CARB Resolution 19-1. See also J&K Court Reporting, LLC, "Meeting, State of California Air Resources Board," October 20, 2016 (transcript of CARB's public hearing), 186-190.

respective public hearings. It also includes copies of the written and oral comments received during the State's and District's public review processes and the agencies' responses thereto.^{27 28} Therefore, we find that the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan meet the procedural requirements for public notice and hearing in CAA sections 110(a) and 110(l) and 40 CFR 51.102.

We present our evaluation of the 2016 PM_{2.5} Plan (and 2018 PM_{2.5} Plan as applicable to the Moderate area attainment plan requirements for the 2012 PM_{2.5} NAAQS) in Section IV of this proposed rule. We present our evaluation of the 2018 PM_{2.5} Plan as applicable to the contingency measure requirements for the 2006 PM_{2.5} NAAQS in section VII of this proposed rule.

III. Clean Air Act Requirements for Moderate PM_{2.5} Nonattainment Area Plans

With respect to the statutory requirements for particulate matter (PM) attainment plans, the general nonattainment area planning requirements of title I, part D of the CAA are found in subpart 1, and the attainment planning requirements specifically for PM are found in subpart 4.

The EPA has a longstanding general guidance document that interprets the 1990 amendments to the CAA, commonly referred to as the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 ("General Preamble").²⁹ The General Preamble addresses the relationship between the subpart 1 and subpart 4 requirements and provides recommendations to states for meeting certain statutory requirements for PM attainment plans. As explained in the General Preamble, specific requirements applicable to Moderate area attainment plan SIP submissions for the PM NAAQS are set forth in subpart 4 of part

²⁷ For the 2016 PM_{2.5} Plan: CARB, "Board Meeting Comments Log," available at <https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=sjvmpmplan2016> (accessed August 20, 2021); J&K Court Reporting, LLC, "Meeting, State of California Air Resources Board," October 16, 2016 (transcript of CARB's public hearing), available at <https://ww3.arb.ca.gov/board/mt/2016/mt102016.pdf> (accessed December 29, 2020); and 2016 PM_{2.5} Plan, App. E ("Summary of Significant Comments and Responses"), noting that no comments were received during the District's 2016 public review.

²⁸ For the 2018 PM_{2.5} Plan: CARB, "Board Meeting Comments Log," March 29, 2019; J&K Court Reporting, LLC, "Meeting, State of California Air Resources Board," January 24, 2019 (transcript of CARB's public hearing); and 2018 PM_{2.5} Plan, App. M ("Summary of Significant Comments and Responses").

²⁹ General Preamble, 57 FR 13498 (April 16, 1992).

D, title I of the Act, but such SIP submissions must also meet the general attainment planning provisions in subpart 1 of part D, title I of the Act, to the extent these provisions “are not otherwise subsumed by, or integrally related to,” the more specific subpart 4 requirements.³⁰ The EPA provided further guidance to States on PM plan submissions in the Addendum to the General Preamble (“General Preamble Addendum”).³¹

To implement the PM_{2.5} NAAQS, the EPA has also promulgated the “Fine Particle Matter National Ambient Air Quality Standard: State Implementation Plan Requirements; Final Rule” (“PM_{2.5} SIP Requirements Rule”).³² The PM_{2.5} SIP Requirements Rule establishes regulatory requirements and provides additional guidance applicable to attainment plan submissions for the PM_{2.5} NAAQS, including the 2012 annual PM_{2.5} NAAQS and the 2006 24-hour PM_{2.5} NAAQS, addressed in this section and section VII, respectively, of this proposed rule.

The general subpart 1 statutory requirements for attainment plans include the following: (i) The section 172(c)(1) requirement for reasonably available control measures (RACM)/reasonably available control technology (RACT) and attainment demonstrations; (ii) the section 172(c)(2) requirement to RFP; (iii) the section 172(c)(3) requirement for emissions inventories; (iv) the section 172(c)(5) requirement for a nonattainment new source review (NNSR) permitting program; and (v) the section 172(c)(9) requirement for contingency measures.

The more specific subpart 4 statutory requirements for Moderate PM_{2.5} nonattainment areas include the following: (i) The section 189(a)(1)(A) and 189(e) NNSR permit program requirements; (ii) the section 189(a)(1)(B) requirement for attainment demonstrations; (iii) the section 189(a)(1)(C) requirement for RACM; and (iv) the section 189(c) requirements for RFP and quantitative milestones. Under subpart 4, states with Moderate PM_{2.5} nonattainment areas must provide for attainment in the area as expeditiously as practicable but no later than the latest permissible attainment date under CAA section 188(c), *i.e.*, December 31, 2021, for the 2012 PM_{2.5} NAAQS in the SJV, unless the EPA determines, per section 188(b)(1), that the area cannot practicably attain the NAAQS by the

Moderate area attainment date.³³ In addition, under subpart 4, direct PM_{2.5} and all precursors to the formation of PM_{2.5} are subject to control unless the EPA approves a demonstration from the state establishing that a given precursor does not contribute significantly to PM_{2.5} levels that exceed the PM_{2.5} NAAQS in the area.³⁴

IV. Review of San Joaquin Valley Plans for Moderate Area Requirements

A. Emissions Inventory

1. Requirements for Emissions Inventories

Section 172(c)(3) of the CAA requires that each SIP include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in the nonattainment area. We refer to this inventory as the “base year inventory.” The EPA has established regulatory requirements for base year and other emissions inventories in the PM_{2.5} SIP Requirements Rule³⁵ and issued guidance concerning emissions inventories for PM_{2.5} nonattainment areas.³⁶

The base year emissions inventory should provide a state’s best estimate of actual emissions from all sources of the relevant pollutants in the area, *i.e.*, all emissions that contribute to the formation of a particular NAAQS pollutant. For the PM_{2.5} NAAQS, the base year emissions inventory must include direct PM_{2.5} emissions, separately reported filterable and condensable PM_{2.5} emissions,³⁷ and emissions of all chemical precursors to the formation of secondary PM_{2.5}: NO_x, SO₂, VOC, and ammonia.³⁸ In addition, the emissions inventory base year for a Moderate PM_{2.5} nonattainment area

must be one of the three years (*i.e.*, 2011–2013) for which monitored data were used to designate the area as nonattainment, or another technically appropriate year justified by the state in its Moderate area attainment plan submission.³⁹

In its SIP submission, a state must include documentation explaining how it calculated emissions data. In estimating mobile source emissions, a state should use the latest emissions models and planning assumptions available at the time it develops the SIP submission. States are also required to use the EPA’s “Compilation of Air Pollutant Emission Factors” (“AP–42”) road dust method for calculating re-entrained road dust emissions from paved roads.^{40 41} At the time the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan were developed, California was required to use EMFAC2014 to estimate tailpipe and brake and tire wear emissions of PM_{2.5}, NO_x, SO₂, and VOC from on-road mobile sources.⁴²

In addition to the base year inventory submitted to meet the requirements of CAA section 172(c)(3), a state must also submit future “baseline inventories” for the projected attainment year, each RFP milestone year, and any other year of significance for meeting applicable CAA requirements.⁴³ By baseline inventories we mean projected emissions inventories for future years that account for, among other things, the ongoing

³⁹ 40 CFR 51.1008(a)(1)(i).

⁴⁰ The EPA released an update to AP–42 in January 2011 that revised the equation for estimating paved road dust emissions based on an updated data regression that included new emissions tests results. (76 FR 6328, February 4, 2011). CARB used the revised 2011 AP–42 methodology in developing on-road mobile source emissions.

⁴¹ AP–42 has been published since 1972 as the primary source of the EPA’s emission factor information. It contains emission factors and process information for more than 200 air pollution source categories. A source category is a specific industry sector or group of similar emitting sources. The emission factors have been developed and compiled from source test data, material balance studies, and engineering estimates.

⁴² The EMFAC model (short for Emission FACTor) is a computer model developed by CARB. The EPA approved and announced the availability of EMFAC2014 for use in SIP development and transportation conformity in California on December 14, 2015 (80 FR 77337). The EPA’s approval of the EMFAC2014 emissions model for SIP and conformity purposes was effective on the date of publication in the **Federal Register**. On August 15, 2019, the EPA approved and announced the availability of EMFAC2017, the latest update to the EMFAC model for use by state and local governments to meet CAA requirements (84 FR 41717). EMFAC2017 was not available to the State and District at the time they were developing the 2016 PM_{2.5} Plan and had only recently been submitted to the EPA on July 20, 2018, prior to the adoption of the 2018 PM_{2.5} Plan.

⁴³ 40 CFR 51.1008(a)(2) and 51.1012(a)(2); see also Emissions Inventory Guidance.

³³ Generally, under CAA section 188(c), the latest permissible attainment date for a Moderate nonattainment area is the end of the sixth calendar year after the area’s designation as nonattainment. Because the EPA designated and classified the San Joaquin Valley as a Moderate nonattainment area for the 2012 PM_{2.5} NAAQS effective April 15, 2015 (80 FR 2206, 2217–2218), the latest permissible attainment date for these NAAQS in the San Joaquin Valley is December 31, 2021.

³⁴ 40 CFR 51.1006 and 51.1009.

³⁵ 40 CFR 51.1008.

³⁶ 81 FR 58010, 58078–58079 and “Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations,” EPA, May 2017 (“Emissions Inventory Guidance”), available at <https://www.epa.gov/air-emissions-inventories/air-emissions-inventory-guidance-implementation-ozone-and-particulate>.

³⁷ The Emissions Inventory Guidance identifies the types of sources for which the EPA expects states to provide condensable PM emissions inventories. Emissions Inventory Guidance, section 4.2.1 (“Condensable PM Emissions”), 63–65.

³⁸ 40 CFR 51.1008.

³⁰ *Id.* at 13538.

³¹ 59 FR 41998 (August 16, 1994).

³² 81 FR 58010 (August 24, 2016).

effects of economic growth and adopted emission control requirements. The SIP submission should include documentation to explain how the state calculated the emissions projections.

2. Summary of State's Emissions Inventories

Within the 2016 PM_{2.5} Plan, the annual average planning inventories for direct PM_{2.5} and all PM_{2.5} precursors (NO_x, ammonia, SO_x,⁴⁴ and VOC) for the SJV PM_{2.5} nonattainment area, together with documentation for the inventories, are found in Appendix B ("Emissions Inventory"). In addition, Appendix A ("Air Quality Modeling") contains inventory documentation specific to the air quality modeling inventories. These portions of the 2016 PM_{2.5} Plan contain annual average daily emission inventories for 2013 thru 2022 projected from the 2012 actual emissions inventory,⁴⁵ including the 2013 base year, the 2019 RFP baseline year, the 2021 Moderate area attainment year, and the 2022 post-attainment RFP year. The winter average daily inventory is used to evaluate sources of emissions for attainment of the 2012 PM_{2.5} NAAQS in the 2016 PM_{2.5} Plan.⁴⁶

Similarly, within the 2018 PM_{2.5} Plan, the annual average planning inventories for direct PM_{2.5} and all PM_{2.5} precursors, together with documentation for the inventories, are found in Appendix B ("Emissions Inventory"). In addition, Appendix J ("Modeling Emission Inventory") contains inventory documentation specific to the air quality modeling inventories. These portions of the 2018 PM_{2.5} Plan contain annual average daily emission inventories for 2013 thru 2028 projected from the 2012 actual emissions inventory,⁴⁷ including the 2013 base year, the 2019 and 2022 RFP baseline years, the 2025 Serious area attainment year, and the 2028 post-attainment RFP year. Both the annual average and the winter average daily inventories are used to evaluate sources

of emissions for attainment of the 2012 PM_{2.5} NAAQS in the 2018 PM_{2.5} Plan.⁴⁸

The base year inventories for stationary sources were developed using actual emissions reports made by facility operators. The State developed the base year emissions inventories for area sources using the most recent models and methodologies available at the time the State was developing the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan.⁴⁹ Importantly, CARB and the District updated the emissions inventory in the 2018 PM_{2.5} Plan using the latest available activity data and emission methodologies available at the time of plan development. The 2013 base year, annual average emissions inventories for most source categories did not change or only changed plus or minus 0.1 tons per day (tpd) between the two plans.⁵⁰ However, the base year emissions inventory from several important source categories were smaller in the 2018 PM_{2.5} Plan relative to the 2016 PM_{2.5} Plan based on the latest information. These include a 1.2 tpd decrease in direct PM_{2.5} emissions from residential fuel combustion based on a 2016 emissions inventory methodology update,⁵¹ a 0.4 tpd decrease in direct PM_{2.5} emissions from farming operations based on updated estimates by the California Department of Conservation of harvested acreage in 2010–2020 rather than 2000–2009,⁵² and a 0.9 tpd decrease in NO_x emissions from trains based on updated locomotive data from 2016 on Class I and Class II railroads.⁵³ Overall, for the 2013 base year, total emissions of both direct PM_{2.5} and NO_x were 0.9 tpd smaller in the 2018 PM_{2.5} Plan relative to the 2016 PM_{2.5} Plan.

Furthermore, the 2016 PM_{2.5} Plan's emissions inventory does not separately report filterable and condensable PM_{2.5} emissions. However, the 2018 PM_{2.5} Plan includes background, methodology, and inventories of condensable and filterable PM_{2.5} emissions from stationary point and non-point combustion sources that are expected to generate condensable

PM_{2.5}.⁵⁴ It provides filterable and condensable emissions estimates, expressed as annual PM_{2.5} emissions (tons per year), for all of the identified source categories for the years applicable to the Moderate area timeframe, including the 2013 base year, the 2019 RFP year, the 2021 Moderate area attainment year, and the 2022 post-attainment RFP year, as well as subsequent years.

CARB used EMFAC2014 to estimate on-road motor vehicle emissions based on transportation activity data from the 2014 Regional Transportation Plan adopted by the transportation planning agencies in the SJV.⁵⁵ Re-entrained paved road dust emissions were calculated using a CARB methodology consistent with the EPA's AP-42 road dust methodology.⁵⁶ CARB also provided emissions inventories for off-road equipment, including aircraft, trains, recreational boats, construction equipment, and farming equipment, among others. CARB uses a suite of category-specific models to estimate off-road emissions for many categories and, where a new model was not available, used the OFFROAD2007 model.⁵⁷

CARB developed the emissions forecasts by applying growth and control profiles to the base year inventory. CARB's mobile source emissions projections take into account predicted activity rates and vehicle fleet turnover by vehicle model year and adopted controls.⁵⁸ In the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan, the District provides for use of pre-base year ERCs as offsets by accounting for such ERCs in the projected emissions inventory for the 2022 RFP year and the projected 2025 attainment year, respectively.⁵⁹ The plans identify growth factors, control factors, and estimated offset use between 2013 and 2022, and between 2013 and 2025, for direct PM_{2.5}, NO_x, SO_x, and VOC emissions by source category and lists all pre-base year ERCs

⁵⁴ 2018 PM_{2.5} Plan, App. B, B-42 to B-44. The EPA has approved the emissions inventory submission for the 2006 PM_{2.5} NAAQS in the SJV, including the filterable and condensable PM_{2.5} inventories. 85 FR 44192 (July 22, 2020) (final rule); and 85 FR 17382, 17389 (March 27, 2020) (proposed rule).

⁵⁵ 2016 PM_{2.5} Plan, App. B, B-33; and 2018 PM_{2.5} Plan, App. B, B-37. We note that the vehicle miles traveled data used in the 2018 PM_{2.5} Plan's emissions inventory is from the final 2017 Federal Transportation Improvement Program from each of the SJV's eight metropolitan planning organizations.

⁵⁶ 2016 PM_{2.5} Plan, App. B, B-26; and 2018 PM_{2.5} Plan, App. B, B-28.

⁵⁷ 2016 PM_{2.5} Plan, App. B, B-33 through B-35; and 2018 PM_{2.5} Plan, App. B, B-38 through B-40.

⁵⁸ 2016 PM_{2.5} Plan, App. B, B-19; and 2018 PM_{2.5} Plan, App. B, B-19.

⁵⁹ 2016 PM_{2.5} Plan, App. D, D-1 through D-5; and 2018 PM_{2.5} Plan, App. I, I-1 through I-5.

⁴⁴ The 2016 PM_{2.5} Plan generally uses "sulfur oxides" or "SO_x" in reference to SO₂ as a precursor to the formation of PM_{2.5}. We use SO_x and SO₂ interchangeably throughout this notice.

⁴⁵ 2016 PM_{2.5} Plan, App. B, B-18.

⁴⁶ The 2016 PM_{2.5} Plan includes annual average and winter day average inventories for PM_{2.5} planning purposes. The winter average daily planning inventory corresponds to the months of November through April, when daily, ambient PM_{2.5} concentrations are typically highest. 2016 PM_{2.5} Plan, App. B, B-19. The base year inventory is from the California Emissions Inventory Development and Reporting System (CEIDARS) and future year inventories were estimated using the California Emission Projection Analysis Model (CEPAM) version 1.04.

⁴⁷ 2018 PM_{2.5} Plan, App. B, B-18.

⁴⁸ 2018 PM_{2.5} Plan, App. B, B-19. The base year inventory is from CEIDARS and future year inventories were estimated using CEPAM, version 1.05.

⁴⁹ 2016 PM_{2.5} Plan, App. B, section B.3 ("Emissions Inventory Summary and Methodology"), and 2018 PM_{2.5} Plan, App. B, section B.2 ("Emissions Inventory Summary and Methodology").

⁵⁰ For example, paved road dust direct PM_{2.5} emissions decreased 0.1 tpd while off-road equipment NO_x emissions increased by 0.1 tpd between the 2016 and 2018 PM_{2.5} Plans.

⁵¹ 2018 PM_{2.5} Plan, App. B, B-26.

⁵² 2018 PM_{2.5} Plan, App. B, B-27.

⁵³ 2018 PM_{2.5} Plan, App. B, B-34.

issued by the District for PM₁₀,⁶⁰ NO_x, SO_x, and VOC emissions, by facility.⁶¹

Table 1 provides a summary of the 2018 PM_{2.5} Plan’s winter (24-hour) average inventories in tpd of direct PM_{2.5} and PM_{2.5} precursor emissions for the 2013 base year. Table 2 provides a

summary of 2018 PM_{2.5} Plan’s annual average inventories of direct PM_{2.5} and PM_{2.5} precursor emissions for the 2013 base year. For purposes of this proposal, these annual average inventories provide bases primarily for our

evaluation of the precursor demonstration, control measure analysis, impracticability demonstration, RFP demonstration, and MVEBs in the 2018 PM_{2.5} Plan with respect the Moderate area requirements.

TABLE 1—SAN JOAQUIN VALLEY WINTER AVERAGE EMISSIONS INVENTORY FOR DIRECT PM_{2.5} AND PM_{2.5} PRECURSORS FOR THE 2013 BASE YEAR [tpd]

Category	Direct PM _{2.5}	NO _x	SO _x	VOC	Ammonia
Stationary Sources	8.5	35.0	6.9	86.6	13.9
Area Sources	41.4	11.5	0.5	156.8	291.5
On-Road Mobile Sources	6.4	188.7	0.6	51.1	4.4
Non-Road Mobile Sources	4.4	65.3	0.3	27.4	0.0
Totals ^a	60.8	300.5	8.4	321.9	309.8

Source: 2018 PM_{2.5} Plan, Appendix B, tables B–1 through B–5.

^a Totals reflect disaggregated emissions and may not add exactly as shown here due to rounding.

TABLE 2—SAN JOAQUIN VALLEY ANNUAL AVERAGE EMISSIONS INVENTORY FOR DIRECT PM_{2.5} AND PM_{2.5} PRECURSORS FOR THE 2013 BASE YEAR [tpd]

Category	Direct PM _{2.5}	NO _x	SO _x	VOC	Ammonia
Stationary Sources	8.8	38.6	7.2	87.1	13.9
Area Sources	41.5	8.1	0.3	153.4	310.9
On-Road Mobile Sources	6.4	183.1	0.6	49.8	4.4
Non-Road Mobile Sources	5.8	87.4	0.3	33.8	0.0
Totals ^a	62.5	317.2	8.5	324.1	329.2

Source: 2018 PM_{2.5} Plan, Appendix B, tables B–1 through B–5.

^a Totals reflect disaggregated emissions and may not add exactly as shown here due to rounding.

3. EPA Evaluation and Proposed Action

Consistent with the requirement that inventories be based on the most current and accurate information available to the State and District at the time they were developing the plans and inventories, our evaluation for the SJV for the 2012 PM_{2.5} NAAQS relies primarily on the emissions inventories in the 2018 PM_{2.5} Plan. The inventories in the 2018 PM_{2.5} Plan include the latest version of California’s mobile source emissions model, EMFAC2014, that had been approved by the EPA at the time, and the EPA’s most recent AP–42 methodology for paved road dust. The inventories comprehensively address all source categories in the SJV PM_{2.5} nonattainment area and are consistent with the EPA’s inventory guidance.

In accordance with 40 CFR 51.1008(a), the 2013 base year is one of the three years for which monitored

data were used for designating the area, and it represents annual average emissions of all sources within the nonattainment area. Direct PM_{2.5} and PM_{2.5} precursors are included in the inventories, and filterable and condensable direct PM_{2.5} emissions are identified separately.

With respect to future year baseline projections, we have reviewed the growth and control factors and find them acceptable and thus conclude that the future baseline emissions projections in the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan reflect appropriate calculation methods and the latest planning assumptions at the time the State and District were developing the plans and inventories. Also, as a general matter, the EPA will approve a SIP submission that takes emissions reduction credit for a control measure only where the EPA has approved the

measure as part of the SIP. Thus, for example, to take credit for the emissions reductions from newly adopted or amended District rules for stationary and area sources, the related rules must be approved by the EPA into the SIP.

Given the State’s impracticability demonstration for attaining the 2012 PM_{2.5} NAAQS in the SJV by the outermost Moderate area attainment date, the 2016 PM_{2.5} Plan describes the District rules achieving post-2013 emission reductions that contribute towards attaining the NAAQS.⁶² In our rulemaking on the State’s attainment plan for the 2006 PM_{2.5} NAAQS in the SJV, we reviewed the baseline measures identified as 2018 PM_{2.5} Plan baseline controls to ensure that the measures that are relied upon in the plan have been submitted and approved as part of the California SIP.⁶³ That set of 2018 PM_{2.5} Plan baseline measures includes all

⁶⁰ Particulate matter with a diameter of 10 microns or less.

⁶¹ 2016 PM_{2.5} Plan, App. D, tables D–1 through D–5; and 2018 PM_{2.5} Plan, App. I, tables I–1 through I–5.

⁶² 2016 PM_{2.5} Plan, Table 3–2. This includes District rules for open burning; boilers, steam generators, and process heaters; flares; glass melting furnaces; stationary internal combustion engines; and residential wood burning.

⁶³ EPA, “Technical Support Document, General Evaluation, San Joaquin Valley PM_{2.5} Plan for the

2006 PM_{2.5} NAAQS,” February 2020 (“EPA’s General Evaluation TSD”). Table V–A of EPA’s General Evaluation TSD shows District rules with post-2013 compliance dates that are reflected in the future year baseline inventories of the 2018 PM_{2.5} Plan, along with information on the EPA’s approval of these rules.

those baseline measures identified in the 2016 PM_{2.5} Plan's RFP demonstration as achieving emission reductions post-2013. Based on that review, we confirm that the stationary and area source baseline measures in the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan are approved into the SIP and support the emissions reductions for future years in the SJV. With respect to mobile sources, the EPA has acted in recent years to approve CARB mobile source regulations into the state-wide portion of the California SIP.⁶⁴ We therefore find that the future year baseline projections in the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan are properly supported by SIP-approved stationary, area, and mobile source measures.⁶⁵

For these reasons, we are proposing to approve the 2013 base year emissions inventory in the 2018 PM_{2.5} Plan as meeting the requirements of CAA section 172(c)(3) and 40 CFR 51.1008. We are also proposing to find that the future year baseline inventories in the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan satisfy the requirements of 40 CFR 51.1008(a)(2) and 51.1012(a)(2) and provide an adequate basis for the control measure, RFP, and impracticability demonstrations in the

2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan, respectively.

B. PM_{2.5} Precursors

1. Requirements for Control of PM_{2.5} Precursors

The provisions of subpart 4 of part D, title I of the CAA do not define the term "precursor" for purposes of PM_{2.5}, nor do they explicitly require the control of any specifically identified PM precursor. The statutory definition of "air pollutant" in CAA section 302(g), however, provides that the term "includes any precursors to the formation of any air pollutant, to the extent the Administrator has identified such precursor or precursors for the particular purpose for which the term 'air pollutant' is used." The EPA has identified NO_x, SO₂, VOC, and ammonia as precursors to the formation of PM_{2.5}. Accordingly, the attainment plan requirements of subpart 4 apply to emissions of all four precursor pollutants and direct PM_{2.5} from all types of stationary, area, and mobile sources, except as otherwise provided in the Act (*e.g.*, in CAA section 189(e)).

Section 189(e) of the Act requires that the control requirements for major stationary sources of direct PM₁₀ (which includes PM_{2.5}) also apply to major stationary sources of PM₁₀ precursors, except where the Administrator determines that such sources do not contribute significantly to PM₁₀ levels that exceed the standard in the area. Section 189(e) contains the only express exception to the control requirements under subpart 4 (*e.g.*, requirements for RACM, RACT, BACM, best available control technology (BACT), MSM, and NNSR) for sources of direct PM_{2.5} and PM_{2.5} precursor emissions. Although section 189(e) explicitly addresses only major stationary sources, the EPA interprets the Act as authorizing it also to determine, under appropriate circumstances, that regulation of specific PM_{2.5} precursors from other source categories in a given nonattainment area is not necessary. For example, under the EPA's longstanding interpretation of the control requirements that apply to stationary and mobile sources of PM₁₀ precursors in the nonattainment area under CAA section 172(c)(1) and subpart 4,⁶⁶ a state may demonstrate in a SIP submission that control of a certain precursor pollutant is not necessary in light of its insignificant contribution to ambient PM₁₀ levels in the nonattainment area.⁶⁷

Under the PM_{2.5} SIP Requirements Rule, a state may elect to submit to the EPA a "comprehensive precursor demonstration" for a specific nonattainment area to show that emissions of a particular precursor from all existing sources located in the nonattainment area do not contribute significantly to PM_{2.5} levels that exceed the standard in the area.⁶⁸ If the EPA determines that the contribution of the precursor to PM_{2.5} levels in the area is not significant and approves the demonstration, the state is not required to control emissions of the relevant precursor from existing sources in the attainment plan.⁶⁹

We are evaluating the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan with respect to the Moderate area requirements in accordance with the presumption embodied within subpart 4 that all PM_{2.5} precursors must be addressed in the State's evaluation of potential control measures, unless the State adequately demonstrates that emissions of a particular precursor or precursors do not contribute significantly to ambient PM_{2.5} levels that exceed the PM_{2.5} NAAQS in the nonattainment area. In reviewing any determination by the State to exclude a PM_{2.5} precursor from the required evaluation of potential control measures, we consider both the magnitude of the precursor's contribution to ambient PM_{2.5} concentrations in the nonattainment area and the sensitivity of ambient PM_{2.5} concentrations in the area to reductions in emissions of that precursor.

2. Summary of State's Precursor Demonstrations

The State presents analyses of PM_{2.5} precursors in both the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan and primarily relies on sensitivity-based contribution analyses to determine whether each PM_{2.5} plan precursor contributes significantly to ambient PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS. We summarize below key points from the State's analyses and conclusions for each pollutant, focusing on the three precursors (ammonia, SO_x, and VOC) that the State concludes do not contribute significantly to PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV.

In the 2016 PM_{2.5} Plan, the State's precursor demonstration and conclusions are found in section 2.3 ("Summary of Modeling Results"), section 3.3 ("Precursor

of Irritated Residents v. EPA, et al., 423 F.3d 989 (9th Cir. 2005).

⁶⁸ 40 CFR 51.1006(a)(1).

⁶⁹ *Id.*

⁶⁴ See, *e.g.*, 81 FR 39424 (June 16, 2016), 82 FR 14447 (March 21, 2017), and 83 FR 23232 (May 18, 2018).

⁶⁵ The baseline emissions projections in the 2016 PM_{2.5} Plan assume implementation of CARB's zero emissions vehicle (ZEV) sales mandate and greenhouse gas (GHG) standards, based on the approved EMFAC2014 model and assumptions that were available at the time of the SIP's development. On September 27, 2019, the U.S. Department of Transportation and the EPA (the Agencies) issued a notice of final rulemaking for the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" ("SAFE I") that, among other things, withdrew the EPA's 2013 waiver of preemption of CARB's ZEV sales mandate and vehicle GHG standards. 84 FR 51310 (September 27, 2019). See also proposed SAFE rule at 83 FR 42986 (August 24, 2018). In response to SAFE I, CARB developed EMFAC off-model adjustment factors to account for anticipated changes in on-road emissions. On March 12, 2020, the EPA informed CARB that the EPA considers these adjustment factors to be acceptable for future use. See letter dated March 12, 2020, from Elizabeth J. Adams, EPA Region IX, to Steven Cliff, CARB. On April 30, 2020 (85 FR 24174), the Agencies issued a notice of final rulemaking for the "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks" ("SAFE II"), establishing the federal fuel economy and GHG vehicle emissions standards based on the August 2018 SAFE proposal. The effect of both SAFE final rules (SAFE I and SAFE II) on the on-road vehicle mix in the SJV nonattainment area and on the resulting vehicular emissions is expected to be minimal during the timeframe addressed in this SIP revision. Therefore, we anticipate the SAFE final rules would not materially change the demonstration that it is impracticable for the SJV 2012 PM_{2.5} Moderate area to attain by the Moderate area attainment date of December 31, 2021.

⁶⁶ General Preamble, 13539–13542.

⁶⁷ Courts have upheld this approach to the requirements of subpart 4 for PM₁₀. See, *e.g.*, *Assoc.*

Demonstration”), and Appendix A (“Air Quality Modeling”). The State estimates that baseline anthropogenic emissions of NO_x, ammonia, SO_x, and VOC will decrease by 38 percent (%), 1%, 2%, and 8%, respectively, between 2013 and 2021.⁷⁰ The State does not present a concentration-based analysis of the contribution of each precursor to ambient PM_{2.5} concentrations, but does estimate PM_{2.5} component concentrations in the 2013 base year across all SJV monitoring sites.⁷¹ The concentrations indicate that each precursor may have a significant impact on PM_{2.5} levels.⁷² The State presents a sensitivity-based precursor analysis using the modeled response of ambient PM_{2.5} concentrations to a 15% increase or decrease in the future baseline emissions of each precursor in 2025 (the latest permissible attainment year if the area is reclassified to Serious for the 2012 PM_{2.5} NAAQS).⁷³ For each precursor, the State then takes the difference between the PM_{2.5} concentrations from the 15% increase and the 15% decrease to estimate the ambient PM_{2.5} response to a 30% change in the precursor, and reviews the resulting change at each monitor to see whether any response exceeds a threshold of 0.2 µg/m³.⁷⁴

The responses range from 0.5 µg/m³ to 1.5 µg/m³ for NO_x; from 0.1 µg/m³ to 0.2 µg/m³ for ammonia; from 0.1 µg/m³ to 0.2 µg/m³ for SO_x; and from -0.1 µg/m³ to 0.1 µg/m³ for VOC.⁷⁵ The State concludes that emissions of NO_x (as well as direct PM_{2.5}) contribute significantly to ambient PM_{2.5} levels that exceed the PM_{2.5} NAAQS but ammonia, SO_x, and VOC do not contribute significantly to such exceedances.⁷⁶ The

2016 PM_{2.5} Plan, Appendix A, section 5.5 (“Discussion of Precursor Sensitivity”) includes additional discussion of ammonia’s and VOC’s role in the formation of ammonium nitrate and VOC’s role in the formation of secondary organic aerosols.

In the 2018 PM_{2.5} Plan, the State’s precursor demonstration and conclusions are found in Chapter 7 (“Demonstration of Federal Requirements for 2012 PM_{2.5} Standard”) and Appendix G (“Precursor Demonstration”). CARB also provides clarifying information on its precursor assessment, including an Attachment A to its letter transmitting the 2018 PM_{2.5} Plan to the EPA⁷⁷ and further clarifications in four email transmittals.⁷⁸

The State estimates that anthropogenic emissions of NO_x, ammonia, SO_x, and VOC will decrease by 64%, 1%, 6%, and 9%, respectively, between 2013 and 2025.⁷⁹ The 2018 PM_{2.5} Plan provides both concentration-based and sensitivity-based analyses of precursor contributions to ambient PM_{2.5} concentrations in the SJV. Based on these analyses, the State concludes that emissions of NO_x (as well as direct PM_{2.5}) contribute significantly to ambient PM_{2.5} levels that exceed the PM_{2.5} NAAQS in the SJV but ammonia,

therefore is not considered a precursor pollutant under subpart 4, which may differ from a more generalized understanding of what contributes to ambient PM_{2.5}.

⁷⁷ Letter dated May 9, 2019, from Richard W. Corey, Executive Officer, CARB, to Michael Stoker, Regional Administrator, EPA Region IX, Attachment A (“Clarifying information for the San Joaquin Valley 2018 Plan regarding model sensitivity related to ammonia and ammonia controls”).

⁷⁸ Email dated June 20, 2019, “RE: SJV model disbenefit from SO_x reduction,” from Jeremy Avise, CARB, to Scott Bohning, EPA Region IX, with attachment (“CARB’s June 2019 Precursor Clarification”); email dated September 19, 2019, “FW: SJV species responses,” from Jeremy Avise, CARB, to Scott Bohning, EPA Region IX, with attachments (“CARB’s September 2019 Precursor Clarification”); email dated October 18, 2019, from Laura Carr, CARB to Scott Bohning, Jeanhee Hong, and Rory Mays, EPA Region IX, with attachment “Clarifying Information on Ammonia” (“CARB’s October 2019 Precursor Clarification”); and email dated April 26, 2021, from Laura Carr, CARB, to Scott Bohning, EPA Region IX, Subject: “RE: Ammonia update,” with attachment “Ammonia in San Joaquin Valley” (“CARB’s April 26, 2021, Precursor Clarification”).

⁷⁹ 2018 PM_{2.5} Plan, Ch. 7, 7–5 and Table 7–2. Notably, the estimated 64% reduction in NO_x from 2013 to 2025 (per the 2018 PM_{2.5} Plan) is much larger than the estimated 38% reduction in NO_x from 2013 to 2021 (per the 2016 PM_{2.5} Plan), reflecting both additional years of reductions and additional reductions anticipated from the 2018 PM_{2.5} Plan control strategy. We also note that a copy of the contents of the 2018 PM_{2.5} Plan, App. G appears in the CARB 2018 Staff Report, App. C4 (“Precursor Demonstrations for Ammonia, SO_x, and ROG”).

SO_x, and VOC do not contribute significantly to such exceedances.

While these analyses are primarily designed to evaluate the role of precursors in attaining the 2006 24-hour PM_{2.5} NAAQS by 2024 and the 2012 annual PM_{2.5} NAAQS by 2025, they are important to the consideration of precursors for the State’s Moderate area plan because they are based on updated data (e.g., updated emissions inventories, as discussed in section IV.A of this proposed rule), use an updated methodology to evaluate the sensitivity of ambient PM_{2.5} to a range of precursor emission reductions, consistent with the EPA’s guidance, and best reflect the State’s understanding of the control strategies being implemented in the SJV.

We summarize the State’s analyses and conclusions in the following paragraphs. For ammonia, SO_x, and VOC, CARB assesses the 2015 annual average concentration of each precursor in ambient PM_{2.5} at Bakersfield, for which the necessary speciated PM_{2.5} data is available and where the highest PM_{2.5} design values have been recorded in most years, and compares those concentrations to the recommended annual average contribution threshold of 0.2 µg/m³ from the EPA’s “Draft PM_{2.5} Precursor Guidance”⁸⁰ available at the time the State developed the SIP.⁸¹ The 2015 annual average contributions of ammonia, SO_x, and VOC are 5.2 µg/m³, 1.6 µg/m³ and 6.2 µg/m³, respectively.

Given that these levels are well above the EPA’s recommended contribution threshold in the Draft PM_{2.5} Precursor Guidance, the State models the sensitivity of ambient PM_{2.5} in the SJV to reductions in each precursor pollutant. For direct PM_{2.5} and NO_x, the State models the sensitivity of ambient PM_{2.5} in the SJV to a 30% reduction in anthropogenic emissions of each pollutant in 2013, 2020, and 2024.⁸² The State concludes that direct PM_{2.5} and NO_x emissions reductions will continue to have a significant impact on annual

⁸⁰ “PM_{2.5} Precursor Demonstration Guidance, Draft for Public Review and Comments,” EPA-454/P-16-001, November 17, 2016, including Memo dated November 17, 2016 from Stephen D. Page, Director, OAQPS, EPA to Regional Air Division Directors, Regions 1–10, EPA.

⁸¹ 2018 PM_{2.5} Plan, App. G, 3. The 2018 PM_{2.5} Plan presents a graphical representation of annual average ambient PM_{2.5} components (i.e., crustal particulate matter, elemental carbon, organic matter, ammonium sulfate, and ammonium nitrate) for 2011–2013 for Bakersfield, Fresno, and Modesto. 2018 PM_{2.5} Plan, Ch. 3, 3–3 to 3–4.

⁸² 2018 PM_{2.5} Plan, Ch. 7, 7–7. The sensitivity-based analysis used the same modeling platform as that used for the 2018 PM_{2.5} Plan’s attainment and RFP demonstrations. CARB modeled the impacts of both NO_x reductions and direct PM_{2.5} reductions, but the direct PM_{2.5} results were used only as a point of comparison, as direct PM_{2.5} emissions must be regulated in all PM_{2.5} nonattainment areas.

⁷⁰ 2016 PM_{2.5} Plan, 2–4 and Table 2–1.

⁷¹ Id. at Table 2–4.

⁷² Using the species assignments recommended in the Draft Precursor Demonstration Guidance (on page 21) the relevant concentrations are as follows: For NO_x, the nitrate and associated ammonium is up to 7.1 µg/m³; for SO₂, sulfate is up to 1.7 µg/m³; for ammonia, the sum of ammonium and nitrate is up to 7.1 µg/m³; for VOC the only available concentration is for “OM” (organic matter), which is up to 8.7 µg/m³, and is likely much higher than the secondary organic aerosol that is relevant for VOC as a PM_{2.5} precursor. All these values are well above the 0.2 µg/m³ threshold.

⁷³ 2016 PM_{2.5} Plan, App. A, section 5.4 (“Precursor Sensitivity Analysis”).

⁷⁴ For the annual PM_{2.5} NAAQS, the EPA generally expects that a precursor demonstration showing that the air quality impact of a given precursor at all relevant locations does not exceed a contribution threshold of 0.2 µg/m³ will be adequate to exempt sources of that precursor from control requirements. PM_{2.5} Precursor Guidance, 17.

⁷⁵ 2016 PM_{2.5} Plan, App. A, tables 24, 26, 28, and 27, respectively.

⁷⁶ Id. at 2–6 and 3–3, and App. A, A–52. We note that direct PM_{2.5} emissions are considered a primary source of ambient PM_{2.5} (i.e., no further formation in the atmosphere is required), and

and 24-hour PM_{2.5} design values in the SJV, with NO_x reductions being particularly important.⁸³

For ammonia, SO_x, and VOC, the State then models the sensitivity of ambient PM_{2.5} to 30% and 70% reductions in anthropogenic emissions of each precursor pollutant in 2013 (the 2018 PM_{2.5} Plan's base year), 2020 (the modeled attainment year for the 1997 PM_{2.5} NAAQS), and 2024 (the modeled attainment year for the 2006 PM_{2.5} NAAQS, and proxy for the modeled attainment year of 2025 for the 2012 PM_{2.5} NAAQS).⁸⁴ Depending on the analysis year and percentage precursor emission reduction, the sensitivity of ambient PM_{2.5} to reductions in annual average precursor emissions ranges from 0.08 µg/m³ to 2.30 µg/m³ for ammonia; from -0.05 µg/m³ to 0.15 µg/m³ for SO_x; and from -0.50 µg/m³ to 0.40 µg/m³ for VOC.⁸⁵

For ammonia, the modeled sensitivity of ambient PM_{2.5} levels to a 30% or 70% emission reduction exceed 0.2 µg/m³ in certain years at specific monitoring sites. We provide a detailed summary of these modeling results and our evaluations thereof in the "Technical Support Document, EPA Evaluation of Ammonia Precursor Demonstration, San Joaquin Valley Moderate Area PM_{2.5} Plan for the 2012 PM_{2.5} NAAQS," August 2021 ("EPA's Ammonia Precursor TSD"). In contrast, for SO_x and VOC, the modeled sensitivity of ambient PM_{2.5} levels to a 30% or 70% emission reduction in either precursor is below 0.2 µg/m³, including a disbenefit at certain monitoring sites (*i.e.*, ambient PM_{2.5} level increase), in all scenarios except one. For 2013, the State's modeling shows an ambient PM_{2.5} change greater than 0.2 µg/m³ in response to a 70% VOC emission reduction. According to the State, however, such sensitivity results do not reflect the atmospheric chemistry in the SJV given the projected emission reductions from 2013 to 2024 for all four

PM_{2.5} precursors, especially for VOC and NO_x.⁸⁶

The State supplements the sensitivity analysis, particularly for ammonia, with consideration of additional information, including factors identified in the Draft PM_{2.5} Precursor Guidance, such as emission trends, the appropriateness of future year versus base year sensitivity, available emission controls, and the severity of nonattainment.⁸⁷ The PM_{2.5} Precursor Guidance confirms that these factors may be relevant to a sensitivity-based contribution analysis.⁸⁸

For ammonia, the State notes that a 53% reduction in (baseline) NO_x emissions is projected to occur between 2013 and 2024,⁸⁹ so the conditions in the early years will not persist and the future year (2024) is more representative of the Valley's ambient conditions than earlier years. The 2018 PM_{2.5} Plan's precursor demonstration also presents a review of District agricultural rules that control VOC emissions and also provide ammonia co-benefits. The State concludes that a 30% reduction is a reasonable upper bound on the ammonia reductions to model. Finally, the 2018 PM_{2.5} Plan's precursor demonstration presents extensive support for the State's conclusion regarding an ambient excess of ammonia relative to NO_x, *i.e.*, that particulate ammonium nitrate formation is NO_x-limited, beyond that presented in the 2016 PM_{2.5} Plan's precursor demonstration.

3. EPA Evaluation and Proposed Action

The EPA has evaluated the State's precursor demonstrations in the 2016 PM_{2.5} Plan, as supplemented and updated by the precursor demonstrations in the 2018 PM_{2.5} Plan, as well as other relevant information available to the EPA, consistent with the PM_{2.5} SIP Requirements Rule and the recommendations in the PM_{2.5} Precursor Guidance. Based on this evaluation, the EPA agrees with the State's conclusion that NO_x emissions contribute significantly to ambient PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV and that NO_x emission sources, therefore, remain subject to control

requirements under subparts 1 and 4 of part D, title I of the Act. Additionally, for the reasons provided in the following paragraphs, the EPA proposes to approve the State's comprehensive precursor demonstrations for ammonia, SO_x, and VOC based on a conclusion that emissions of these precursor pollutants do not contribute significantly to ambient PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV.

The State based its analyses on the latest available data and studies concerning ambient PM_{2.5} formation in the SJV from precursor emissions. For the required concentration-based analysis, the State assessed the absolute annual average contribution of each precursor to ambient PM_{2.5} (*i.e.*, in 2015). Given the absolute concentrations in 2015 were above the EPA's recommended contribution thresholds for both the 24-hour and annual average PM_{2.5} NAAQS, the State proceeded to a sensitivity-based analysis, consistent with the PM_{2.5} SIP Requirements Rule.

For the sensitivity-based analysis, the State performed its analyses in a straightforward application of the EPA's recommended approach—*i.e.*, for each modeled year and level of emissions reduction (in percentages), the State estimated the ambient PM_{2.5} response using the procedure recommended in the PM_{2.5} Precursor Guidance, and compared the result to the EPA's recommended contribution threshold.⁹⁰ The EPA finds that the performance of the photochemical models were adequate for use in estimating the ambient PM_{2.5} responses.⁹¹ In particular, for the 2018 PM_{2.5} Plan precursor demonstration, the State considered the EPA's recommended range of emission reductions (30% to 70%) for the 2013 base year, 2020 (an interim year), and 2024 (as a proxy for the projected 2025 attainment year for the 2012 PM_{2.5} NAAQS), and quantified

⁹⁰ For the 2016 PM_{2.5} Plan precursor demonstration, CARB modeled a 15% increase and 15% decrease in a precursor and took the difference between the resulting PM_{2.5} concentrations to estimate the ambient PM_{2.5} response to a 30% change in the precursor, rather than a straight 30% reduction, which would be expected to slightly understate the response, as described in the EPA's Ammonia Precursor TSD. Nevertheless, this is a reasonable approach and the State consulted with the EPA on whether this approach using then-available modeling runs would be acceptable.

⁹¹ For the 2018 PM_{2.5} Plan, the model performance is discussed further in section J ("Air Quality Model Performance") of the EPA's "Technical Support Document, EPA Evaluation of Air Quality Modeling, San Joaquin Valley PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS," February 2020 ("EPA's Modeling TSD"). See further discussion in section IV.C of this proposed rule.

⁸³ Id. Ch. 7, 7-7; and 2018 PM_{2.5} Plan, App. G, 2. CARB presents its sensitivity analysis for emission reductions in direct PM_{2.5} and NO_x in the plan's attainment demonstration appendix. 2018 PM_{2.5} Plan, App. K, Table 46 (annual average design values) and Table 50 (24-hour average design values).

⁸⁴ 2018 PM_{2.5} Plan, Ch. 7, 7-7. The 2018 PM_{2.5} Plan precursor demonstration assumes that 2025 attainment year sensitivities are very similar to those modeled in 2024. 2018 PM_{2.5} Plan, App. G, 10. We note that the State only modeled 30% and 70% reductions in SO_x for 2013, finding that the sensitivity of ambient PM_{2.5} to such changes were below the EPA's recommended threshold.

⁸⁵ Id. at App. G, tables 2 through 7 for ammonia, tables 8 and 9 for SO_x, and tables 10 through 15 for VOC.

⁸⁶ For a more detailed summary of the State's precursor demonstration in the 2018 PM_{2.5} Plan for the 2006 24-hour PM_{2.5} NAAQS, see the EPA's "Technical Support Document, EPA Evaluation of PM_{2.5} Precursor Demonstration, San Joaquin Valley PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS," February 2020 ("EPA's 24-hour PM_{2.5} Precursor TSD").

⁸⁷ 2018 PM_{2.5} Plan, App. G, 5.

⁸⁸ PM_{2.5} Precursor Guidance, 18-19 (consideration of additional information), 31 (available emission controls), and 35-36 (appropriateness of future year versus base year sensitivity).

⁸⁹ 2018 Plan, App. G, 8.

the estimated response of ambient PM_{2.5} concentrations to precursor emission changes in the SJV.

The State's emissions projections in the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan show that baseline emissions of each of these precursors will decrease from the 2013 base year to 2021 and 2025, respectively (*i.e.*, none of these pollutants is projected to increase). These decreases are included in the State's modeled projections of ambient PM_{2.5} levels in the SJV for purposes of demonstrating attainment and RFP. The State's sensitivity analyses are consistent with these projections, in accordance with the EPA's recommendations in the PM_{2.5} Precursor Guidance.⁹²

In the subsections that follow, we summarize below our evaluation of the State's precursor demonstrations for ammonia, SO_x, and VOC for purposes of the 2012 PM_{2.5} NAAQS in the SJV.

a. Ammonia Precursor Demonstration

In the 2016 PM_{2.5} Plan, CARB estimates the ambient PM_{2.5} response to a 30% reduction in emissions in 2025 and, in the 2018 PM_{2.5} Plan, CARB estimates the ambient PM_{2.5} response to both a 30% and a 70% emission reduction in 2013, 2020, and 2024. We have evaluated CARB's sensitivity-based contribution analyses for 2013, 2020, and 2024 (in the 2018 PM_{2.5} Plan) and for 2025 (in the 2016 PM_{2.5} Plan), and CARB's determination that 2024, as a proxy for the projected attainment year of 2025, is more representative of conditions in the SJV for purposes of a sensitivity-based analysis, as discussed in the following paragraphs. We find it appropriate for the State to consider additional information as part of its evaluation of whether the ammonia contribution is significant and to rely on the responses to the 30% modeled ammonia emissions reduction in its precursor demonstration for ammonia. We provide a detailed evaluation of the State's precursor demonstration for ammonia emissions in the EPA's Ammonia Precursor TSD.

As part of its analysis in the 2016 PM_{2.5} Plan, CARB estimates that the ambient PM_{2.5} response to a 30% reduction in ammonia emissions would range from 0.1 µg/m³ to 0.2 µg/m³ in 2025 with 3 of 16 monitoring sites having a response of 0.2 µg/m³. However, the precursor demonstration in the 2018 PM_{2.5} Plan indicates that the ambient response to a 30% ammonia emission reduction would exceed the EPA's recommended contribution threshold of 0.2 µg/m³ at a number of

monitoring sites, primarily in the 2013 and 2020 analysis years. For example, the sensitivity results for a 30% reduction in ammonia emission reductions in 2020 (the closest analysis year to 2021), show that the ambient PM_{2.5} response at 9 of 15 monitoring sites would exceed the 0.2 µg/m³ threshold. We consider two lines of reasoning provided by the State to support its conclusion that ammonia emissions do not contribute significantly to ambient PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV.

First, multiple researchers have suggested that ammonia emissions are underestimated in the SJV by a factor of two to five or more.⁹³ This conclusion is based on comparing ambient and satellite measurements to model results that incorporate estimates of ammonia emissions and comparing monitoring or modeling results to what would be expected based on the size(s) of the ammonia and other precursor (*e.g.*, NO_x) emission inventories. In a supplemental transmittal,⁹⁴ CARB described the results of two analyses confirming the likely underestimation of ammonia emissions. CARB compared Community Multiscale Air Quality (CMAQ) model predictions of ammonia with the 2013 DISCOVER-AQ⁹⁵ aircraft measurements and found that ammonia was underpredicted, and noted that this would result in the response to ammonia reductions being overpredicted. CARB also compared 2017 satellite measurements of ammonia with CMAQ model predictions and found that modeled ammonia concentrations were half of the magnitude of the satellite observations at some locations, and the modeled average in the SJV was about 25% less than observed. As a result of the likely ammonia emissions underestimation, the modeled response to ammonia precursor reductions in the 2018 PM_{2.5} Plan's precursor

demonstration may be unrealistically large.

If ammonia emissions were increased in the modeling to correct the likely underestimation, then modeled ammonia would be more abundant relative to nitrate; particulate nitrate formation would be more NO_x-limited, and less responsive to ammonia reductions; and the modeled response to ammonia reductions would be lower than is reported in the 2018 PM_{2.5} Plan's precursor demonstration and likely below the EPA's recommended contribution threshold at most monitors in 2021.

In addition, an upward revision in the ammonia emission estimate would make the model response more consistent with the ambient measurement studies discussed in the submittal.⁹⁶ The relevant studies suggest a very low ambient sensitivity to ammonia, based on measured excess ammonia relative to NO_x, the abundance of particulate nitrate relative to gaseous NO_x, and the large abundance of ammonia relative to nitric acid.⁹⁷ The studies all conclude that there is a large amount of ammonia left over after reacting with NO_x, so that ammonia emission reductions would be expected mainly to reduce the amount of ammonia excess, rather than to reduce the particulate ammonium nitrate.

Based on these evaluations, we find that a correction to the likely underestimation of the ammonia emission inventory would likely result in a modeled response to ammonia reductions below the 0.2 µg/m³ contribution threshold in 2021.

Second, the air quality benefit of ammonia emission reductions is projected to decline steeply over time and both the Moderate and Serious area plans for the 2012 PM_{2.5} NAAQS for the SJV have been submitted to the EPA. While a concentration-based analysis is the initial step for a precursor demonstration under the PM_{2.5} SIP Requirements Rule,⁹⁸ a precursor

⁹² 2018 PM_{2.5} Plan, 6–7, and App. G, G–9 to G–10; the CARB 2018 Staff Report, App. C, 12–15; and Submittal Letter, Attachment A.

⁹⁷ Lurmann et al. 2006, "Processes Influencing Secondary Aerosol Formation in the San Joaquin Valley during Winter." *Journal of the Air & Waste Management Association* (1995) 56(12):1679–93, <https://doi.org/10.1080/10473289.2006.10464573>; Markovic et al., 2014, "Measurements and modeling of the inorganic chemical composition of fine particulate matter and associated precursor gases in California's San Joaquin Valley during CalNex 2010." *Journal of Geophysical Research—Atmospheres*, 119, 6853–6866, <https://doi.org/10.1002/2013JD021408>. CalNex, or California Research at the Nexus of Air Quality and Climate Change, was a NOAA-sponsored field study during summer 2010. <https://www.esrl.noaa.gov/csd/projects/calnex/>.

⁹⁸ 40 CFR 51.1006 (a)(1)(i).

⁹³ See, *e.g.*, Parrish, D., "Synthesis of Policy Relevant Findings from the CalNex 2010 Field Study, Final Report to the Research Division of the California Air Resources Board," 2014, 63, <https://www.esrl.noaa.gov/csd/projects/calnex/>; and Kelly, J.T. et al. 2018, "Modeling NH₄NO₃ over the San Joaquin Valley during the 2013 DISCOVER-AQ campaign," *Journal of Geophysical Research: Atmospheres*, 123, 4727–4745, <https://doi.org/10.1029/2018JD028290> at 4731. See also the EPA's Ammonia Precursor TSD for further discussion of ammonia research studies.

⁹⁴ CARB's April 26, 2021, Precursor Clarification.

⁹⁵ NASA, "Deriving Information on Surface conditions from Column and Vertically Resolved Observations Relevant to Air Quality," available at https://www.nasa.gov/mission_pages/discover-aq/index.html.

⁹² PM_{2.5} Precursor Guidance, 35.

demonstration may then proceed to a sensitivity-based contribution analysis⁹⁹ to consider how sensitive ambient PM_{2.5} levels would be to emissions reductions. Precursor concentration alone does not account for complications of meteorology and chemistry; ambient PM_{2.5} may be relatively insensitive to emissions reductions and, in some circumstances, emissions reductions may even result in increased ambient PM_{2.5}, *i.e.*, show a “disbenefit.”¹⁰⁰

In selecting the analysis year for a precursor demonstration, we find it appropriate to consider changes in atmospheric chemistry that may occur between the base or current year and the attainment year because the changes may ultimately affect the nonattainment area’s progress toward expeditious attainment. Based on these considerations, we find it reasonable for the State to focus on the ambient PM_{2.5} response to ammonia emission reductions in 2024, rather than an earlier year, as the modeled response in 2024 in the SJV better reflects the potential benefit of ammonia control measures for purposes of expeditious attainment of the 2012 PM_{2.5} NAAQS. We consider the precursor demonstration in the 2018 PM_{2.5} Plan as part of this evaluation, because the 2018 PM_{2.5} Plan contains a Serious area attainment plan for the 2012 PM_{2.5} NAAQS based on modeled emissions projections for 2024 and 2025 that are relevant to our evaluation of the ammonia precursor demonstration in the 2016 PM_{2.5} Plan. The 2018 PM_{2.5} Plan provides updated analyses with comprehensive modeling and additional information beyond that provided in the 2016 PM_{2.5} Plan, and the 2024 model results in the 2018 PM_{2.5} Plan corroborate the 2025 model results in the 2016 PM_{2.5} Plan.

The State’s precursor demonstrations in the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan show that ambient sensitivity to ammonia emission reductions in the

SJV declines steeply over time. Between 2020 and 2024, the modeled response to a 30% ammonia emission reduction declines by 50% at the Bakersfield-Planz monitoring site, which has the highest projected PM_{2.5} level, and by 37% averaged over all monitoring sites. In absolute terms, the ambient PM_{2.5} response declines from 0.24 µg/m³ in 2020 to 0.12 µg/m³ in 2024 at Bakersfield-Planz, and from 0.23 µg/m³ to 0.14 µg/m³ as averaged over all monitoring sites, with the decline being generally larger for the sites with the highest projected PM_{2.5} levels. Thus, between 2020 and 2024, the number of sites at which modeled sensitivity exceeds the 0.2 µg/m³ threshold declines from 9 of 15 to 1 or 2 of 15.¹⁰¹ As discussed above, ammonia sensitivity declines because of the shifting atmospheric chemistry caused by NO_x emissions decreases. NO_x emissions are projected to decrease 27% between 2020 and 2024 due to baseline measures (e.g., existing motor vehicle controls). The decreased NO_x emissions will make ammonia more abundant relative to NO_x, and even less of a limiting factor on PM_{2.5} formation. In other words, the model response in the future attainment year 2024 gives a more realistic assessment of the potential effect of ammonia controls than past or current conditions.

Moreover, given the likely underestimate in ammonia emissions in the SJV, 2024 modeling results may be more representative even of current conditions than 2020 modeling results. For example, if 2013 ammonia emissions are underestimated by a factor of three, as suggested by the CalNex summary report,¹⁰³ then the 2013 ratio of ammonia to NO_x emissions of 1.04 should be about 3.1, instead. The emissions ratio of ammonia to NO_x in 2024 is 2.2, which is closer to 3.1 than the emissions ratio of ammonia to NO_x in 2020, which is 1.6.¹⁰⁴ Using 2024 modeling results

partly compensates for the likely ammonia emissions underestimation.

Finally, the decision on whether to control ammonia does not affect the attainment year for the 2012 annual PM_{2.5} NAAQS. From the 2020 sensitivity results,¹⁰⁵ a 30% reduction in ammonia emissions would reduce the projected PM_{2.5} level in 2021¹⁰⁶ by 0.24 µg/m³. The design value would decrease from a 2020 baseline value of 14.6 µg/m³ down to 14.3 µg/m³. The State uses a 30% ammonia emission reduction as an upper bound in the modeling but shows that even a 70% ammonia emission reduction would reduce the design value to only 13.8 µg/m³. The result of a 30% or even a 70% ammonia emission reduction, if those were possible, would still be well above the NAAQS level of 12.0 µg/m³. Attainment would remain impracticable in 2021. A decision to evaluate and possibly adopt additional ammonia controls in the 2016 PM_{2.5} Plan would not remove the need for a Serious area plan identifying a later attainment year for the 2012 PM_{2.5} NAAQS.

Such reductions would also have little effect in 2025. Based on the 2024 sensitivity results,¹⁰⁷ if ammonia emissions were reduced by 30%, the area’s 12.0 µg/m³ design value would be reduced by 0.12 µg/m³, which would not be considered significant (it is below the EPA’s recommended threshold of 0.2 µg/m³). A 70% reduction might lower the design value by 0.36 µg/m³ to 11.7 µg/m³. Conceivably that could result in attainment of the 2012 PM_{2.5} NAAQS in 2024 rather than 2025, but it is not clear whether reductions of that magnitude are feasible.

In sum, we find that the State quantified the sensitivity of ambient PM_{2.5} levels to reductions in ammonia emissions using appropriate modeling techniques that performed well; there is likely an underestimation of ammonia emissions in the SJV and, if corrected, the modeled response to ammonia reductions would be lower than reported; and the State’s choice of 2024 and 2025 as the reference points for purposes of evaluating the sensitivity of

Total for San Joaquin Valley, B-7 and B-16. The ammonia to NO_x ratio is 329.2/317.2 = 1.04 in 2013; 325.9/203.3 = 1.6 in 2020; and 324.6/148.9 = 2.2 in 2024.

⁹⁹ 40 CFR 51.1006 (a)(1)(ii).

¹⁰⁰ An example of a disbenefit is “sulfate replacement,” which can occur at intermediate ammonia levels when there is not enough ammonia to fully react with the SO_x and NO_x present. Reducing SO_x emissions reduces ambient particulate ammonium sulfate. For each ammonium sulfate, two ammonium ions are freed; both can combine with a nitrate, forming two particulate ammonium nitrate molecules. The net result of the SO_x emissions decrease is then an increase in ambient PM_{2.5} concentration. See also the EPA’s 24-hour PM_{2.5} Precursor TSD, 17–18; and West, J.J., Ansari, A.S., Pandis, S.N., 1999, “Marginal PM_{2.5}: Nonlinear aerosol mass response to sulfate reductions in the eastern United States,” *Journal of the Air & Waste Management Association*, 49, 1415–1424. <https://doi.org/10.1080/10473289.1999.10463973>.

¹⁰¹ 2018 PM_{2.5} Plan, App. G, tables 4 & 5, G–11. The result for the Madera site is unclear since its monitored concentrations are biased high.

¹⁰² For 2025, the 2016 PM_{2.5} Plan states there are no sites are above the contribution threshold. The sensitivities show similar declines from 2020 to 2025 of 58% for the monitoring site with the highest projected PM_{2.5} level and 46% averaged over all monitoring sites. Because only a single decimal place is provided for 2025, the percent declines are more approximate. Extrapolating the 2018 PM_{2.5} Plan results to 2025, the percent declines are 55% and 40%, respectively, which are comparable to those for 2024.

¹⁰³ Parrish, D., “Synthesis of Policy Relevant Findings from the CalNex 2010 Field Study, Final Report to the Research Division of the California Air Resources Board,” 2014, 63. <https://www.esrl.noaa.gov/csd/projects/calnex/>.

¹⁰⁴ 2018 PM_{2.5} Plan, App. B, tables B–2 (“NO_x”) and B–5 (“Ammonia”), annual average tpd, Grand

¹⁰⁵ 2018 PM_{2.5} Plan, App. G, tables 4 and 6.

¹⁰⁶ Sensitivity for the year 2021 is being represented by model results for 2020. Given the declining NO_x emissions and corresponding decline in ammonia sensitivity, the actual PM_{2.5} response to ammonia reductions for 2021 would be lower than stated.

¹⁰⁷ 2018 PM_{2.5} Plan, App. G, tables 5 and 7, 11–12. The response to 2025 ammonia reductions would be lower than the values stated in the text, due to the effect of declining NO_x emissions.

ambient PM_{2.5} levels to ammonia emission reductions is well-supported. Based on all of these considerations, the EPA proposes to approve the State's demonstration that ammonia emissions do not contribute significantly to ambient PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV.

b. SO_x Precursor Demonstration¹⁰⁵

As described in section IV.B.2 of this proposed rule, in the 2016 PM_{2.5} Plan, CARB estimated the ambient PM_{2.5} response to a 30% reduction in SO_x emissions in 2025 to range from 0.1 µg/m³ to 0.2 µg/m³, with half the monitoring sites having a response of 0.2 µg/m³. In the 2018 PM_{2.5} Plan, CARB estimated the 2013 ambient PM_{2.5} response to a 30% SO_x emission reduction to range from -0.01 µg/m³ to 0.07 µg/m³ and estimated the ambient PM_{2.5} response to a 70% SO_x emission reduction to range from -0.05 µg/m³ to 0.15 µg/m³.¹⁰⁸ The State also provides an emissions trend chart that shows SO_x emissions to be steady at approximately 8 tpd from 2013 through 2024. Given that the relative levels of SO_x and ammonia emissions over that timeframe remain similar, the State concludes that the 2013 sensitivities are also representative of future years.¹⁰⁹ The State also provides the ambient PM_{2.5} responses in 2013, 2020, and 2024 to 30% and 70% reductions in SO_x emissions, all of which are below the 0.2 µg/m³ contribution threshold.¹¹⁰

We note that the 2016 PM_{2.5} Plan's sensitivity estimates for 2025 are at or below the EPA's recommended contribution threshold of 0.2 µg/m³, and that the 2018 PM_{2.5} Plan's sensitivity estimates for 2013 are well below that threshold for both the 30% and 70% emission reduction scenarios and even negative for certain monitoring sites. Given that the latter precursor demonstration was based on updated data and an updated methodology, and the steady SO_x emission levels over 2013 to 2025 (as opposed to increases), the EPA agrees with the State's conclusion that the 2013 modeled sensitivities provide a sufficient basis for the SO_x precursor demonstration. The supplemental results provided by the State for 2020 and 2024 support this conclusion.

Therefore, on the basis of these modeled ambient PM_{2.5} responses to SO_x emission reductions in the SJV, and the facts and circumstances of the area,

¹⁰⁸ 2018 PM_{2.5} Plan, App. G, 15–16, tables 8 and 9.

¹⁰⁹ 2018 PM_{2.5} Plan, App. G, 15.

¹¹⁰ CARB's September 2019 Precursor Clarification.

the EPA proposes to approve the State's demonstration that SO_x emissions do not contribute significantly to ambient PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV.

c. VOC Precursor Demonstration

In the 2016 PM_{2.5} Plan, CARB estimated the ambient PM_{2.5} response to a 30% difference in VOC emissions in 2025 to range from -0.1 µg/m³ to 0.1 µg/m³. In the 2018 PM_{2.5} Plan, the State found that the ambient PM_{2.5} response to VOC emission reductions were generally below the EPA's recommended contribution threshold of 0.2 µg/m³, and often predicted an increase in ambient PM_{2.5} levels in response to such reductions (*i.e.*, a disbenefit), except for a 70% emission reduction for the 2013 base year, where the State predicted the ambient PM_{2.5} response to be above both recommended thresholds at a majority of sites.¹¹¹

We note that the 2016 PM_{2.5} Plan's sensitivity estimates for 2025 are at or below the EPA's recommended contribution threshold of 0.2 µg/m³, and that the 2018 PM_{2.5} Plan's sensitivity estimates for 2020 and 2024 are well below that threshold for both the 30% and 70% emission reduction scenarios, and even negative for certain monitoring sites. The State also provides an emissions trend chart that shows VOC emissions are projected to decrease by about 30 tpd, or 9% between 2013 and 2020 as well as between 2013 and 2024, and concludes that 2013 sensitivity results are not representative into the future and that the 2020 and 2024 results are representative.¹¹² Finally, the State concludes that VOC emissions do not contribute significantly to PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS.

The EPA has evaluated and agrees with the State's determination in the 2018 PM_{2.5} Plan that the projected 2024 attainment year is more representative of conditions in the SJV for sensitivity-based analyses and that VOC reductions in 2024 would mostly result in a disbenefit to ambient PM_{2.5} levels. The EPA agrees that the 9% VOC emissions decrease from 2013 to 2024 supports reliance on the 2024 modeling results. Furthermore, there is a large decrease in NO_x emissions over this period, as described in section IV.B.2 of this proposed rule, that affects the atmospheric chemistry with respect to ambient PM_{2.5} formation from VOC emissions. The 9% VOC emission reductions and the vast majority of NO_x

¹¹¹ 2018 PM_{2.5} Plan, App. G, 18–19, tables 10 and 11.

¹¹² 2018 PM_{2.5} Plan, App. G, 19–20.

emissions reductions are expected to result from baseline measures already in effect. Therefore, we find it reasonable to rely on future year 2024 modeled responses to VOC reductions. The EPA also finds that the State provided a reasonable explanation for the VOC reduction disbenefit and evidence that it occurs in the SJV; as discussed in the EPA's "Technical Support Document, EPA Evaluation of PM_{2.5} Precursor Demonstration, San Joaquin Valley PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS," February 2020 ("EPA's 2006 NAAQS Precursor TSD"), VOC reductions led to less peroxyacetyl nitrate formation, and greater availability of nitrate to form particulate ammonium nitrate.¹¹³

For these reasons, we propose to approve the State's demonstration that VOC emissions do not contribute significantly to ambient PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV.

C. Air Quality Modeling

1. Requirements for Air Quality Modeling

Section 189(a)(1)(B) of the CAA requires each state in which a Moderate area is located to submit a plan that includes a demonstration (including air quality modeling) of either (i) attainment of the PM_{2.5} NAAQS by the applicable attainment date, or (ii) attainment by that date is impracticable. The 2016 PM_{2.5} Plan includes a demonstration that attainment by the Moderate attainment date is impracticable.

The EPA's PM_{2.5} modeling guidance¹¹⁴ ("Modeling Guidance" and "Modeling Guidance Update") recommends that a photochemical model, such as the Comprehensive Air Quality Model with Extensions or CMAQ, be used to simulate a base case, with meteorological and emissions inputs reflecting a base case year, to replicate concentrations monitored in that year. The model application to the base year undergoes a performance evaluation to ensure that it satisfactorily corroborates the concentrations monitored in that year. The model may then be used to simulate emissions occurring in other years required for a

¹¹³ EPA's 2006 NAAQS Precursor TSD, 22.

¹¹⁴ Memorandum dated November 29, 2018, from Richard Wayland, Air Quality Assessment Division, Office of Air Quality Planning and Standards (OAQPS), EPA, to Regional Air Division Directors, EPA, Subject: "Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze," ("Modeling Guidance"), and Memorandum dated June 28, 2011 from Tyler Fox, Air Quality Modeling Group, OAQPS, EPA, to Regional Air Program Managers, EPA, Subject: "Update to the 24 Hour PM_{2.5} NAAQS Modeled Attainment Test," ("Modeling Guidance Update").

plan, namely the base year (which may differ from the base case year) and future year.¹¹⁵ The modeled response to the emission changes between those years is used to calculate relative response factors (RRFs) that are applied to the design value in the base year to estimate the projected design value in the future year for comparison against the NAAQS. Separate RRFs are estimated for each chemical species component of PM_{2.5}, and for each quarter of the year, to reflect their differing responses to seasonal meteorological conditions and emissions. Because each species is handled separately, before applying an RRF, the base year design value must be speciated using available chemical species measurements—that is, each day's measured PM_{2.5} concentration must be split into its species components. The Modeling Guidance provides additional detail on the recommended approach.¹¹⁶

The EPA has not issued modeling guidance specific to impracticability demonstrations but believes that a state seeking to make such a demonstration generally should provide air quality modeling similar to that required for an attainment demonstration.¹¹⁷ The main difference is that for an impracticability demonstration, the implementation of the SIP control strategy (including RACM) does not result in attainment of the standard by the Moderate area attainment date.

For an attainment demonstration, a thorough review of all modeling inputs and assumptions (including consistency with EPA guidance) is especially important because the modeling must ultimately support a conclusion that the plan (including its control strategy) will provide for timely attainment of the applicable NAAQS. In contrast, for an impracticability demonstration, the end point is a reclassification to Serious, which triggers the requirement for a new Serious area attainment plan with a new air quality modeling analysis, and

a new control strategy.¹¹⁸ Thus, the Serious area planning process would provide an opportunity to refine the modeling analysis and/or correct any technical shortcomings in the impracticability demonstration. Therefore, the burden of proof will generally be lower for an impracticability demonstration compared to an attainment demonstration.¹¹⁹

2. Summary of State's Air Quality Modeling

In the 2016 PM_{2.5} Plan, the State discussed its air quality modeling in section 2.3 (“Summary of Modeling Results”) and Appendix A (“Air Quality Modeling”) and concludes that it is not practicable to attain the 2012 PM_{2.5} NAAQS in the SJV by December 31, 2021. The State used CMAQ (version 5.02) to model three simulations: A 2013 base year to demonstrate that the model reasonably reproduced observed PM_{2.5} concentrations, a 2013 reference base year simulation that excluded exceptional events such as wildfires, and a 2021 future year based on the reference year but using projected 2021 emissions. For the base year simulation, CARB conducted photochemical modeling with the CMAQ model using inputs developed from routinely available meteorological and air quality data, as well as more detailed and extensive data from the DISCOVER-AQ field study conducted in January to February 2013.

The State then generated site- and species-specific RRFs for the ammonium ion, nitrate ion, sulfate ion, organic carbon, elemental carbon, and a combined grouping of other primary PM_{2.5} material for the 2021 future year simulation and calculated future year design values by multiplying the species- and site-specific RRFs by the corresponding quarterly mean component concentrations. The State summed the quarterly mean components to determine quarterly mean PM_{2.5} concentrations, which it subsequently averaged to determine the annual design values. The future year design values reflect the weighted quarterly average concentration from the projections of five years of data. The State projected future year annual PM_{2.5} design values for the 2021 Moderate area attainment year for the 2012 PM_{2.5} NAAQS.

The 2021 baseline simulation used emission levels projected from the 2013 base year that reflect all control measures adopted by the time of the

2016 PM_{2.5} Plan's development that would be implemented by December 31, 2021. This simulation indicates that the 2012 annual PM_{2.5} standard will not be met in the SJV in 2021. The projected 2021 control scenario design value is 14.8 µg/m³ at Bakersfield-Planz, which is typically the monitoring site that records the highest PM_{2.5} levels in the SJV.

The 2018 PM_{2.5} Plan includes a modeled demonstration projecting that the SJV will attain the 2012 annual PM_{2.5} NAAQS by December 31, 2025. It also includes a modeled demonstration projecting attainment of the 1997 annual PM_{2.5} NAAQS by December 31, 2020, with a design value of 14.6 µg/m³ at Bakersfield-Planz. While the plan does not explicitly have a demonstration of impracticability of attaining the 2012 PM_{2.5} NAAQS by 2021, the latter projections of annual PM_{2.5} concentrations in 2020 provides additional information on which to judge the practicability of attaining by 2021 in that it is the closest analysis year available and represents modeling based on updated data. These projections lend support for the 2016 PM_{2.5} Plan indication that the 2012 annual PM_{2.5} standard will not be met in the SJV in 2021.

The Plan's primary discussion of the photochemical modeling appears in Appendix K (“Modeling Attainment Demonstration”) of the 2018 PM_{2.5} Plan. The State briefly summarizes the area's air quality problem in Chapter 2.2 (“Air Quality Challenges and Trends”) and summarizes the modeling results in Chapter 6.4 (“Attainment Demonstration and Modeling”) of the 2018 PM_{2.5} Plan. The State provides a conceptual model of PM_{2.5} formation in the SJV as part of the modeling protocol in Appendix L (“Modeling Protocol”). Appendix J (“Modeling Emission Inventory”) describes emission input preparation procedures. The State presents additional relevant information in Appendix C (“Weight of Evidence Analysis”) of the CARB 2018 Staff Report, which includes ambient trends and other data in support of the demonstration of attainment by 2025.

3. EPA Evaluation and Conclusion

CARB's air quality modeling approach investigated the many interconnected facets of modeling ambient PM_{2.5} in the SJV, including model input preparation, model performance evaluation, use of the model output for the numerical NAAQS attainment test, and modeling documentation. Specifically, this required the development and evaluation of a conceptual model, modeling protocol, episode (*i.e.*, base

¹¹⁵ In this section, we use the terms “base case,” “base year” or “baseline,” and “future year” as described in section 2.3 of the EPA's Modeling Guidance. The “base case” modeling simulates measured concentrations for a given time period, using emissions and meteorology for that same year. The modeling “base year” (which can be the same as the base case year) is the emissions starting point for the plan and for projections to the future year, both of which are modeled for the attainment demonstration. Modeling Guidance, 37–38. Note that CARB sometimes uses “base year” synonymously with “base case” and “reference year” instead of “base year.”

¹¹⁶ Modeling Guidance, section 4.4, “What is the Modeled Attainment Tests for the Annual Average PM_{2.5} NAAQS.”

¹¹⁷ 81 FR 58010, 58048.

¹¹⁸ CAA section 189(b)(1).

¹¹⁹ 81 FR 58010, 58049.

year) selection, modeling domain, CMAQ model selection, initial and boundary condition procedures, meteorological model choice and performance, modeling emissions inventory preparation procedures, model performance, attainment test procedure, and adjustments to baseline air quality for modeling. These analyses are generally consistent with the EPA's recommendations in the Modeling Guidance.

The model performance evaluation in section 5.2 ("CMAQ Model Evaluation") of both Appendix A of the 2016 PM_{2.5} Plan and Appendix K of the 2018 PM_{2.5} Plan included statistical and graphical measures of model performance.

The EPA previously evaluated and approved the modeling conducted for the 2006 24-hour PM_{2.5} NAAQS as part of the 2018 PM_{2.5} Plan; see the EPA's "Technical Support Document, EPA Evaluation of Air Quality Modeling, San Joaquin Valley PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS," February 2020 ("EPA's 2006 NAAQS Modeling TSD") accompanying that action for details.¹²⁰ The conclusions in the EPA's 2006 NAAQS Modeling TSD focused on the 24-hour PM_{2.5} NAAQS; in this notice we extend the evaluation with information specific to the annual PM_{2.5} NAAQS. Unless otherwise noted, the discussion applies to both the modeling in both the 2016 PM_{2.5} Plan (Appendix A) and 2018 PM_{2.5} Plan (Appendix K), since they followed the same model platform development procedures, and had identical meteorological inputs, very similar emissions inputs, and very similar model performance.

Most aspects of the 2018 PM_{2.5} Plan modeling and the EPA's evaluation of it are the same for the 24-hour and the annual averaging times, and the EPA has found them adequate. These include the modeling protocol, choice of model, meteorological modeling, modeling emissions inventory, choice of model, modeling domain, and procedures for model performance evaluation. One aspect that differs between the 24-hour and annual averaging times is the specific calculation procedure for estimating a future design value. In the Modeling Guidance, for both averaging times, the model is used to calculate RRFs, the ratio of modeled future concentrations to base year concentrations, and the RRF is applied to monitored base year concentrations. This is done for each monitor, PM_{2.5} species, and calendar quarter. But for the 24-hour averaging time, the

procedure uses the highest individual concentration days in each quarter, whereas for the annual average, it uses the average of all days in each quarter. The EPA previously found that the procedures used in the 2018 PM_{2.5} Plan for the 24-hour PM_{2.5} NAAQS generally followed the EPA's recommendations and were adequate. For the current action, the EPA finds that State procedures¹²¹ for estimating future design values for the annual PM_{2.5} NAAQS generally followed the EPA's recommendations and are adequate.

Another modeling aspect that can differ between 24-hour and annual average is the focus of the model performance evaluation on the respective averaging times. For the 24-hour average, it is especially important that modeled concentrations on the highest days are comparable to those on the highest monitored days, since calculation of the design value for the 24-hour PM_{2.5} NAAQS uses the 98th percentile concentrations, *i.e.*, the top 2%. For the annual average, peak concentrations continue to be important, but lower concentration days are also important since all days are included in the average. Under- and over-predictions on non-peak days may average out and have little overall effect on the modeled annual concentration, but systematic underprediction on non-peak days could lead to model underprediction of the annual average concentration. This problem of model bias is mitigated by the use of the model in a relative sense as recommended in the Modeling Guidance. In the RRF, model bias "cancels out" to a degree since it would be present in both its numerator (future year) and its denominator (base year); and applying the RRF to monitored base year concentration anchors the final model prediction to unbiased real-world concentrations. Further, RRFs are calculated on a quarterly basis, so the bias correction can better account for emissions sources and atmospheric chemistry that differ between the seasons.

The 2018 PM_{2.5} Plan did not have a separate model performance evaluation for the 24-hour and annual PM_{2.5} averaging times; it used statistical and graphical analyses applicable to both. For the most part, the EPA's 2006 NAAQS Modeling TSD did not distinguish between the two averaging times either but drew conclusions for the 24-hour averaging time rather than the annual averaging time. It did note a large negative bias (underprediction) in the ammonium and nitrate performance

statistics¹²² for the 2nd quarters for monitoring sites in Bakersfield, Fresno, and Visalia; and we add here that the 3rd quarter has similar negative bias. The negative model bias in the 2016 PM_{2.5} Plan was slightly better than in the 2018 PM_{2.5} Plan, *i.e.*, the underprediction was slightly less. Underprediction of total PM_{2.5} in the 2nd and 3rd quarters is also evident in time series plots for most monitoring sites, though by only a small amount for several monitoring sites.¹²³ The EPA's 2006 NAAQS Modeling TSD noted that since those quarters have concentrations that are less than half of those in the 1st and 4th, this may not be much of a concern for the annual average. (It is of less concern for the 24-hour average, since peak 24-hour concentrations occur in winter, *i.e.*, in the 1st and 4th quarters.) As noted above, the RRF procedure removes much of this bias, so the underprediction in the model performance evaluation does not directly translate into an underpredicted 2020 design value. In addition, the 2018 PM_{2.5} Plan shows that annual model performance for each PM_{2.5} species is quite good relative to that seen in other modeling studies, for multiple performance statistics.¹²⁴

The high days are generally captured by the model, even though some are underpredicted in December at certain monitoring sites such as Fresno. Overall, the modeled site maxima are comparable to the measurements; also, the frequency of high and low days generally matches observations so the annual as well as the daily model performance is acceptable.

The EPA evaluated the State's choice of model for the impracticability demonstration and the extensive discussion in the 2016 PM_{2.5} Plan about modeling procedures, tests, and performance analyses, as well as the State's modeling choices, procedures, test, and performance analyses in the 2018 PM_{2.5} Plan.¹²⁵ We find the State's analyses consistent with the EPA's guidance on modeling for PM_{2.5} attainment planning purposes. Based on these reviews, we find that the modeling in the 2016 PM_{2.5} Plan and 2018 PM_{2.5}

¹²² 2016 PM_{2.5} Plan, App. A 48ff, tables 15 through 18; 2018 PM_{2.5} Plan, App. K, 48ff, tables 20 through 23.

¹²³ 2016 PM_{2.5} Plan, App. A, 107ff, Supplemental materials, Figures S.37–S.52; 2018 PM_{2.5} Plan, App. K, 131ff, Supplemental materials, Figures S.41–S.52.

¹²⁴ 2016 PM_{2.5} Plan, App. A, 46, Figure 13; 2018 PM_{2.5} Plan, App. K, 54, Figure 14.

¹²⁵ For a more detailed summary of the State's air quality modeling in the 2018 PM_{2.5} Plan with respect to the 2006 24-hour PM_{2.5} NAAQS, rather than the 2012 annual PM_{2.5} NAAQS, please refer to the EPA's 2006 NAAQS Modeling TSD.

¹²⁰ The model performance is discussed further in section J ("Air Quality Model Performance") of the EPA's 2006 NAAQS Modeling TSD.

¹²¹ 2018 PM_{2.5} Plan, App. K, 18.

Plan is adequate for the purposes of supporting the RFP demonstration and the demonstration of impracticability in the 2016 PM_{2.5} Plan.

D. Reasonably Available Control Measures and Control Strategy

1. Requirements for RACM/RACT and Control Strategies

The general subpart 1 attainment plan requirement for RACM/RACT is described in CAA section 172(c)(1), which requires that attainment plan submissions “provide for the implementation of all reasonably available control measures as expeditiously as practicable (including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology)” and provide for attainment of the NAAQS.

The attainment planning requirements specific to PM_{2.5} under subpart 4 likewise impose an obligation upon states with nonattainment areas classified as Moderate to develop attainment plans that require RACM/RACT on sources of direct PM_{2.5} and all PM_{2.5} plan precursors. CAA section 189(a)(1)(C) requires that Moderate area PM_{2.5} SIPs contain provisions to assure that RACM/RACT are implemented no later than four years after designation of the area. The EPA reads CAA section 172(c)(1) and 189(a)(1)(C) together to require that attainment plans for Moderate nonattainment areas provide for the implementation of RACM/RACT for existing sources of PM_{2.5} and those PM_{2.5} precursors subject to control in the nonattainment area as expeditiously as practicable but no later than four years after designation.¹²⁶

The PM_{2.5} SIP Requirements Rule defines RACM as “any technologically and economically feasible measure that can be implemented in whole or in part within 4 years after the effective date of designation of a PM_{2.5} nonattainment area and that achieves permanent and enforceable reductions in direct PM_{2.5} emissions and/or PM_{2.5} plan precursor emissions from sources in the area. RACM includes reasonably available control technology (RACT).”¹²⁷ The EPA has historically defined RACT as the lowest emission limitation that a particular stationary source is capable of meeting by the application of control technology that is reasonably available

considering technological and economic feasibility.¹²⁸

Under the PM_{2.5} SIP Requirements Rule, those control measures that otherwise meet the definition of RACM but “can only be implemented in whole or in part during the period beginning 4 years after the effective date of designation of a nonattainment area and no later than the end of the sixth calendar year following the effective date of designation of the area” must be adopted and implemented as “additional reasonable measures.”¹²⁹

States must provide written justification in a SIP submission for eliminating potential control options from further review on the basis of technological or economic infeasibility.¹³⁰ An evaluation of technological feasibility may include consideration of factors such as a source’s process and operating conditions, raw materials, physical plant layout, and non-air quality and energy impacts (e.g., increased water pollution, waste disposal, and energy requirements).¹³¹ An evaluation of economic feasibility may include consideration of factors such as cost per ton of pollution reduced (cost-effectiveness), capital costs, and operating and maintenance costs.¹³² Absent other indications, the EPA presumes that it is reasonable for similar sources to bear similar costs of emission reductions. Economic feasibility of RACM/RACT is thus largely informed by evidence that other sources in a source category have in fact applied the control technology, process change, or measure in question in similar circumstances.¹³³

Consistent with these requirements, CARB and SJVUAPCD must implement RACM, including RACT, for sources of direct PM_{2.5} and PM_{2.5} plan precursors no later than April 15, 2019, and must implement additional reasonable measures for these sources no later than December 31, 2021.

2. Summary of State’s Control Strategy

The RACM/RACT evaluation for sources of direct PM_{2.5} and NO_x emissions in the SJV area is presented in Chapter 3 of the 2016 PM_{2.5} Plan and in Attachment 1 and Attachment 2 to the 2016 PM_{2.5} Plan. Attachment 1 to the 2016 PM_{2.5} Plan contains (1) a copy

of the BACM/BACT and MSM control strategy evaluation for stationary and area sources that the District adopted on April 16, 2015, as part of its “2015 Plan for the 1997 PM_{2.5} Standard” (“2015 PM_{2.5} Plan”), and (2) a copy of the RACM/RACT control strategy evaluation for stationary and area sources that the District adopted on June 16, 2016, as part of its “2016 Plan for the 2008 8-Hour Ozone Standard” (“2016 Ozone Plan”).¹³⁴ Attachment 2 to the 2016 PM_{2.5} Plan contains (1) a copy of the BACM/BACT and MSM control strategy evaluation for mobile sources that CARB adopted on May 21, 2015, as part of the 2015 PM_{2.5} Plan, and (2) a copy of the RACM/RACT control strategy evaluation for mobile sources that CARB adopted on July 21, 2016, as part of the 2016 Ozone Plan.¹³⁵

The 2015 PM_{2.5} Plan and 2016 Ozone Plan contain comprehensive analyses to identify potential emission reduction opportunities for sources of direct PM_{2.5} and NO_x emissions and to determine whether additional measures would be technologically and economically feasible for implementation in the SJV.¹³⁶ The District states in the 2016 PM_{2.5} Plan that it has not identified any new emission control technologies that could further reduce emissions in the SJV area, that the cost of technologies recently found not to be cost-effective has not changed, and that potential additional measures remain economically infeasible, consistent with the analyses and conclusions in the 2015 PM_{2.5} Plan and the 2016 Ozone Plan.¹³⁷ Based on these analyses, the District concludes that the 2016 PM_{2.5} Plan satisfies the RACM/RACT requirement for stationary and area sources of direct PM_{2.5} and NO_x emissions. The 2018 PM_{2.5} Plan, submitted May 10, 2019, supplements these analyses by providing updated evaluations of potential control measures for sources of direct PM_{2.5} and NO_x emissions and the District’s rationale for finding that additional

¹³⁴ 2016 PM_{2.5} Plan, Attachment 1 (comprising 2015 PM_{2.5} Plan, App. C (“BACM and MSM for Stationary and Area Sources”) and 2016 Ozone Plan, App. C (“Stationary and Area Source Control Strategy Evaluations”). See also SJVUAPCD Governing Board Resolution 15–4–7A, April 16, 2015 (adopting the 2015 PM_{2.5} Plan) and SJVUAPCD Governing Board Resolution 16–6–20, June 16, 2016 (adopting the 2016 Ozone Plan).

¹³⁵ 2016 PM_{2.5} Plan, Attachment 2 (comprising 2015 PM_{2.5} Plan, App. D (“BACM and MSM for Mobile Sources (Provided by ARB)”) and 2016 Ozone Plan, App. D (“Mobile Source Control Strategy”). See also CARB Resolution 15–9, May 21, 2015 (adopting the 2015 PM_{2.5} Plan) and CARB Resolution 16–8, July 21, 2016 (adopting the 2016 Ozone Plan).

¹³⁶ 2016 PM_{2.5} Plan, Ch. 3, 3–5 to 3–6.

¹³⁷ Id.

¹²⁸ General Preamble, 13541 and 57 FR 18070, 18073–18074.

¹²⁹ 40 CFR 51.1000, 51.1009(a)(4)(i)(B), and 51.1009(a)(4)(ii)(B).

¹³⁰ 40 CFR 51.1009(a)(3).

¹³¹ 40 CFR 51.1009(a)(3); see also 57 FR 18070, 18073–18074.

¹³² Id.

¹³³ 57 FR 18070, 18074.

¹²⁶ This interpretation is consistent with guidance provided in the General Preamble, 13540.

¹²⁷ 81 FR 58010, 58035.

control measures are not technologically and economically feasible for implementation in the SJV.¹³⁸

With respect to mobile sources, the 2016 PM_{2.5} Plan states that CARB has implemented the most stringent mobile source emissions control program in the nation, including emission standards for new vehicles, in-use programs for exiting vehicles and fleets, cleaner fuels, and incentive programs to accelerate penetration of cleanest vehicles.¹³⁹ CARB states that its analyses of these mobile source control measures are presented in the 2015 PM_{2.5} Plan and the 2016 Ozone Plan (included as Attachment 2 to the 2016 PM_{2.5} Plan) and states that there are no additional reasonably available control measures that would advance attainment of the PM_{2.5} NAAQS in the SJV.¹⁴⁰ Based on these analyses, CARB concludes that the 2016 PM_{2.5} Plan satisfies the RACM/RACT requirement for mobile sources of direct PM_{2.5} and NO_x emissions. The 2018 PM_{2.5} Plan, submitted May 10, 2019, supplements these analyses by providing updated evaluations of CARB's mobile source control measures and its rationale for finding that additional control measures are not technologically and economically feasible for implementation in the SJV at this time.¹⁴¹

Finally, with respect to transportation control measures (TCMs), the 2016 PM_{2.5} Plan states that the eight county metropolitan planning organizations (MPOs) of the SJV ("SJV MPOs") identified and evaluated all TCMs during development of the plan.¹⁴² The plan states that the SJV MPOs implement TCMs in CAA section 108(f) consistent with the Congestion Mitigation and Air Quality cost effectiveness policy when developing each MPO's Regional Transportation Plan. In 2016 the Valley MPOs revisited the minimum cost effectiveness standard for TCMs during the development of the MPOs' 2017 Federal Transportation Improvement Program.¹⁴³ The District concludes that the Valley MPOs are implementing all reasonable TCMs under the MPOs' jurisdictions and that adoption of additional TCMs would not expedite attainment of the 2012 PM_{2.5} NAAQS in

the SJV.¹⁴⁴ The 2018 PM_{2.5} Plan, submitted May 10, 2019, supplements these analyses by providing an updated discussion of the transportation control measures being implemented in the SJV.¹⁴⁵

3. EPA's Evaluation and Proposed Action

We have reviewed the State and District's demonstrations in the 2016 PM_{2.5} Plan concerning RACM/RACT and additional reasonable measures for mobile, stationary, and area sources of direct PM_{2.5} and one PM_{2.5} plan precursor (*i.e.*, NO_x) in the SJV. Our evaluation relies primarily on our previous evaluations of the State and District rules in connection with our February 12, 2019 approval of the SJV RACM demonstration for the 2008 ozone NAAQS (for NO_x emission sources)¹⁴⁶ and in connection with our July 22, 2020 approval of the State and District's demonstrations to meet the BACM (including BACT) and MSM requirements for the 2006 PM_{2.5} NAAQS.¹⁴⁷ We provide a detailed discussion of these evaluations in the technical support document for this proposed rule.¹⁴⁸ Based on these reviews, we propose to find that the District's rules provide for the implementation of RACM and additional reasonable measures¹⁴⁹ for

stationary and area sources of direct PM_{2.5} and NO_x and that CARB's current program implements RACM and additional reasonable measures for mobile sources of direct PM_{2.5} and NO_x emissions for purposes of the 2012 PM_{2.5} NAAQS in the SJV.

With respect to transportation controls, we find that the SJV MPOs have well-established TCM development programs in which TCMs are continuously identified, reviewed, and evaluated throughout the transportation planning process. Overall, we believe that the programs developed and administered by CARB and the SJV MPOs provide for the implementation of RACM and additional reasonable measures for sources of direct PM_{2.5} and NO_x in the SJV.

For these reasons, we propose to find that the 2016 PM_{2.5} Plan provides for the implementation of RACM and additional reasonable measures for all sources of direct PM_{2.5} and NO_x as expeditiously as practicable, for purposes of implementing the 2012 PM_{2.5} NAAQS in the SJV in accordance with the requirements of CAA section 189(a)(1)(C) and 40 CFR 51.1009.

E. Nonattainment New Source Review Requirements Under CAA Section 189(e)

Section 189(e) of the CAA specifically requires that the control requirements applicable to major stationary sources of direct PM_{2.5} also apply to major stationary sources of PM_{2.5} precursors, except where the Administrator determines that such sources do not contribute significantly to PM_{2.5} levels that exceed the standards in the area.¹⁵⁰ The control requirements applicable to major stationary sources of direct PM_{2.5} in a Moderate PM_{2.5} nonattainment area include, at a minimum, the requirements of an NNSR permit program meeting the requirements of CAA sections 172(c)(5) and 189(a)(1)(A). In the PM_{2.5} SIP Requirements Rule, we established a deadline for states to submit NNSR plan revisions to implement the PM_{2.5} NAAQS 18 months after an area is initially designated and classified as a Moderate nonattainment area.¹⁵¹

California submitted NNSR SIP revisions for the SJV to address the subpart 4 requirements for Moderate PM_{2.5} nonattainment areas on May 19, approving Rule 4901 and 85 FR 44192 (determination that Rule 4901 implements BACM and MSM for residential wood burning).

¹⁵⁰ General Preamble, 13539 and 13541–13542.

¹⁵¹ 81 FR 58010, 58115.

¹⁴⁴ 2016 PM_{2.5} Plan, 3–6.

¹⁴⁵ 2018 PM_{2.5} Plan, App. D, D–127 to D–128 (noting that the MPOs revisited the minimum cost effectiveness standard during the development of their 2018 Regional Transportation Plans and 2019 Federal Transportation Improvement Program and concluded that they were implementing all reasonable transportation control measures).

¹⁴⁶ 84 FR 3302.

¹⁴⁷ 85 FR 44192 (final rule approving 2018 PM_{2.5} Plan as meeting, *inter alia*, BACM/BACT and MSM requirements for 2006 PM_{2.5} NAAQS). Because the RACM/RACT and additional reasonable measure control strategy in the 2016 PM_{2.5} Plan is very similar to the BACM/BACT and MSM control strategy in the 2018 PM_{2.5} Plan, and because the State's and District's control measure evaluations in the 2016 PM_{2.5} Plan substantially overlap with their BACM/BACT and MSM control evaluations in the 2018 PM_{2.5} Plan, we rely primarily on our evaluation of the State's and District's BACM/BACT and MSM control measure evaluations in the 2018 PM_{2.5} Plan (see proposed rule, 85 FR 17382 (March 27, 2020) and final rule, 85 FR 44192) to support our evaluation of the RACM/RACT and additional reasonable measure control strategy in the 2016 PM_{2.5} Plan.

¹⁴⁸ EPA, Region IX, Air Division, "Technical Support Document, EPA Evaluation of RACM/RACT and Additional Reasonable Measures, San Joaquin Valley Moderate Area Plan for the 2012 PM_{2.5} NAAQS," August 2021.

¹⁴⁹ The 2018 PM_{2.5} Plan identifies Rule 4901 ("Wood Burning Fireplaces and Wood Burning Heaters"), as amended June 20, 2019, as an additional reasonable measure that is scheduled for implementation beginning in 2020. 2018 PM_{2.5} Plan, Table 4–4 ("Proposed Regulatory Measures"). The EPA approved Rule 4901 into the California SIP on July 22, 2020. 85 FR 44206 (final rule

¹³⁸ 2018 PM_{2.5} Plan, App. C ("Stationary Source Control Measure Analyses").

¹³⁹ 2016 PM_{2.5} Plan, 3–6.

¹⁴⁰ CARB 2016 Staff Report, 13.

¹⁴¹ 2018 PM_{2.5} Plan, App. D ("Mobile Source Control Measure Analyses").

¹⁴² 2016 PM_{2.5} Plan, 3–6.

¹⁴³ 2016 PM_{2.5} Plan, 3–23 to 3–24. See also 2016 PM_{2.5} Plan, Attachment 2, App. D, section D.2.2 (D–16 through D–18) and Attachment D ("Adopted Transportation Control Measures").

2011.¹⁵² The EPA fully approved these SIP revisions on September 17, 2014.¹⁵³ California also submitted NNSR SIP revisions for the SJV to address the subpart 4 requirements for Moderate and Serious PM_{2.5} nonattainment areas on November 20, 2019. The EPA is evaluating this SIP submission and will act on it in a separate rulemaking. Accordingly, in this action, the EPA is not addressing the NNSR control requirements that apply to major stationary sources of direct PM_{2.5} and PM_{2.5} precursors in the SJV under CAA section 189(e).

F. Demonstration That Attainment by Moderate Area Attainment Date Is Impracticable

1. Requirements for Attainment/Impracticability of Attainment Demonstrations

Section 189(a)(1)(B) of the CAA requires that each Moderate area attainment plan include a demonstration that the plan provides for attainment by the applicable Moderate area attainment date or, alternatively, that attainment by such date is impracticable. This provision explicitly requires that a demonstration of attainment be based on air quality modeling but does not require such modeling for an impracticability demonstration. Although the EPA expects that most impracticability demonstrations will also be supported by air quality modeling, it may be possible in some cases to support an impracticability demonstration with ambient PM_{2.5} data and other relevant non-modeling information.¹⁵⁴

Section 188(c) of the CAA states, in relevant part, that the Moderate area attainment date “shall be as expeditiously as practicable but no later than the end of the sixth calendar year after the area’s designation as nonattainment” For the SJV, which was initially designated as nonattainment for the 2012 PM_{2.5} standard effective April 15, 2015, the applicable Moderate area attainment date under section 188(c) for this standard is as expeditiously as practicable but no later than December 31, 2021.

In SIP submissions that demonstrate impracticability, the state should document how its required control strategy in the attainment plan represents the application of RACM/RACT and additional reasonable measures, at minimum, to existing sources. The EPA believes it is appropriate to require adoption of all available control measures that are reasonable, *i.e.*, technologically and economically feasible, in areas that do not demonstrate timely attainment, even where those measures cannot be implemented within the 4-year timeframe for implementation of RACM/RACT under CAA section 189(a)(1)(C). The impracticability demonstration will then be based on a showing that the area cannot attain by the applicable attainment date, notwithstanding implementation of the required controls.

2. Summary of State’s Impracticability Demonstration

The 2016 PM_{2.5} Plan includes a demonstration, based on air quality

modeling, that even with the implementation of RACM/RACT and additional reasonable measures for all appropriate sources, attainment by December 31, 2021, is not practicable. The impracticability demonstration is included in Appendix A of the 2016 PM_{2.5} Plan. As described in section IV.C.2 of this proposed rule, the projected 2021 control scenario design value is 14.8 µg/m³ at Bakersfield-Planz, which is typically the monitoring site that records the highest PM_{2.5} levels in the SJV.

As further described in section IV.C.2 of this proposed rule, the 2018 PM_{2.5} Plan includes a modeled demonstration that projects annual PM_{2.5} concentrations in 2020 that provides additional information on which to judge the practicability of attaining by 2021 in that it is the closest analysis year available and represents modeling based on updated data. These projections lend support for the 2016 PM_{2.5} Plan conclusion that the 2012 annual PM_{2.5} standard will not be met in the SJV in 2021.

Table 3 shows the projected annual PM_{2.5} concentrations at the four PM_{2.5} monitoring sites in the SJV that are equipped with comprehensive particulate matter species characterization, as well as Bakersfield-Planz, given that it is the site with the highest annual PM_{2.5} concentrations in the base year and projected future year. From the 2016 PM_{2.5} Plan, the projections are for 2021 (latest permissible Moderate area attainment year); from the 2018 PM_{2.5} Plan, the projections are for 2020 (the analysis year closest to 2021).

TABLE 3—PROJECTED ANNUAL PM_{2.5} CONCENTRATIONS AT SELECTED MONITORING SITES IN THE SAN JOAQUIN VALLEY [µg/m³]

Site location	2016 PM _{2.5} Plan			2018 PM _{2.5} Plan		
	2013	2021	Difference (2013–2021)	2013	2020	Difference (2013–2021)
Bakersfield-Planz	17.3	14.8	–2.5	17.2	14.6	–2.6
Bakersfield-California Ave	16.0	13.6	–2.4	16.0	13.5	–2.5
Visalia North Church	16.2	13.7	–2.5	16.2	13.5	–2.7
Fresno-Garland	15.0	12.9	–2.1	15.0	12.4	–2.6
Modesto-14th St	13.0	11.2	–1.8	13.0	11.0	–2.0

Sources: 2016 PM_{2.5} Plan, Table 2–2, and 2018 PM_{2.5} Plan, App. K, Table 25.

3. EPA Evaluation and Proposed Action

The impracticability demonstration in the 2016 PM_{2.5} Plan is based on air quality modeling that is generally consistent with applicable EPA guidance. We find the modeling

adequate to support the impracticability demonstration in the plan, as discussed in section IV.C.3 of this notice. Similarly, the attainment modeling demonstration in the 2018 PM_{2.5} Plan is generally consistent with applicable

EPA guidance and provides additional support that it is impracticable to attain the 2012 PM_{2.5} NAAQS by 2021.

We have also evaluated the State’s control measure demonstration, which relies on its BACM/MSM

¹⁵² Letter dated May 19, 2011, from Robert D. Fletcher, Deputy Executive Officer, CARB, to Jared

Blumenfeld, Regional Administrator, EPA Region IX.

¹⁵³ 79 FR 55637.

¹⁵⁴ 81 FR 58010, 58048 and 58049.

demonstration, as updated by the 2018 PM_{2.5} Plan, and find that it provides for the expeditious implementation of all RACM/RACT and additional reasonable measures that may feasibly be implemented at this time, consistent with the requirements of CAA sections 172(c)(1) and 189(a)(1)(C) for the 2012 PM_{2.5} NAAQS in the SJV, as discussed in section IV.D of this notice.

Finally, we have reviewed available monitored data to assess the practicability of attaining by 2021. Specifically, the certified 2018–2020 annual average design value for SJV is 17.6 µg/m³ (at Bakersfield-Planiz), with exceedances of the 12.0 µg/m³ standard throughout the area.¹⁵⁵ We note that the SJV may have experienced higher than normal PM_{2.5} concentrations in 2018 and 2020 due to wildfires in the surrounding areas during the summer and fall months.¹⁵⁶ This monitored data similarly supports the State's demonstration that it is impracticable to attain the 2012 PM_{2.5} NAAQS by the end of 2021.

Based on this evaluation, we propose to approve the State's demonstration in the 2016 PM_{2.5} Plan that attainment of the 2012 PM_{2.5} NAAQS in the SJV by the Moderate area attainment date of December 31, 2021, is impracticable, consistent with the requirements of CAA section 189(a)(1)(B)(ii). On this basis, we also propose to reclassify the SJV as a Serious nonattainment area, which would trigger requirements for the State to submit a Serious area attainment plan consistent with the requirements of subparts 1 and 4 of part D, title I of the Act (as described in section V of this notice).

G. Reasonable Further Progress and Quantitative Milestones

1. Requirements for Reasonable Further Progress and Quantitative Milestones

Section 172(c)(2) of the CAA states that all nonattainment area plans shall

¹⁵⁵ EPA design value workbook dated May 24, 2021, "pm25_designvalues_2018_2020_final_05_24_21.xlsx," worksheets "Table 1a" and "Table 5a." The certified design value includes all available data; no data flagged for exceptional events have been excluded. The EPA's Air Quality System (AQS) contains ambient air pollution data collected by federal, state, local, and tribal air pollution control agencies from thousands of monitors. More information is available at: <https://www.epa.gov/aqs>. See also EPA, 2010–2020 AQS Design Value Report, AMP480, June 30, 2021.

¹⁵⁶ Concentrations at all 17 monitors in the SJV with data spanning 2018 to 2020 are significantly higher in 2018 and 2020 relative to concentrations in 2019, possibly due to the wildfires in those years. 86 FR 38652, 38665, Table 5 (July 22, 2021) (proposed rule on the 2018 PM_{2.5} Plan for the 1997 annual PM_{2.5} NAAQS of 15.0 µg/m³). Notwithstanding the potential effect of wildfires, ambient PM_{2.5} levels in the SJV remain well above the 2012 PM_{2.5} NAAQS standard of 12.0 µg/m³.

require RFP. In addition, CAA section 189(c) requires that all PM_{2.5} nonattainment area plans include quantitative milestones that the state must achieve every three years until the area is redesignated to attainment and that demonstrate RFP. Section 171(1) defines RFP as "such annual incremental reductions in emissions of the relevant air pollutant as are required by [Part D] or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable [NAAQS] by the applicable date." Neither subpart 1 nor subpart 4 of part D, title I of the Act requires a set percentage of emission reductions that states must achieve in any given year for purposes of satisfying the RFP requirement.

For purposes of the PM_{2.5} NAAQS, the EPA has interpreted the RFP requirement to require that nonattainment area plans show annual incremental emission reductions sufficient to maintain generally linear progress toward attainment by the applicable deadline.¹⁵⁷ As discussed in the EPA's guidance in the General Preamble Addendum,¹⁵⁸ requiring linear progress in reductions of direct PM_{2.5} and any individual precursor in a PM_{2.5} plan may be appropriate in the following situations:

- The pollutant is emitted by a large number and range of sources,
- the relationship between any individual source or source category and overall air quality is not well known,
- a chemical transformation is involved (e.g., secondary particulate contributes significantly to PM_{2.5} levels over the standard), and/or
- the emission reductions necessary to attain the PM_{2.5} standard are inventory-wide.¹⁵⁹

The General Preamble Addendum indicates that requiring linear progress may be less appropriate in other situations, such as in situations where:

- there are a limited number of sources of direct PM_{2.5} or a precursor,
- the relationships between individual sources and air quality are relatively well defined, and/or
- the emission control systems utilized (e.g., at major point sources) will result in a swift and dramatic emission reductions.

In nonattainment areas characterized by any of these latter conditions, RFP may be better represented as stepwise progress as controls are implemented and achieve significant reductions soon

thereafter. For example, if an area's nonattainment problem can be attributed to a few major sources, the EPA's guidance indicates that "RFP should be met by 'adherence to an ambitious compliance schedule' which is likely to periodically yield significant emission reductions of direct PM_{2.5} or a PM_{2.5} precursor."¹⁶⁰

Attainment plans for the PM_{2.5} NAAQS must include detailed schedules for compliance with emission regulations in the nonattainment area and provide corresponding emissions projections for each applicable milestone year that represent generally linear or stepwise progress in reducing emissions on an annual basis.¹⁶¹ In reviewing an attainment plan under subpart 4, the EPA considers whether the annual incremental emission reductions to be achieved are reasonable in light of the statutory objective of timely attainment. Although early implementation of the most cost-effective control measures is often appropriate, states should consider both cost-effectiveness and pollution reduction effectiveness when developing implementation schedules for control measures and may implement measures that are more effective at reducing PM_{2.5} earlier to provide greater public health benefits.¹⁶²

The PM_{2.5} SIP Requirements Rule establishes specific regulatory requirements for purposes of satisfying the Act's RFP requirements and provides related guidance in the preamble to the rule. Specifically, under the PM_{2.5} SIP Requirements Rule, each PM_{2.5} attainment plan must contain an RFP analysis that includes, at a minimum, the following four components: (1) An implementation schedule for control measures; (2) RFP projected emissions for direct PM_{2.5} and all PM_{2.5} plan precursors for each applicable milestone year, based on the anticipated control measure implementation schedule; (3) a demonstration that the control strategy and implementation schedule will achieve reasonable progress toward attainment between the base year and the attainment year; and (4) a demonstration that by the end of the calendar year for each milestone date for the area, pollutant emissions will be at levels that reflect either generally linear progress or stepwise progress in reducing emissions on an annual basis between the base year and the

¹⁵⁷ 59 FR 41998, 42015.

¹⁵⁸ Id.

¹⁵⁹ Id.

¹⁶⁰ Id.

¹⁶¹ 40 CFR 51.1012(a) and 59 FR 41998, 42016.

¹⁶² Id.

attainment year.¹⁶³ States should estimate the RFP projected emissions for each quantitative milestone year by sector on a pollutant-by-pollutant basis.¹⁶⁴ In an area that cannot practicably attain the PM_{2.5} standard by the applicable Moderate area attainment date, full implementation of a control strategy that satisfies the Moderate area control requirements represents RFP towards attainment.¹⁶⁵

Section 189(c) requires that attainment plans include quantitative milestones that demonstrate RFP. The purpose of the quantitative milestones is to allow for periodic evaluation of the area’s progress towards attainment of the NAAQS consistent with RFP requirements. Because RFP is an annual emission reduction requirement and the quantitative milestones are to be achieved every three years, when a state demonstrates compliance with the quantitative milestone requirement, it will demonstrate that RFP has been achieved during each of the relevant three years. Quantitative milestones should provide an objective means to evaluate progress toward attainment meaningfully, *e.g.*, through imposition of emission controls in the attainment plan and the requirement to quantify those required emission reductions. The CAA also requires states to submit milestone reports (due 90 days after each milestone), and these reports should include calculations and any assumptions made by the state concerning how RFP has been met, *e.g.*, through quantification of emission reductions to date.¹⁶⁶ The Act requires

states to include RFP and quantitative milestones even for areas that cannot practicably attain.

The CAA does not specify the starting point for counting the three-year periods for quantitative milestones under CAA section 189(c). In the General Preamble and General Preamble Addendum, the EPA interpreted the CAA to require that the starting point for the first three-year period be the due date for the Moderate area plan submission.¹⁶⁷ Consistent with this longstanding interpretation of the Act, the PM_{2.5} SIP Requirements Rule requires that each plan for a Moderate PM_{2.5} nonattainment area contain quantitative milestones to be achieved no later than milestone dates 4.5 years and 7.5 years from the date of designation of the area.¹⁶⁸ Because the EPA designated the SJV nonattainment for the 2012 PM_{2.5} NAAQS effective April 15, 2015,¹⁶⁹ the applicable quantitative milestone dates for purposes of this NAAQS in the SJV are October 15, 2019, and October 15, 2022. Following reclassification of the SJV as Serious for the 2012 PM_{2.5} standard, later milestones would be addressed by the Serious area plan.¹⁷⁰

2. Summary of State’s Reasonable Further Progress Demonstrations and Quantitative Milestones

a. 2016 PM_{2.5} Plan RFP and Quantitative Milestones

The RFP demonstration and quantitative milestones are discussed in section 3.5 of the 2016 PM_{2.5} Plan. The plan estimates that emissions of direct

PM_{2.5} and NO_x will generally decline from the 2013 base year and states that emissions of each of these pollutants will remain at or below the levels needed to show “generally linear progress” through 2022, the Moderate area post-attainment milestone year for the 2012 PM_{2.5} NAAQS.¹⁷¹ The Plan’s emissions inventory shows that direct PM_{2.5} and NO_x are emitted by a large number and range of sources in the SJV and that the emission reductions needed for these pollutants are inventory-wide.¹⁷² The Plan states that all RACM and RACT for stationary, area, and mobile sources have been identified and adopted, and identifies the District rules achieving emission reductions post-2013 in Table 3–2 and CARB regulations contributing to attainment in Table 3–3.

Table 3–6 of the 2016 PM_{2.5} Plan presents target RFP emission levels, based on linear emission reductions from 2013 through 2022, and the RFP projected emissions, based on the plan’s baseline emissions inventory and control strategy (*i.e.*, RACM/RACT and additional reasonable measures) for each quantitative milestone year (2019 and 2022).¹⁷³ We reproduce Table 3–6, in part, along with the plan’s 2013 base year inventory from Table 3–5, in Table 4. Based on these analyses, the District and CARB conclude that their adopted control strategy will achieve sufficient reductions in emissions of direct PM_{2.5} and NO_x to result in emission levels at or below the RFP and quantitative milestone target emission levels for 2019 and 2022.¹⁷⁴

TABLE 4—2016 PM_{2.5} PLAN: ANNUAL PM_{2.5} EMISSIONS INVENTORY FOR BASE YEAR AND MODERATE AREA PLAN MILESTONE YEARS
[Annual average, tpd]

Pollutant	2013 baseline	2019 RFP target emissions level	2019 projected emissions level	2022 RFP target emissions level	2022 projected emissions level
Direct PM _{2.5}	63.4	60.8	60.2	59.5	59.5
NO _x	318.1	229.5	219.4	185.2	185.2

Source: 2016 PM_{2.5} Plan, tables 3–5 and 3–6. We corrected the 2019 RFP Target Emissions Level for NO_x in Table 3–6 to reflect the value in Table 3–5 that was transcribed incorrectly as 229.1 tpd.

The 2016 PM_{2.5} Plan documents the State’s conclusion that all RACM/RACT and additional reasonable measures for these pollutants are being implemented as expeditiously as practicable and

identifies projected levels of direct PM_{2.5} and NO_x emissions that reflect full implementation of the State, District, and SJV MPOs’ RACM/RACT and additional reasonable measure

control strategy for these pollutants.¹⁷⁵ The control strategy that provides the basis for these emission projections is described in attachments 1 and 2 of the 2016 PM_{2.5} Plan.

¹⁶³ 40 CFR 51.1012(a).

¹⁶⁴ 81 FR 58010, 58056.

¹⁶⁵ *Id.* at 58056, 58057.

¹⁶⁶ General Preamble Addendum, 42016–42017.

¹⁶⁷ General Preamble, 13539 and General Preamble Addendum, 42016.

¹⁶⁸ 40 CFR 51.1013(a)(1).

¹⁶⁹ 80 FR 2206.

¹⁷⁰ General Preamble Addendum, 42016.

¹⁷¹ 2016 PM_{2.5} Plan, Table 3–6. We note that Appendix B (“Emissions Inventory”) of the plan indicates that emissions of ammonia, SO_x, and VOC will also generally decline from the 2013 base year, but the RFP plan does not address these three precursor pollutants given the State’s conclusion that they do not contribute significantly to PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV. 2016 PM_{2.5} Plan, 3–10.

¹⁷² 2016 PM_{2.5} Plan, App. B.

¹⁷³ Table 3–6 identifies only emission levels for milestone years that must be addressed by the Moderate area plan (*i.e.*, 2019 and 2022).

¹⁷⁴ 2016 PM_{2.5} Plan, 3–10, and CARB 2016 Staff Report, 13.

¹⁷⁵ 2016 PM_{2.5} Plan, 3–5 through 3–7; see also evaluation of RACM/RACT and additional reasonable control measures in section IV.D of this proposed rule.

For quantitative milestones, the 2016 PM_{2.5} Plan identifies 2019 and 2022 as the applicable milestone years and includes milestones to track the State's and District's implementation of control measures and to document updated emissions data.¹⁷⁶ For 2019, the milestone includes a "list of measures in the SIP control strategy and key implementation requirements," including compliance milestones in CARB's Truck and Bus Regulation and in the District's Rule 4901 on residential wood burning. For 2022, the milestone includes a "list of measures in the SIP control strategy and key implementation requirements," including compliance milestones in CARB's Truck and Bus Regulation.

b. 2018 PM_{2.5} Plan RFP and Quantitative Milestones

Appendix H of the 2018 PM_{2.5} Plan provides the State's updated RFP demonstration and quantitative milestones, based on updated data (e.g., updated emissions inventories, as discussed in section IV.A of this proposed rule) for the 2019 and 2022 milestone years. Following the identification of a transcription error in the RFP tables of Appendix H, the State submitted a revised version of Appendix H that corrects the transcription error and provides additional information on the RFP demonstration.¹⁷⁷ Given the State's conclusions that ammonia, SO_x, and VOC emissions do not contribute significantly to PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV, as discussed in section IV.B of this proposed rule, the RFP demonstration provided by the State addresses emissions of direct PM_{2.5} and NO_x.¹⁷⁸ Similarly, the State developed quantitative milestones based upon the 2018 PM_{2.5} Plan's strategy for reducing emissions of direct PM_{2.5} and NO_x.¹⁷⁹

Like the 2016 PM_{2.5} Plan, the 2018 PM_{2.5} Plan estimates that emissions of direct PM_{2.5} and NO_x will generally decline from the 2013 base year to the 2022 RFP milestone year and beyond, and that direct PM_{2.5} and NO_x are emitted by a large number and range of sources in the SJV. The 2018 PM_{2.5} Plan relies on the same set of identified

control measures as the 2016 PM_{2.5} Plan to demonstrate RFP through 2022, i.e., the baseline measures reflected in each plan's emissions inventory.¹⁸⁰

In addition to these baseline measures, the 2018 PM_{2.5} Plan's control strategy includes specific control measure commitments for purposes of attaining the 2012 PM_{2.5} NAAQS by 2025, including commitments by the State and District to develop and propose to their respective boards specific regulatory and incentive-based measures identified in the plan by specific years leading up to 2025, including 2019 and 2022.¹⁸¹ Although the attainment demonstration does not rely on these control measure commitments for emission reductions until 2024,¹⁸² the RFP and quantitative milestone elements of the 2018 PM_{2.5} Plan rely on these control measure commitments to demonstrate that the plan requires RFP toward attainment.¹⁸³

Specifically, for the 2019 milestone year, Appendix H of the 2018 PM_{2.5} Plan describes the District's quantitative milestone as a report on "[t]he status of SIP measures adopted between 2017 and 2019 as per the schedule included in the adopted Plan, including *Residential Wood Burning Strategy* and *Commercial Under-Fired Charbroiler* incentive-based strategy."¹⁸⁴ The schedule for development of new or revised SIP measures is in Chapter 4 of the 2018 PM_{2.5} Plan and identifies an "action date" between 2017 and 2019 for one District measure: "Rule 4901, Wood Burning Fireplaces and Wood Burning Heaters (Hot-spot Strategy)."¹⁸⁵

¹⁸⁰ 2018 PM_{2.5} Plan, App. H, H-4 to H-15.

¹⁸¹ CARB Resolution 18-49 (October 25, 2018), 5; 2018 PM_{2.5} Plan, Ch. 4, Table 4-8; email dated November 12, 2019, from Sylvia Vanderspek, CARB to Anita Lee, EPA Region IX, "RE: SJV PM_{2.5} information" (attaching "Valley State SIP Strategy Progress"); CARB 2018 Staff Report, 14; SJVUAPCD Governing Board Resolution 18-11-16 (November 15, 2018), 10-11; 2018 PM_{2.5} Plan, Ch. 4, tables 4-4 and 4-5; and email dated November 12, 2019, from Jon Klassen, SJVUAPCD to Wienke Tax, EPA Region IX, "RE: follow up on aggregate commitments in SJV PM_{2.5} plan" (attaching "District Progress In Implementing Commitments with 2018 PM_{2.5} Plan").

¹⁸² 2018 PM_{2.5} Plan, Ch. 4, Table 4-3 ("Emission Reductions from District Measures") and Table 4-9 ("San Joaquin Valley Expected Emission Reductions from State Measures").

¹⁸³ 2018 PM_{2.5} Plan, App. H, H-4 to H-10 (describing commitments by CARB and SJVUAPCD to adopt additional measures to fulfill tonnage commitments for 2024 and 2025, including "action" and "implementation" dates occurring before 2024 to ensure expeditious progress toward attainment).

¹⁸⁴ 2018 PM_{2.5} Plan, App. H, H-20.

¹⁸⁵ Id. at Ch. 4, 4-12 (Table 4-4). See also email dated November 12, 2019, from Jon Klassen, SJVUAPCD to Wienke Tax, EPA Region IX, "RE: follow up on aggregate commitments in SJV PM_{2.5} plan" (attaching "District Progress In Implementing

Appendix H describes CARB's quantitative milestones as a report on three measure-specific milestones: (1) Actions taken between 2017 and 2019 to implement the Truck and Bus Regulation that required particulate filters and cleaner engine standards on existing heavy-duty diesel trucks and buses in California; (2) implementation of the "In-Use Off-Road Diesel-Fueled Fleets Regulation" (the "Off-Road Regulation") that began in 2014 for large fleets and in 2017 for medium fleets and limited emissions from existing off-road diesel vehicles operated in California; and (3) the "status of SIP measures adopted between 2017 and 2019, including the California *Low-NO_x Engine Standard* for new on-road heavy-duty engines used in medium- and heavy-duty trucks purchased in California."¹⁸⁶ The schedule for development of new or revised CARB measures is in Chapter 4 of the 2018 PM_{2.5} Plan and identifies "action" dates between 2017 and 2019 for eight CARB measures: "Lower Opacity Limits for Heavy-Duty Vehicles," "Amended Warranty Requirements for Heavy-Duty Vehicles," the "Low-NO_x Engine Standard," "Innovative Clean Transit," "Advanced Clean Local Trucks (Last Mile Delivery)," "Zero-Emission Airport Shuttle Buses," "Zero-Emission Airport Ground Support Equipment," and "Transport Refrigeration Units Used for Cold Storage."¹⁸⁷

For the 2022 milestone year, Appendix H of the 2018 PM_{2.5} Plan describes the District's quantitative milestone as a report on "[t]he status of SIP measures adopted between 2019 and 2022 as per the schedule included in the adopted Plan, including *Residential Wood Burning Strategy* and *Commercial Under-Fired Charbroiler* incentive-based strategy."¹⁸⁸ The schedule for development of new or revised SIP measures in the 2018 PM_{2.5} Plan identifies "action dates" between 2019 and 2022 for 12 District measures listed in tables 4-4 and 4-5 of Chapter 4, including, for example, "Rule 4311, Flares," "Rule 4702, Internal Combustion Engines," and "Rule 4354,

Commitments with 2018 PM_{2.5} Plan," stating the District's intent to take action on the listed rules and measures by beginning the public process on each measure and then proposing the rule or measure to the SJVUAPCD Governing Board).

¹⁸⁶ Id. at H-23.

¹⁸⁷ Id. at 4-28 (Table 4-8). See also email dated November 12, 2019, from Sylvia Vanderspek, CARB to Anita Lee, EPA Region IX, "RE: SJV PM_{2.5} information" (attaching "Valley State SIP Strategy Progress") and CARB 2018 Staff Report, 14-15 (stating CARB's intent to "bring to the Board or take action on the list of proposed State measures for the Valley" by the action dates specified in Table 2).

¹⁸⁸ 2018 PM_{2.5} Plan, App. H, H-20.

¹⁷⁶ 2016 PM_{2.5} Plan, 3-13.

¹⁷⁷ Appendix H to 2018 PM_{2.5} Plan, submitted February 11, 2020, via the EPA State Planning Electronic Collaboration System. This revised version of Appendix H replaces the version submitted with the 2018 PM_{2.5} Plan on May 10, 2019. All references to Appendix H in this proposed rule are to the revised version of Appendix H submitted February 11, 2020.

¹⁷⁸ 2018 PM_{2.5} Plan, App. H, H-1.

¹⁷⁹ Id. at H-23 to H-24 (for State milestones) and H-20 to H-21 (for District milestones).

Glass Melting Furnaces.”¹⁸⁹ Appendix H describes CARB’s quantitative milestone as a report on two measure-specific milestones: (1) Actions taken between 2019 and 2022 to implement the Truck and Bus Regulation that required particulate filters and cleaner engine standards on existing heavy-duty diesel trucks and buses in California, and (2) the “status of SIP measures adopted between 2019 and 2022, including *Advanced Clean Cars 2* and

the *Heavy-Duty Vehicle Inspection and Maintenance Program*.” The schedule for development of new or revised CARB measures in the 2018 PM_{2.5} Plan identifies “action” dates between 2019 and 2022 for 13 CARB measures listed in Table 4–8 of Chapter 4, including, for example, the “Heavy-Duty Vehicle Inspection and Maintenance Program,” “Small Off-Road Engines,” and the “Low-Emission Diesel Fuel Requirement.”¹⁹⁰

Appendix H of the 2018 PM_{2.5} Plan identifies October 15, 2019, and October 15, 2022, as applicable milestone dates for the 2012 PM_{2.5} NAAQS.¹⁹¹ Table H–11 in Appendix H presents the RFP projected emissions levels for 2019 and 2022, based on the plan’s emissions inventory and baseline measures. We reproduce Table H–11, in part, along with the 2018 PM_{2.5} Plan’s base year inventory for 2013 from Appendix B, in Table 5.

TABLE 5—2018 PM_{2.5} PLAN: ANNUAL PM_{2.5} EMISSIONS INVENTORY FOR BASE YEAR AND MODERATE AREA PLAN MILESTONE YEARS
[Annual average, tpd]

Pollutant	2013 Base year	2019 RFP target emissions level ^a	2019 projected emissions level	2022 RFP target emissions level	2022 projected emissions level
Direct PM _{2.5}	62.5	59.2	59.2	58.4	58.4
NO _x	317.2	214.5	214.5	179.8	179.8

Source: 2018 PM_{2.5} Plan, App. B, tables B–1 and B–2, and App. H, Table H–11.

The majority of the NO_x and PM_{2.5} reductions from 2013 to 2019 and 2022 result from CARB’s current mobile source control program, which provides significant ongoing reductions in emissions of direct PM_{2.5} and NO_x from on-road and non-road mobile sources, such as light duty vehicles, heavy-duty trucks and buses, non-road equipment, and fuels. The District has also adopted numerous stationary and area source rules for direct PM_{2.5} and NO_x emission sources that are projected to contribute to RFP towards attainment of the PM_{2.5} standards. These include control measures for stationary internal combustion engines, residential fireplaces and woodstoves, glass manufacturing facilities, agricultural burning sources, and various sizes of boilers, steam generators, and process heaters used in industrial operations. CARB’s mobile source BACM and MSM analysis in Appendix D of the 2018 PM_{2.5} Plan and the District’s stationary and area source BACM and MSM analysis in Appendix C of the 2018 PM_{2.5} Plan provide a more comprehensive overview of each of these programs and regulations, among many others.¹⁹²

3. EPA Evaluation and Proposed Action
a. Reasonable Further Progress

The EPA has evaluated the RFP demonstrations in the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan (Appendix H) and proposes to find that they satisfy the statutory and regulatory requirements for RFP. Because the RFP demonstration in Appendix H of the 2018 PM_{2.5} Plan is based on updated emissions data and updated information about the control strategies being implemented in the SJV, we focus our evaluation on Appendix H of the 2018 PM_{2.5} Plan.

First, the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan document the State’s, District’s, and MPOs’ conclusions that they are implementing all RACM/RAC_T and additional reasonable measures for direct PM_{2.5} and NO_x emissions in the SJV as expeditiously as practicable.¹⁹³ The 2018 PM_{2.5} Plan also identifies the State’s and District’s schedules for developing and proposing certain new or revised control measures listed in their respective control measure commitments. These schedules are found in tables 4–4, 4–5, and 4–8 of the 2018 PM_{2.5} Plan and in Table H–2 of Appendix H.

Second, the RFP demonstration contains projected emission levels for direct PM_{2.5} and NO_x for each applicable milestone year. These

projections are based on continued implementation of the existing control measures in the area (*i.e.*, baseline measures) and reflect full implementation of the State, District, and MPOs’ RACM/RAC_T and additional reasonable measures control strategy for these pollutants.

As shown in tables 4 and 5 of this proposed rule, the projected RFP emission levels in each plan for 2019 and 2022 are equal to the target RFP emission levels in 2019 and 2022, respectively. We note that the 2013 base year emissions in the 2018 PM_{2.5} Plan’s emissions inventory are 0.9 tpd lower for both direct PM_{2.5} and NO_x compared to the base year emissions in the 2016 PM_{2.5} Plan’s emissions inventory, and that the 2018 PM_{2.5} Plan’s projected RFP emission levels for the 2019 and 2022 milestone years represent emission reductions that exceed those of the 2016 PM_{2.5} Plan’s projected RFP levels by 0.1 tpd direct PM_{2.5} and 4.0 tpd NO_x in 2019, and by 0.2 tpd direct PM_{2.5} and 4.5 tpd NO_x in 2022. In other words, the 2018 PM_{2.5} Plan’s RFP demonstration indicates a slightly faster pace of emission reductions relative to those in the 2016 PM_{2.5} Plan’s RFP demonstration, and thus represents a slightly more stringent RFP demonstration than that in the 2016

¹⁸⁹ Id. at Ch. 4, 4–12 and 4–13 (tables 4–4 and 4–5). See also email dated November 12, 2019, from Jon Klassen, SJVUAPCD to Wienke Tax, EPA Region IX, “RE: follow up on aggregate commitments in SJV PM_{2.5} plan” (attaching “District Progress In Implementing Commitments with 2018 PM_{2.5} Plan,” stating the District’s intent to take action on the listed rules and measures by beginning the public process on each measure and

then proposing the rule or measure to the SJVUAPCD Governing Board).

¹⁹⁰ Id. at 4–28 (Table 4–8). See also email dated November 12, 2019, from Sylvia Vanderspek, CARB to Anita Lee, EPA Region IX, “RE: SJV PM_{2.5} information” (attaching “Valley State SIP Strategy Progress”) and CARB 2018 Staff Report, 14–15 (stating CARB’s intent to “bring to the Board or take

action on the list of proposed State measures for the Valley” by the action dates specified in Table 2).

¹⁹¹ 2018 PM_{2.5} Plan, App. H, Table H–12.

¹⁹² 2018 PM_{2.5} Plan, App. D, Ch. IV, and App. C.

¹⁹³ The RACM/RAC_T and additional reasonable measures control strategy that provides the basis for the RFP demonstration is described in attachments 1 and 2 of the 2016 PM_{2.5} Plan.

PM_{2.5} Plan. These projected emissions levels demonstrate that the RACT/RACT and additional reasonable measures control strategy in the 2016 PM_{2.5} Plan will achieve RFP toward attainment.

Finally, the RFP demonstration shows that overall pollutant emissions in each milestone year will be at levels that reflect generally linear progress toward attainment. The RFP target emissions levels for 2019 and 2022 identified in both the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan reflect consistent progress in emission reductions from the 2013 base year to the 2022 post-attainment milestone year for the 2012 PM_{2.5} NAAQS, based on the implementation of the RACT/RACT and additional reasonable measures control strategy.

For these reasons, we propose to determine that the 2016 PM_{2.5} Plan, as revised and supplemented by Appendix H of the 2018 PM_{2.5} Plan, satisfies the requirements for RFP in CAA section 172(c)(2) and 40 CFR 51.1012 for the 2012 PM_{2.5} NAAQS in the SJV.

b. Quantitative Milestones

The 2016 PM_{2.5} Plan identifies the appropriate years (2019 and 2022) for quantitative milestones and Appendix H of the 2018 PM_{2.5} Plan identifies specific quantitative milestone dates (*i.e.*, October 15, 2019, and October 15, 2022) that are consistent with the requirements of 40 CFR 51.1013(a)(4). Both plans also identify the target emission levels for direct PM_{2.5} and NO_x to be achieved by these milestone dates through implementation of the control strategy. Finally, Appendix H of the 2018 PM_{2.5} Plan identifies commitments by the State and the District to develop and propose new or revised control measures on a fixed timeframe, for purposes of attaining the 2012 PM_{2.5} NAAQS as expeditiously as practicable. These target emission levels and associated control requirements, together with the State's and District's commitments to develop and propose new or revised control measures on a fixed timeframe, provide for objective evaluation of the area's progress towards attainment of the 2012 PM_{2.5} NAAQS.

The State's quantitative milestones in Appendix H are to implement specific baseline measures identified in the plan (*i.e.*, the Truck and Bus Regulation and the Off-Road Regulation) and to develop and propose several new or revised measures listed in the State's control measure commitments that apply to heavy-duty trucks and buses and non-road equipment sources.¹⁹⁴ These

commitments to develop and propose additional direct PM_{2.5} and NO_x control measures for mobile sources are part of CARB's strategy for attaining the 2012 PM_{2.5} NAAQS in the SJV. Similarly, the District's quantitative milestones in Appendix H are to develop and propose several new or revised measures listed in the District's control measure commitments that apply to sources such as residential wood burning, conservation management practices, glass melting furnaces, and internal combustion engines. These commitments to develop and propose additional direct PM_{2.5} and NO_x control measures for stationary and area sources are part of the District's strategy for attaining the 2012 PM_{2.5} NAAQS in the SJV. Thus, the State's and District's obligations to implement the identified baseline control measures and to fulfil their respective commitments to develop and propose new or revised control measures for purposes of attaining the 2012 PM_{2.5} NAAQS provide objective means for evaluating the SJV's progress toward timely attainment.

For these reasons, we propose to determine that the 2016 PM_{2.5} Plan, as revised and supplemented by Appendix H of the 2018 PM_{2.5} Plan, satisfies the requirements for quantitative milestones in CAA section 189(c) and 40 CFR 51.1013 for the 2012 PM_{2.5} NAAQS in the SJV.

We note that on January 13, 2020, CARB submitted the SJV "2019 Quantitative Milestone Report for the 2012 PM_{2.5} NAAQS" ("2019 QM Report") to the EPA.¹⁹⁵ The EPA is currently reviewing the SJV 2019 QM Report and will determine, as part of its action on the submitted report, whether the State and District have met their identified quantitative milestones for 2019.

H. Contingency Measures

We are presenting our review of the SIP submittals for compliance with contingency measure requirements in two different sections of this document. In this section, we present our review of the submittals with respect to the contingency measure requirements for the SJV as a Moderate area for the 2012 PM_{2.5} NAAQS for which the state has submitted an impracticability

measure is scheduled for implementation in 2026, well after both the 2022 post-attainment RFP milestone year and the projected 2025 attainment year for the 2012 PM_{2.5} NAAQS in the 2018 PM_{2.5} Plan. Valley State SIP Strategy, Table 7.

¹⁹⁵ Letter dated January 13, 2020, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX, with enclosures.

demonstration. In section VII of this document, we present our review of the submittals with respect to the contingency measure requirements for the SJV for the 2006 PM_{2.5} NAAQS.

1. Requirements for Contingency Measures

Under CAA section 172(c)(9), states required to make an attainment plan SIP submission must include contingency measures that they will implement if the area fails to meet RFP ("RFP contingency measures") or fails to attain the NAAQS by the applicable attainment date ("attainment contingency measures"). Under the PM_{2.5} SIP Requirements Rule, states must include contingency measures that will be implemented following a determination by the EPA that the state has failed: (1) To meet any RFP requirement in the approved SIP; (2) to meet any quantitative milestone in the approved SIP; (3) to submit a required quantitative milestone report; or (4) to attain the applicable PM_{2.5} NAAQS by the applicable attainment date.¹⁹⁶ Contingency measures must be fully adopted rules or control measures that are ready to be implemented quickly upon failure to meet RFP or failure of the area to meet the relevant NAAQS by the applicable attainment date.¹⁹⁷

The 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 adequately demonstrates cannot practicably attain the NAAQS by the statutory attainment date. Rather, the EPA believes it is appropriate for the state to identify and adopt these contingency measures in a timely way as part of the Serious area attainment plan that it will develop once the EPA reclassifies such an area. However, if a state with a Moderate area that the EPA has found cannot practicably attain the NAAQS by the attainment date fails to meet RFP, when reviewed as part of the quantitative milestone either 4.5 or 7.5 years after designation, then the requirement to implement contingency measures would be triggered as required by CAA section 172(c)(9).¹⁹⁸

The purpose of contingency measures is to continue progress in reducing emissions while a state revises its SIP to meet the missed RFP requirement or to correct ongoing nonattainment. Neither the CAA nor the EPA's implementing regulations establish a specific level of

¹⁹⁶ 40 CFR 51.1014(a).

¹⁹⁷ 81 FR 58010, 58066 and General Preamble Addendum, 42015.

¹⁹⁸ 81 FR 58010, 58067.

¹⁹⁴ The EPA is excluding the "Advanced Clean Cars 2" measure from the milestones because this

emission reductions that implementation of contingency measures must achieve, but the EPA recommends that contingency measures should provide for emission reductions equivalent to approximately one year of reductions needed for RFP in the nonattainment area, calculated as the overall level of reductions needed to demonstrate attainment divided by the number of years from the base year to the attainment year. In general, we expect all actions needed to effect full implementation of the measures to occur within 60 days after the EPA notifies the state of a failure to meet RFP or to attain.¹⁹⁹

To satisfy the requirements of 40 CFR 51.1014, the contingency measures adopted as part of a PM_{2.5} attainment plan must consist of control measures for the area that are not otherwise required to meet other attainment plan requirements (*e.g.*, to meet RACM/RACT requirements) and must specify the timeframe within which their requirements become effective following any of the EPA determinations specified in 40 CFR 51.1014(a). In a 2016 decision called *Bahr v. EPA* (“*Bahr*”),²⁰⁰ the Ninth Circuit Court of Appeals rejected the EPA’s interpretation of CAA section 172(c)(9) to allow approval of already-implemented control measures as contingency measures. In *Bahr*, the Ninth Circuit concluded that contingency measures must be measures that are triggered and implemented only after the EPA determines that an area fails to meet RFP requirements or to attain by the applicable attainment date, and the state must not have begun to implement such measures before this determination is made. Thus, already implemented measures cannot serve as contingency measures under CAA section 172(c)(9). To comply with section 172(c)(9), as interpreted in the *Bahr* decision, a state must develop, adopt, and submit one or more contingency measures to be triggered upon a failure to meet any RFP requirement, failure to meet a quantitative milestone requirement, or failure to attain the NAAQS by the applicable attainment date regardless of the extent to which already-implemented measures would achieve surplus emission reductions beyond those necessary to meet RFP or quantitative milestone requirements and beyond those predicted to achieve attainment of the NAAQS.

¹⁹⁹ 81 FR 58010, 58066. See also General Preamble 13512, 13543–13544, and General Preamble Addendum, 42014–42015.

²⁰⁰ *Bahr v. EPA*, 836 F.3d 1218, 1235–1237 (9th Cir. 2016).

2. Summary of State’s Contingency Measures

a. 2016 PM_{2.5} Plan Contingency Measures

The 2016 PM_{2.5} Plan includes a contingency measure element that is intended to address a potential failure to meet RFP but, consistent with the plan’s demonstration that it is impracticable to attain the 2012 PM_{2.5} NAAQS by December 31, 2021, that does not address a potential failure to attain the NAAQS by the applicable attainment date.²⁰¹ Rather, the State and District conclude that they intend to identify and adopt contingency measures for failure to attain as part of the Serious area attainment plan (and, in fact, have done so in the 2018 PM_{2.5} Plan). The State and District use the plan’s RFP analysis through 2022 to calculate the amount of direct PM_{2.5} and NO_x emission reductions that represents one year’s worth of RFP. Specifically, the State and District divided the difference in emissions in 2022 and 2013 by nine to estimate one year’s worth of RFP. The 2016 PM_{2.5} Plan estimates that one year’s worth of RFP is 0.4 tpd of direct PM_{2.5} and 14.8 tpd of NO_x.²⁰² The contingency measure element does not address ammonia, SO_x, and VOC in light of the State and District’s conclusion that each of these three pollutants does not contribute significantly to exceedances of the 2012 PM_{2.5} NAAQS in the SJV. In addition, the contingency measure element in the 2016 PM_{2.5} Plan only addresses the potential failure to meet the 2019 RFP milestone, not the potential failure to meet the 2022 RFP milestone.

CARB and the District prepared the 2016 PM_{2.5} Plan prior to the *Bahr* decision, and thus did not include any contingency measures that would only be triggered conditionally and prospectively, upon a future failure to meet RFP or other relevant event. Instead, CARB and the District relied only on emissions reductions from already-implemented measures to satisfy the contingency measure requirement. To demonstrate sufficient reductions for contingency purposes, the 2016 PM_{2.5} Plan relies on three types of emission reductions: (1) 0.6 tpd direct PM_{2.5} and 9.7 tpd NO_x emission reductions that are surplus to those needed by 2019 to meet that year’s linear RFP target emissions, (2) 0.3 tpd NO_x emission reductions from the January 2015 amendment to Rule 4905 (“Natural Gas-Fired, Fan-Type Central Furnaces”) as being surplus to those

²⁰¹ 2016 PM_{2.5} Plan, 3–13 to 3–17.

²⁰² 2016 PM_{2.5} Plan, Table 3–8.

captured in the 2016 PM_{2.5} Plan’s emissions inventory, and (3) 3.0 tpd NO_x of incentive-based emission reductions in conjunction with Rule 9610 (“State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs”).²⁰³

CARB and the District then established a ratio of 1:8.8 to trade direct PM_{2.5} emissions for NO_x emissions based on the 2016 PM_{2.5} Plan’s precursor sensitivity analysis for the traditional high design value sites in Bakersfield.²⁰⁴ After accounting for the 0.4 tpd direct PM_{2.5} emission reductions that would meet the 2019 RFP target emission reductions, per the 2019 RFP target emission reductions, the contingency measure element relies on this trading ratio to convert 0.2 tpd of additional direct PM_{2.5} emission reductions in 2019 into 1.8 tpd of NO_x emission reductions equivalent (after rounding to the tenths place).²⁰⁵ Then, after accounting for NO_x emission reductions that would meet the 2019 RFP target emissions reductions, the contingency measure element sums 9.7 tpd of surplus NO_x emission reductions with 0.3 tpd from the 2015 amendment to Rule 4905, 1.8 tpd from the surplus direct PM_{2.5} conversion, and 3.0 tpd from the incentive-based emission reductions. The sum of these four types of reductions equals 14.8 tpd NO_x, which matches the State’s estimate of one year’s worth of RFP.

Therefore, the 2016 PM_{2.5} Plan concludes that these emission reductions (equivalent to one year’s worth of progress, *i.e.*, 0.4 tpd direct PM_{2.5} and 14.8 tpd NO_x) are sufficient to satisfy the contingency measure requirements for the 2012 PM_{2.5} NAAQS in the SJV.

b. 2018 PM_{2.5} Plan Contingency Measures

The 2018 PM_{2.5} Plan addresses the contingency measure requirement for the 2012 PM_{2.5} NAAQS by reference to the contingency measure portion of a December 2018 SIP submission that involved enhanced enforcement of CARB regulations in the SJV, a commitment to amend the District’s residential wood burning rule (District Rule 4901) to include contingent provisions, and emissions estimates for the year following the attainment year for use in evaluating whether the emissions reductions from the

²⁰³ 2016 PM_{2.5} Plan, 3–15 and 3–16. See also 2016 PM_{2.5} Plan, App. C (“SIP Creditable Incentive-Based Emission Reductions”).

²⁰⁴ 2016 PM_{2.5} Plan, 3–17.

²⁰⁵ *Id.* at Table 3–7.

contingency measures are sufficient.²⁰⁶ Recently, CARB withdrew the enhanced enforcement contingency measure of the December 2018 SIP submission as it pertained to the 2012 PM_{2.5} NAAQS in the SJV.²⁰⁷ In addition, the 2018 PM_{2.5} Plan does not include updated emissions estimates for the years following the 2019 and 2022 RFP milestone years with which to evaluate the sufficiency of contingency measure intended to address the applicable Moderate area requirements for the 2012 PM_{2.5} NAAQS. Rather, with respect to the 2012 PM_{2.5} NAAQS, the contingency measure element of the 2018 PM_{2.5} Plan only includes estimates for the year (2026) following the Serious area attainment year (2025), and thus, these estimates are not relevant for evaluating the sufficiency of contingency measures submitted to comply with the Moderate area requirements for the 2012 PM_{2.5} NAAQS.

Accordingly, we have evaluated the relevant portions of the 2018 PM_{2.5} Plan and District Rule 4901 (specifically, section 5.7.3 of Rule 4901), and the contingency measure element in the 2016 PM_{2.5} Plan as discussed above, for compliance with the applicable requirements for Moderate areas for the 2012 PM_{2.5} NAAQS. However, while the 2018 PM_{2.5} Plan does not provide updated emissions estimates for the years following the 2019 and 2022 RFP milestone years, the updated emission estimates in the 2018 PM_{2.5} Plan do provide the basis for an updated estimate of one year's worth of RFP for the purposes of evaluating the sufficiency of contingency measures to meet the applicable Moderate area requirements for the 2012 PM_{2.5} NAAQS. The updated estimates of emissions one year's worth of RFP based on the updated emissions estimates in the 2018 PM_{2.5} Plan are 0.5 tpd direct PM_{2.5} and 15.3 tpd NO_x.²⁰⁸ This is slightly more reductions than the 0.4 tpd direct PM_{2.5} and 14.8 tpd NO_x emission reductions estimated as one year's RFP within the 2016 PM_{2.5} Plan, consistent with the slightly faster pace of emission reductions reflected in the 2018 PM_{2.5} Plan and discussed in section IV.G.3 of this proposed rule.

²⁰⁶ 2018 PM_{2.5} Plan, App. H (revised February 11, 2020), H-24 to H-26.

²⁰⁷ Letter dated March 19, 2021, from Richard W. Corey, Executive Officer, CARB, to Deborah Jordan, Acting Regional Administrator, EPA Region IX, with enclosures.

²⁰⁸ The estimate of one year's RFP is based on difference between the annual average base year (2013) emissions and the corresponding emissions in the 2022 RFP milestone year, per Appendix B of the 2018 PM_{2.5} Plan, divided by nine (*i.e.*, the number of years between 2013 and 2022).

With respect to the District contingency measure, the 2018 PM_{2.5} Plan calls for the District to amend District Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) to include a requirement in the rule with a trigger that would be activated should the EPA issue a final rulemaking that the SJV failed to meet a regulatory requirement necessitating implementation of a contingency measure. In response to the commitment made in the 2018 PM_{2.5} Plan, in June 2019, the District adopted amendments to Rule 4901 including a contingency measure (in section 5.7.3 of the amended rule), and, as an attachment to a letter dated July 19, 2019, CARB submitted the amended rule to the EPA for approval.²⁰⁹ The EPA has taken final action to approve amended Rule 4901, but in that approval, we noted that we were not evaluating the contingency measure in section 5.7.3 of revised Rule 4901 for compliance with all requirements of the CAA and the EPA's implementing regulations that apply to such measures.²¹⁰ Rather, we approved the measure into the SIP because it strengthened the rule by providing a possibility of additional curtailment days, and thus potentially additional emissions reductions. We indicated that we would evaluate whether this provision, in conjunction with other submitted provisions, meets the statutory and regulatory requirements for contingency measures in future actions. In this proposal, we are now evaluating District Rule 4901, specifically, section 5.7.3, for compliance with the requirements for contingency measures for Moderate areas that cannot practicably attain the 2012 PM_{2.5} NAAQS by the applicable Moderate area attainment date.

District Rule 4901 is designed to limit emissions generated by the use of wood burning fireplaces, wood burning heaters, and outdoor wood burning devices. The rule establishes requirements for the sale/transfer, operation, and installation of wood burning devices and for advertising the sale of seasoned wood consistent with a moisture content limit within the SJV.

The rule includes a two-tiered, episodic wood burning curtailment requirement that applies during four winter months, November through February. During a level one episodic wood burning curtailment, section 5.7.1 prohibits any person from operating a

wood burning fireplace or unregistered wood burning heater but permits the use of a properly operated wood burning heater that meets certification requirements and has a current registration with the District. Sections 5.9 through 5.11 impose specific registration requirements on any person operating a wood burning fireplace or wood burning heater and section 5.12 imposes specific certification requirements on wood burning heater professionals. During a level two episodic wood burning curtailment, operation of any wood burning device is prohibited by section 5.7.2.

Prior to the 2019–2020 wood burning season, the District imposed a level one curtailment when the PM_{2.5} concentration was forecasted to be between 20–65 µg/m³ and imposed a level two curtailment when the PM_{2.5} concentration was forecasted to be above 65 µg/m³ or the PM₁₀ concentration was forecasted to be above 135 µg/m³. In 2019 the District adopted revisions to Rule 4901 to lower the wood burning curtailment thresholds in the “hot spot” counties of Madera, Fresno, and Kern. The District lowered the level one PM_{2.5} threshold for these three counties from 20 µg/m³ to 12 µg/m³, and the level two PM_{2.5} threshold from 65 µg/m³ to 35 µg/m³. The District did not modify the curtailment thresholds for other counties (*i.e.*, Kings, Merced, San Joaquin, Stanislaus, and Tulare counties) in the SJV, and those levels remained at 20 µg/m³ for level one and 65 µg/m³ for level two.

The District's 2019 revision to Rule 4901 also included the addition of a contingency measure in section 5.7.3 of the rule, requiring that 60 days following the effective date of an EPA final rulemaking that the SJV has failed to attain the 1997, 2006, or 2012 PM_{2.5} NAAQS by the applicable attainment date, the PM_{2.5} curtailment levels for any county that has failed to attain the applicable standard will be lowered to the curtailment levels in place for hot spot counties.

3. EPA Evaluation and Proposed Action

We have evaluated the contingency measure element in the 2016 PM_{2.5} Plan, as amended in the 2018 PM_{2.5} Plan, and we find that the fact that the element focuses only on direct PM_{2.5} and NO_x (and not ammonia, SO₂, and VOC) is acceptable in light of our proposed approval of the precursor demonstration in section IV.B of this document.

PM_{2.5} attainment plan SIP submission for Moderate areas that cannot practicably attain by the Moderate area attainment date must include

²⁰⁹ Letter from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX, July 19, 2019.

²¹⁰ 85 FR 44206 (July 22, 2020) (final approval of District Rule 4901); 85 FR 1131, 1132–33 (January 9, 2020) (proposed approval of District Rule 4901).

contingency measures for potential failures to meet RFP, submit a quantitative milestone report or meet the quantitative milestones associated with the period 4.5 and 7.5 years after designation (in this case, the 2019 and 2022 RFP milestone years). With respect to both RFP milestone years, we find that the contingency measure element is inadequate to meet the Moderate area contingency measure requirements for several reasons.

First, the emission reductions relied upon in the contingency measure element to show compliance with the contingency measure requirement (*i.e.*, those surplus to RFP, reductions from the 2015 amendments to Rule 4905, and incentive-based emission reductions from projects in 2011–2016 in conjunction with District Rule 9610) come from measures that are not prospective (*i.e.*, to-be-triggered) but rather come from measures that have already been implemented, and thus would not constitute contingency measures under CAA section 172(c)(9) consistent with the *Bahr* decision.²¹¹

We recognize that the District has taken action to fulfill the commitment in the 2018 PM_{2.5} Plan to revise District Rule 4901 to include specific to-be-triggered contingency provisions. However, the contingency measure provision (section 5.7.3) added to the rule is only triggered by a finding of failure to attain the PM_{2.5} NAAQS by the applicable attainment date and not by failures to meet a quantitative milestone, submit a quantitative milestone report, or failure to meet an RFP requirement. Thus, the rule does not include contingency provisions to address the types of failures that are the triggering events for contingency measures for Moderate areas that cannot practicably attain the PM_{2.5} NAAQS by the applicable attainment date. Therefore, section 5.7.3 of District Rule 4901 does not meet the contingency measure requirements of CAA section 172(c)(9) and 40 CFR 51.1014 for the SJV with respect to Moderate area requirements for the 2012 PM_{2.5} NAAQS.

Second, as a general matter, we find that surplus emissions reductions in the years following RFP milestone years can be taken into account in determining whether a contingency measure or

contingency measures are adequate for a given area for a given pollutant notwithstanding the fact that the contingency measure or contingency measures would not achieve reductions equivalent to one year's worth of RFP. However, the contingency measure element in the 2016 PM_{2.5} Plan provides no emissions estimates for the year following the 2022 RFP milestone year for such an evaluation. The contingency measure element of the nonattainment area plan only provides estimates of surplus emissions reductions in 2019.

Furthermore, with respect to the emissions analysis for 2019, neither Rule 9610 ("State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs") nor the list of Carl Moyer incentive projects in Appendix C of the 2016 PM_{2.5} Plan may be relied upon as a source for surplus emissions reductions because Rule 9610 is not an emission reduction measure²¹² and because the Carl Moyer incentive projects listed in Appendix C of the 2016 PM_{2.5} Plan do not satisfy CAA requirements for SIP emission reduction credit, as interpreted in the EPA's guidance.²¹³ In addition, the emission reductions that might otherwise be considered surplus due to the 2015 adoption of tighter emissions limits in District Rule 4905 would not be considered surplus without additional documentation because of the option in Rule 4905 to pay mitigation fees in lieu of compliance with emissions limits.²¹⁴

²¹² 80 FR 19020 (April 9, 2015) (final approval of Rule 9610), 79 FR 28652 (May 19, 2014) (proposed approval noting that "[Rule 9610] does not establish any emission limitation, control measure, or other requirement that applies directly to an emission source"), and EPA, Region IX Air Division, "Technical Support Document for EPA's Notice of Proposed Rulemaking for the California State Implementation Plan, San Joaquin Valley Unified Air Pollution Control District's Rule 9610, State Implementation Plan Credit for Emission Reductions Generated through Incentive Programs," May 2014, 4–5 (noting that Rule 9610 "does not apply to any emission source and does not directly impact emissions").

²¹³ The EPA's longstanding position with respect to incentive-based control measures is that SIP credit may be allowed for such measures only where the State submits enforceable mechanisms to ensure that the emission reductions necessary to meet applicable CAA requirements are achieved—*e.g.*, an enforceable commitment to monitor and report on emission reductions achieved and to rectify any shortfall in a timely manner. See, *e.g.*, 80 FR 19020, 19026. The 2016 PM_{2.5} Plan does not contain such enforceable mechanisms addressing the Carl Moyer projects listed in Appendix C.

²¹⁴ EPA, Region IX Air Division, "Technical Support Document for EPA's Proposed Rulemaking for the California State Implementation Plan (SIP), San Joaquin Valley Unified Air Pollution Control District's Rule 4905, Natural Gas-Fired, Fan-Type Central Furnaces," October 5, 2015, fn. 8. The EPA approved the 2015 amended version of District Rule 4905 at 81 FR 17390 (March 29, 2016).

Third, as a general matter, we agree that the use of trading ratios established through modeling techniques to convert surplus reductions of direct PM_{2.5} precursor emissions to equivalent PM_{2.5} precursor emissions may be appropriate as part of the explanation for why a given contingency measure or measures are sufficient in an area with respect to a specific NAAQS. In this instance, however, we note that reliance on trading surplus direct PM_{2.5} reductions for NO_x reductions at a ratio of 1:8.8 may overestimate the amount of equivalent NO_x reductions based on the information in the 2018 PM_{2.5} Plan. For the 2018 PM_{2.5} Plan, the State conducted further analysis of the sensitivity of ambient PM_{2.5} to emission reductions in PM_{2.5} precursors, as discussed in section IV.I.2 of this proposal. Based on this updated analysis for Bakersfield and Fresno sites, the State proposes to use a 1:6.5 trading ratio between direct PM_{2.5} and NO_x for purposes of the 2018 PM_{2.5} Plan's MVEBs. This suggests that, while for a different CAA purpose (*i.e.*, MVEB rather than contingency measures), any excess direct PM_{2.5} used for evaluation of contingency measures would be equivalent to fewer NO_x emissions reductions than assumed for the 2016 PM_{2.5} Plan.

Therefore, in light of the deficiencies described in the preceding paragraphs, we are proposing to disapprove the contingency measure element of the 2016 PM_{2.5} Plan, as amended in the 2018 PM_{2.5} Plan, for failure to meet the requirements for contingency measures under CAA section 172(c)(9) and 40 CFR 51.1014(a) in the SJV with respect to Moderate area requirements for the 2012 PM_{2.5} NAAQS. More specifically, we are proposing to disapprove the contingency measure element for failure to provide for the implementation of specific measures to be undertaken if the area fails, with respect to the 2019 and 2022 RFP milestone years, to meet RFP, to submit a quantitative milestone report (2022 RFP milestone year only),²¹⁵ or to meet the quantitative milestones and that, once triggered, provide sufficient emissions reductions to meet the purposes of contingency measures under the CAA and EPA's implementing regulations.

I. Motor Vehicle Emissions Budgets

1. Requirements for Motor Vehicle Emissions Budgets

Section 176(c) of the CAA requires federal actions in nonattainment and

²¹⁵ CARB and the District have prepared and submitted the 2019 quantitative milestone report and we are currently reviewing it for adequacy.

²¹¹ We note that the Ninth Circuit's decision in *Bahr v. EPA* was published on September 12, 2016, just three days before the SJVUAPCD adopted the 2016 PM_{2.5} Plan on September 15, 2016. Subsequently, the District and CARB addressed the *Bahr* decision within their discussion of contingency measures for the Serious area plan for the 2012 PM_{2.5} NAAQS in the San Joaquin Valley (*i.e.*, the 2018 PM_{2.5} Plan).

maintenance areas to conform to the SIP's goals of eliminating or reducing the severity and number of violations of the NAAQS and achieving timely attainment of the standards. Conformity to the SIP's goals means that such actions will not: (1) Cause or contribute to violations of a NAAQS, (2) worsen the severity of an existing violation, or (3) delay timely attainment of any NAAQS or any interim milestone.

Actions involving Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) funding or approval are subject to the EPA's transportation conformity rule, codified at 40 CFR part 93, subpart A. Under this rule, MPOs in nonattainment and maintenance areas coordinate with state and local air quality and transportation agencies, the EPA, the FHWA, and the FTA to demonstrate that an area's regional transportation plans and transportation improvement programs conform to the applicable SIP. This demonstration is typically done by showing that estimated emissions from existing and planned highway and transit systems are less than or equal to the MVEBs contained in all control strategy SIPs. An attainment, maintenance, or RFP SIP should include budgets for the attainment year, each required RFP milestone year, and the last year of the maintenance plan, as appropriate. Budgets are generally established for specific years and specific pollutants or precursors and must reflect all of the motor vehicle control measures contained in the attainment and RFP demonstrations.²¹⁶

Under the PM_{2.5} SIP Requirements Rule, each attainment plan submittal for a Moderate PM_{2.5} nonattainment area must contain quantitative milestones to be achieved no later than 4.5 years and 7.5 years after the date the area was designated nonattainment.²¹⁷ The second of these milestone dates, October 15, 2022,²¹⁸ falls after the latest permissible Moderate area attainment date for the SJV, which is December 31, 2021. As the EPA explained in the preamble to the PM_{2.5} SIP Requirements Rule, it is important to include a post-attainment year quantitative milestone to ensure that, if the area fails to attain by the attainment date, the EPA can continue to monitor the area's progress toward attainment while the state develops a new attainment plan.²¹⁹ Moderate area plans demonstrating that

attainment by the Moderate area attainment date is impracticable must, therefore, include budgets for both of the milestone dates. States that submit impracticability demonstrations for Moderate areas under CAA section 189(a)(1)(B)(ii), however, are not required to submit budgets for the attainment year because the submitted SIP does not demonstrate attainment.²²⁰

PM_{2.5} plans should identify budgets for direct PM_{2.5}, NO_x, and all other PM_{2.5} precursors for which on-road emissions are determined to contribute significantly to PM_{2.5} levels in the area for each RFP milestone year and the attainment year, if the plan demonstrates attainment. All direct PM_{2.5} SIP budgets should include direct PM_{2.5} motor vehicle emissions from tailpipes, brake wear, and tire wear. With respect to PM_{2.5} from re-entrained road dust and emissions of VOC, SO₂, and/or ammonia, the transportation conformity provisions of 40 CFR part 93, subpart A, apply only if the EPA Regional Administrator or the director of the state air agency has made a finding that transportation-related emissions of these pollutants within the area are a significant contributor to the PM_{2.5} nonattainment problem and has so notified the MPO and Department of Transportation (DOT), or if the applicable implementation plan (or implementation plan submission) includes any of these pollutants in the approved (or adequate) budget as part of the RFP, attainment, or maintenance strategy.²²¹ Additionally, as the EPA explained in its May 6, 2005 transportation conformity rule amendments for the PM_{2.5} NAAQS, it is not necessary for a SIP to explicitly state that VOC, SO₂, and/or ammonia are insignificant precursors. Instead, states should consider the on-road contribution of all four precursors to the PM_{2.5} problem as they develop their SIPs and establish emissions budgets for those precursors for which on-road emissions need to be addressed in order to attain the PM_{2.5} standard as expeditiously as practicable. Conformity determinations must address all precursors for which the SIP establishes a budget and need not address those precursors for which the state has not established a budget because the emissions of that precursor are insignificant.²²²

By contrast, transportation conformity requirements apply with respect to emissions of NO_x unless both the EPA Regional Administrator and the director of the state air agency have made a finding that transportation-related emissions of NO_x within the nonattainment area are not a significant contributor to the PM_{2.5} nonattainment problem and have so notified the MPO and DOT, or the applicable implementation plan (or implementation plan submission) does not establish an approved (or adequate) budget for such emissions as part of the RFP, attainment, or maintenance strategy.²²³

The criteria for insignificance determinations are provided in 40 CFR 93.109(f). In order for a pollutant or precursor to be considered an insignificant contributor, the control strategy SIP must demonstrate that it would be unreasonable to expect that such an area would experience enough motor vehicle emissions growth in that pollutant/precursor for a NAAQS violation to occur. Insignificance determinations are based on factors such as air quality, SIP motor vehicle control measures, trends and projections of motor vehicle emissions, and the percentage of the total SIP inventory that is comprised of motor vehicle emissions. The EPA's rationale for providing for insignificance determinations is described in the July 1, 2004, revision to the transportation conformity rule.²²⁴

The EPA's process for determining the adequacy of a budget consists of three basic steps: (1) Notifying the public of a SIP submittal; (2) providing the public the opportunity to comment on the budget during a public comment period; and (3) making a finding of adequacy or inadequacy. The EPA can notify the public by either posting an announcement that the EPA has received SIP budgets on the EPA's adequacy website (40 CFR 93.118(f)(1)), or through a **Federal Register** notice of proposed rulemaking when the EPA reviews the adequacy of an implementation plan budget simultaneously with its review and action on the SIP itself (40 CFR 93.118(f)(2)).

For budgets to be approvable, they must meet, at a minimum, the EPA's adequacy criteria (40 CFR 93.118(e)(4)). To meet these requirements, the budgets must be consistent with the attainment and RFP requirements and reflect all of the motor vehicle control measures

²¹⁶ 40 CFR 93.118(e)(4)(v).

²¹⁷ 40 CFR 51.1013(a)(1).

²¹⁸ Because the SJV was designated nonattainment effective April 15, 2015, the first milestone date is October 15, 2019, and the second milestone date is October 15, 2022. 80 FR 2206.

²¹⁹ 81 FR 58010, 58058 and 58063–58064.

²²⁰ *Id.* at 58055.

²²¹ 40 CFR 93.102(b)(3), 93.102(b)(2)(v), and 93.122(f); see also transportation conformity rule preambles at 69 FR 40004, 40031–40036 (July 1, 2004), 70 FR 24280, 24283–24285 (May 6, 2005) and 70 FR 31354 (June 1, 2005).

²²² 70 FR 24280, 24287 (May 6, 2005).

²²³ 40 CFR 93.102(b)(2)(iv).

²²⁴ 69 FR 40004.

contained in the attainment and RFP demonstrations.²²⁵

2. Summary of State’s Motor Vehicle Emissions Budgets

The 2016 PM_{2.5} Plan includes budgets for direct PM_{2.5} and NO_x for 2019 (RFP milestone year) and 2022 (post-attainment RFP milestone year) and no other year given the plan’s demonstration of the impracticability of attaining the 2012 PM_{2.5} NAAQS by 2021.²²⁶ Similarly, for the Moderate area timeframe, the 2018 PM_{2.5} Plan includes budgets for direct PM_{2.5} and NO_x for 2019 and 2022 RFP milestone years.²²⁷ We consider the 2019 and 2022 RFP milestone budgets from the 2018 PM_{2.5}

Plan as superseding the corresponding budgets from the 2016 PM_{2.5} Plan.

The budgets in both the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan were calculated using EMFAC2014 and the latest modeled vehicle activity data (vehicle miles traveled and speed distributions) available at the time of plan development. In the case of the 2016 PM_{2.5} Plan, vehicle activity data are derived from the draft 2017 Federal-Statewide Transportation Improvement Program (2017 FSTIP) from each of the SJV’s eight MPOs. The 2018 PM_{2.5} Plan budgets are based on updated motor vehicle activity data from the most recently amended 2017 FSTIP (as of January 2018) from each of the SJV’s

eight MPOs. The budgets reflect annual average emissions consistent with the annual averaging period of the 2012 PM_{2.5} NAAQS and the 2018 PM_{2.5} Plan’s RFP demonstration.

As with the 2016 PM_{2.5} Plan, the 2018 PM_{2.5} Plan includes direct PM_{2.5} budgets for tailpipe, brake wear, and tire wear emissions, but does not include paved road dust, unpaved road dust, and road construction dust emissions. The 2018 PM_{2.5} Plan also includes budgets for NO_x, as a regulated precursor under the plan, but does not include budgets for VOC, SO₂, or ammonia.²²⁸ The budgets included in the 2018 PM_{2.5} Plan with respect to the Moderate area timeframe are shown in Table 6.

TABLE 6—2019 AND 2022 SAN JOAQUIN VALLEY MVEBS FOR THE 2012 PM_{2.5} NAAQS
[Annual average, tpd]

County	2019 (RFP year)		2022 (post-attainment year)	
	PM _{2.5}	NO _x	PM _{2.5}	NO _x
Fresno	0.9	27.6	0.9	21.2
Kern (San Joaquin Valley portion)	0.8	25.1	0.8	19.4
Kings	0.2	5.1	0.2	4.1
Madera	0.2	4.6	0.2	3.5
Merced	0.3	9.4	0.3	7.6
San Joaquin	0.6	12.7	0.6	10.0
Stanislaus	0.4	10.5	0.4	8.1
Tulare	0.4	9.3	0.4	6.9

Source: 2018 PM_{2.5} Plan, App. D, Table 3–3. Budgets are rounded up to the nearest tenth.

The 2018 PM_{2.5} Plan also includes a proposed trading mechanism for transportation conformity analyses that would allow future decreases in NO_x emissions from on-road mobile sources to offset any on-road increases in direct PM_{2.5} emissions. For the 2012 PM_{2.5} NAAQS, the State is proposing to use the 6.5:1 NO_x:PM_{2.5} ratio. The ratio is based on a sensitivity analysis based on a 30% reduction of NO_x or PM_{2.5} emissions and the corresponding impact on design values at sites in Bakersfield and Fresno (*i.e.*, updated analysis relative to the 2008 PM_{2.5} Plan for the 1997 PM_{2.5} NAAQS). For the sake of comparison, in approving the budgets for the SJV 2008 PM_{2.5} Plan for the 1997 PM_{2.5} NAAQS, the EPA approved a trading mechanism for transportation conformity analyses that allowed for such one-way trades (*i.e.*, only excess NO_x can be used to offset PM_{2.5}, not vice versa) at a 9:1 NO_x:PM_{2.5} ratio.²²⁹

To ensure that the trading mechanism does not affect the ability of the SJV to meet the NO_x budget, the NO_x emission reductions available to supplement the PM_{2.5} budget would only be those remaining after the NO_x budget has been met.²³⁰ The Plan also provides that the SJV MPOs shall clearly document the calculations used in the trading, along with any additional reductions of NO_x and PM_{2.5} emissions in the conformity analysis.

In the submittal letter for the 2018 PM_{2.5} Plan, CARB requested that we limit the duration of our approval of the budgets to the period before the effective date of the EPA’s adequacy finding for any subsequently submitted budgets.²³¹

3. EPA Evaluation and Proposed Action

For the reasons discussed in section IV.F of this proposed rule, we are proposing to approve the State’s

demonstration that it is impracticable to attain the 2012 PM_{2.5} standard in the SJV by the applicable Moderate area attainment date of December 31, 2021, and are proposing to reclassify the area as Serious. Accordingly, we are proposing action on the Moderate post-attainment year budgets for 2022 for the 2012 PM_{2.5} NAAQS in the SJV. The EPA is not reviewing the submitted motor vehicle emissions budgets for 2019 because that year will not be an applicable conformity analysis year in the next conformity analysis for the SJV MPOs. Also, as noted above, we consider the 2022 RFP milestone budgets from the 2018 PM_{2.5} Plan as superseding the corresponding budgets from the 2016 PM_{2.5} Plan and thus are proposing action only on the former.²³²

The EPA generally first conducts a preliminary review of budgets submitted with an attainment or maintenance plan for PM_{2.5} for

²²⁵ 40 CFR 93.118(e)(4)(iii), (iv) and (v). For more information on the transportation conformity requirements and applicable policies on MVEBs, please visit our transportation conformity website at: <http://www.epa.gov/otaq/stateresources/transconf/index.htm>.

²²⁶ 2016 PM_{2.5} Plan, Table 3–11.

²²⁷ 2018 PM_{2.5} Plan, App. D, Table 3–3.

²²⁸ 2018 PM_{2.5} Plan, App. D, D–121 to D–123.

²²⁹ 76 FR 69896, at 69923 (November 9, 2011).

²³⁰ 2018 PM_{2.5} Plan, App. D, D–126 and D–127.

²³¹ Letter dated May 9, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX, 3.

²³² The differences between the two sets of budgets are minor. For 2019, there is no difference

between the budgets in the 2016 PM_{2.5} Plan and the 2018 PM_{2.5} Plan. For 2022, there is no difference between the two sets of budgets for direct PM_{2.5}, and, with the exception of San Joaquin County, the difference between the two sets of budgets for NO_x is less than or equal to 0.1 tpd. For San Joaquin County, the 2022 NO_x budget is 0.7 tpd higher under the 2018 PM_{2.5} Plan than the corresponding budget from the 2016 PM_{2.5} Plan.

adequacy, prior to taking action on the plan itself, and did so with respect to the PM_{2.5} budgets in the 2018 PM_{2.5} Plan. On June 18, 2019, the EPA announced the availability of the 2018 PM_{2.5} Plan with MVEBs and a 30-day public comment period. This announcement was posted on the EPA's adequacy website at: <https://www.epa.gov/state-and-local-transportation/state-implementation-plans-sip-submissions-currently-under-epa>. The comment period for this notification ended on July 18, 2019. We did not receive any comments during this comment period.

The 2018 PM_{2.5} Plan establishes budgets for the 2022 RFP milestone year for direct PM_{2.5} and NO_x, but not for the other PM_{2.5} precursor emissions (*i.e.*, VOC, SO₂, and ammonia). We propose to find that it is not necessary to establish motor vehicle emissions budgets for transportation-related emissions of VOC, SO₂, and ammonia to attain the 2012 annual PM_{2.5} NAAQS in the SJV based on our proposal to approve the State's demonstration that emissions of VOC, SO₂, and ammonia do not contribute significantly to PM_{2.5} levels that exceed the 2012 PM_{2.5} NAAQS in the SJV, as discussed in section IV.B of this proposed rule. Our finding in this regard is also supported by information about VOC, SO₂, and ammonia in the 2018 PM_{2.5} Plan documenting the small contribution by motor vehicles to regional precursor inventories and to PM_{2.5} design values within the SJV.²³³ In addition, based on similar documentation about re-entrained road dust and construction-related fugitive dust in the 2018 PM_{2.5} Plan and in accordance with 40 CFR 93.102(b)(3) and 93.122(f), the EPA proposes to find that it is not necessary to include re-entrained road dust emissions or road construction dust in the direct PM_{2.5} budgets for 2012 PM_{2.5} NAAQS in the SJV.²³⁴

For the reasons discussed in sections IV.G of this proposed rule, the EPA proposes to approve the RFP demonstration in the 2018 PM_{2.5} Plan.

²³³ 2018 PM_{2.5} Plan, App. D, pages D–121, D–122 and D–123. Motor vehicle emissions of VOC represent approximately 10% of the total VOC emissions in the SJV, but VOC controls are generally ineffective at reducing ambient PM_{2.5} levels. Motor vehicle emissions of SO₂ are less than one tpd, and motor vehicle emissions of ammonia represent approximately 1% of total ammonia emissions in the SJV.

²³⁴ Id. Paved and unpaved road dust emissions represent less than 17% of the total PM_{2.5} emissions in the SJV but contribute only approximately 4% to the design values. Construction dust emissions are less than 5% of the total PM_{2.5} emissions in the SJV. In addition, the 2018 PM_{2.5} Plan does not include additional control measures for these sources.

The 2022 RFP budgets, as shown in Table 6 of this proposed rule, are consistent with this demonstration, are clearly identified and precisely quantified, and meet all other applicable statutory and regulatory requirements including the adequacy criteria in 40 CFR 93.118(e)(4) and (5). For these reasons, the EPA proposes to approve the budgets listed in Table 6. We provide a more detailed discussion in the EPA's memo to file regarding MVEB.²³⁵ We are not proposing to approve the 2018 PM_{2.5} Plan's budgets that pertain solely to the Serious area time frame (*i.e.*, 2025 attainment year budget or the post-attainment year 2028 budget for the 2012 PM_{2.5} NAAQS) at this time. The budgets that the EPA is proposing to approve relate to the 2012 annual PM_{2.5} NAAQS only, and our proposed approval does not affect the status of the previously-approved MVEBs for the 1997 annual and 24-hour PM_{2.5} NAAQS and 2006 24-hour PM_{2.5} NAAQS and related trading mechanisms that remain in effect for that PM_{2.5} NAAQS.

As noted above, the State included a trading mechanism to be used in transportation conformity analyses that would be used in conjunction with the budgets in the 2018 PM_{2.5} Plan, as allowed for under 40 CFR 93.124(b). Furthermore, the trading ratio in the 2018 PM_{2.5} Plan is based on updated air quality modeling and analysis relative to the analysis that the 2016 PM_{2.5} Plan relies on (*i.e.*, analysis and trading ratio in the 2008 PM_{2.5} Plan for the 1997 PM_{2.5} NAAQS). The trading mechanism in the 2018 PM_{2.5} Plan would allow future decreases in annual NO_x emissions from on-road mobile sources to offset any on-road increases in annual direct PM_{2.5} emissions using a 6.5:1 NO_x:PM_{2.5} ratio for conformity for the 2012 annual PM_{2.5} NAAQS. To ensure that the trading mechanism does not affect the ability to meet the NO_x budget, the plan provides that the NO_x emission reductions available to supplement the PM_{2.5} budget would only be those remaining after the NO_x budget has been met. The SJV MPOs will have to document clearly the calculations used in the trading when demonstrating conformity, along with any additional reductions of NO_x and PM_{2.5} emissions in the conformity analysis. The trading calculations must be performed prior to the final rounding

²³⁵ Memorandum of July 30, 2021, from Rory Mays and Karina O'Connor, Air Planning Office, Air and Radiation Division, Region IX, EPA, "EPA Review of 2018 PM_{2.5} Plan Transportation Conformity Emission Budgets for the 2012 Annual PM_{2.5} NAAQS (Moderate Area Requirements)."

to demonstrate conformity with the budgets.

The EPA has reviewed the trading mechanism as described on pages D–125 through D–127 in Appendix D of the 2018 PM_{2.5} Plan and finds it is appropriate for transportation conformity purposes in the SJV for the 2012 annual PM_{2.5} NAAQS. The methodology for estimating the trading ratio for conformity purposes is essentially an update (based on newer modeling) of the approach that the EPA previously approved for the 2008 PM_{2.5} Plan for the 1997 PM_{2.5} NAAQS²³⁶ and the 2012 PM_{2.5} Plan for the 2006 24-hour PM_{2.5} NAAQS.²³⁷ The State's approach in the previous plans was to model the ambient PM_{2.5} effect of areawide NO_x emissions reductions and of areawide direct PM_{2.5} reductions, and to express the ratio of these modeled sensitivities as an interpollutant trading ratio.

In the updated analysis for the 2018 PM_{2.5} Plan, the State completed separate sensitivity analyses for the annual and 24-hour standards and modeled only transportation-related sources in the nonattainment area. The ratio the State is proposing to use for transportation conformity purposes is derived from air quality modeling that evaluated the effect of reductions in transportation-related NO_x and PM_{2.5} emissions in the SJV on ambient concentrations at the Bakersfield-California Avenue, Bakersfield-Planz, Fresno-Garland, and Fresno-Hamilton & Winery monitoring sites. The modeling that the State performed to evaluate the effectiveness of NO_x and PM_{2.5} reductions on ambient 24-hour concentrations showed NO_x:PM_{2.5} ratios that range from a high of 7.1 at the Bakersfield-California Avenue monitor to a low of 6.0 at the two Fresno monitors.²³⁸ We find that the State's approach is a reasonable method to use to develop ratios for transportation conformity purposes. We therefore propose to approve the 6.5:1 NO_x for PM_{2.5} trading mechanism as enforceable components of the transportation conformity program for the SJV for the 2012 annual PM_{2.5} NAAQS.

Under the transportation conformity rule, once budgets are approved, they cannot be superseded by revised budgets submitted for the same CAA purpose and the same year(s) addressed by the previously approved SIP until the EPA approves the revised budgets as a

²³⁶ 80 FR 1816, 1841 (January 13, 2015) (noting the EPA's prior approval of MVEBs for the 1997 annual and 24-hour PM_{2.5} standards in the 2008 PM_{2.5} Plan at 76 FR 69896).

²³⁷ 81 FR 59876 (August 31, 2016).

²³⁸ 2018 PM_{2.5} Plan, App. D, D–126.

SIP revision. As a general matter, such approved budgets cannot be superseded by revised budgets found adequate, but rather only through approval of the revised budgets, unless the EPA specifies otherwise in its approval of a SIP by limiting the duration of the approval to last only until subsequently submitted budgets are found adequate.²³⁹

In the submittal letter for the 2018 PM_{2.5} Plan, CARB requested that we limit the duration of our approval of the budgets to the period before the effective date of the EPA's adequacy finding for any subsequently submitted budgets.²⁴⁰ The transportation conformity rule allows us to limit the approval of budgets.²⁴¹ However, we will consider a state's request to limit an approval of its MVEBs only if the request includes the following elements:²⁴² (1) An acknowledgement and explanation as to why the budgets under consideration have become outdated or deficient; (2) a commitment to update the budgets as part of a comprehensive SIP update; and (3) a request that the EPA limit the duration of its approval to the period before new budgets have been found to be adequate for transportation conformity purposes.

CARB's request includes an explanation for why the budgets have become, or will become, outdated or deficient. In short, CARB has requested that we limit the duration of the approval of the budgets in light of the EPA's approval of EMFAC2017, an updated version of the EMFAC2014 used for the budgets in the 2018 PM_{2.5} Plan.²⁴³ EMFAC2017 updates vehicle mix and emissions data of the previously approved version of the EMFAC2014.

In light of the EPA's approval of EMFAC2017, CARB explains that the budgets in the 2018 PM_{2.5} Plan, which we are proposing to approve in this action, will become outdated and will need to be revised using EMFAC2017. In addition, CARB states that, without the ability to replace the budgets using the budget adequacy process, the benefits of using the updated data may not be realized for a year or more after the updated SIP (with the EMFAC2017-

derived budgets) is submitted, due to the length of the SIP approval process. We find that CARB's explanation for limiting the duration of the approval of the budgets is appropriate and provides us with a reasonable basis for limiting the duration of the approval of the budgets.

We note that CARB has not committed to update the budgets as part of a comprehensive SIP update, but as a practical matter, CARB must submit a SIP revision that includes updated demonstrations as well as the updated budgets to meet the adequacy criteria in 40 CFR 93.118(e)(4).²⁴⁴ Therefore, we do not need a specific commitment for such a plan at this time. For the reasons provided above, and in light of CARB's explanation for why the budgets will become outdated and should be replaced upon an adequacy finding for updated budgets, we propose to limit the duration of our approval of the budgets in the 2018 PM_{2.5} Plan to the period before we find revised budgets based on EMFAC2017 to be adequate.

Lastly, in section IV.H of this proposed rule, the EPA is proposing to disapprove the contingency measure element of the 2016 PM_{2.5} Plan, as amended in the 2018 PM_{2.5} Plan, with respect to Moderate area requirements for the 2012 PM_{2.5} NAAQS. If the EPA were to finalize the proposed disapproval of the 2012 PM_{2.5} NAAQS Moderate area contingency measure element, the area would be eligible for a protective finding under the transportation conformity rule because the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan reflect adopted control measures that fully satisfy the emissions reductions requirements for RFP for years 2019 and 2022.²⁴⁵

V. Reclassification as Serious Nonattainment and Serious Area SIP Requirements

A. Reclassification as Serious and Applicable Attainment Date

Section 188 of the Act outlines the process for classification of PM_{2.5} nonattainment areas and establishes the applicable attainment dates. Under section 188(b)(1) of the Act, the EPA has general authority to reclassify at any time before the applicable attainment date any area that the EPA determines cannot practicably attain the standard by such date. Accordingly, section

188(b)(1) of the Act is a general expression of delegated rulemaking authority. In addition, subparagraphs (A) and (B) of section 188(b)(1) mandate that the EPA reclassify "appropriate" PM₁₀ nonattainment areas at specified time frames (*i.e.*, by December 31, 1991, for the initial PM₁₀ nonattainment areas, and within 18 months after the SIP submittal due date for subsequent nonattainment areas). These subparagraphs do not restrict the EPA's general authority but simply specify that, at a minimum, it must be exercised at certain times.²⁴⁶

We have reviewed the air quality modeling and impracticability demonstration in the 2016 PM_{2.5} Plan, as well as the air quality modeling in the 2018 PM_{2.5} Plan. Based on our review, we agree with the District's conclusion that implementation of the State/District's SIP control strategy, including RACM/RACT and additional reasonable measures, is insufficient to bring the SJV into attainment of the 2012 PM_{2.5} NAAQS by the December 31, 2021 Moderate area attainment deadline. See sections IV.C and IV.F of this proposed rule. In addition, we have reviewed recent PM_{2.5} monitoring data for SJV available in the EPA's Air Quality System (AQS) database. These data show that annual PM_{2.5} levels in the SJV continue to be above 12.0 µg/m³, the numerical level of the 2012 PM_{2.5} standard, and the recent trends in the SJV annual PM_{2.5} levels indicate that the SJV will not attain by the end of 2021.²⁴⁷

In accordance with section 188(b)(1) of the Act, the EPA is proposing to reclassify the SJV from Moderate to Serious nonattainment for the 2012 annual PM_{2.5} standard of 12.0 µg/m³, based on the EPA's determination that the SJV cannot practicably attain the standard by the applicable attainment date of December 31, 2021.

Under section 188(c)(2) of the Act, the attainment date for a Serious area "shall be as expeditiously as practicable but no later than the end of the tenth calendar year beginning after the area's designation as nonattainment . . ." The EPA designated the SJV as nonattainment for the 2012 PM_{2.5} NAAQS effective April 15, 2015.²⁴⁸ Therefore, upon final reclassification of

²³⁹ 40 CFR 93.118(e)(1).

²⁴⁰ Letter dated May 9, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX, 3.

²⁴¹ 40 CFR 93.118(e)(1).

²⁴² 67 FR 69141 (November 15, 2002), limiting our prior approval of MVEBs in certain California SIPs.

²⁴³ On August 15, 2019, the EPA approved and announced the availability of EMFAC2017, the latest update to the EMFAC model for use by the State and local governments to meet CAA requirements. 84 FR 41717.

²⁴⁴ Under 40 CFR 93.118(e)(4), the EPA will not find a budget in a submitted SIP to be adequate unless, among other criteria, the budgets, when considered together with all other emissions sources, are consistent with applicable requirements for RFP and attainment. 40 CFR 93.118(e)(4)(iv).

²⁴⁵ 40 CFR 93.120(a)(3).

²⁴⁶ For a general discussion of the EPA's interpretation of the reclassification provisions in section 188(b)(1) of the Act, see the General Preamble, 13537-13538.

²⁴⁷ EPA design value workbook dated May 24, 2021, "pm25_designvalues_2018_2020_final_05_24_21.xlsx," worksheets "Table1a" and "Table5a," and EPA, 2010-2020 AQS Design Value Report, AMP480, June 30, 2021.

²⁴⁸ 80 FR 2206.

the SJV as a Serious nonattainment area, the latest permissible attainment date under section 188(c)(2) of the Act, for purposes of the 2012 PM_{2.5} NAAQS in this area, will be December 31, 2025.

Under section 188(e) of the Act, a state may apply to the EPA for a single extension of the Serious area attainment date of up to five additional years, which the EPA may grant if the state satisfies certain statutory conditions. Before the EPA may extend the attainment date for a Serious area under section 188(e), the state must: (1) Apply for an extension of the attainment date beyond the statutory attainment date; (2) demonstrate that attainment by the statutory attainment date is impracticable; (3) demonstrate that it has complied with all requirements and commitments pertaining to the area in the implementation plan; (4) demonstrate to the satisfaction of the Administrator that the plan for the area includes the most stringent measures that are included in the implementation plan of any state or are achieved in practice in any state, and can feasibly be implemented in the area; and (5) submit a demonstration of attainment by the most expeditious alternative date practicable.²⁴⁹

B. Clean Air Act Requirements for Serious Area Plans

Upon reclassification as a Serious nonattainment area for the 2012 PM_{2.5} NAAQS, California will be required to submit additional SIP revisions to satisfy the statutory requirements that apply to Serious PM_{2.5} nonattainment areas, including the requirements of subpart 4 of part D, title I of the Act.

The Serious area SIP elements that California will be required to submit are as follows:

1. Provisions to assure that BACM,²⁵⁰ including BACT for stationary sources, for the control of direct PM_{2.5} and PM_{2.5}

²⁴⁹ For a discussion of the EPA's interpretation of the requirements of section 188(e), see General Preamble Addendum, 42002; 65 FR 19964 (April 13, 2000) (proposed action on PM₁₀ Plan for Maricopa County, Arizona); 67 FR 48718 (July 25, 2002) (final action on PM₁₀ Plan for Maricopa County, Arizona); and *Vigil v. EPA*, 366 F.3d 1025, amended at 381 F.3d 826 (9th Cir. 2004) (remanding EPA action on PM₁₀ Plan for Maricopa County, Arizona but generally upholding the EPA's interpretation of CAA section 188(e)).

²⁵⁰ The EPA defines BACM as, among other things, the maximum degree of emission reduction achievable for a source or source category, which is determined on a case-by-case basis considering energy, environmental, and economic impacts. (General Preamble Addendum, 42010 and 42014). BACM must be implemented for all categories of sources in a Serious PM_{2.5} nonattainment area unless the State adequately demonstrates that a particular source category does not contribute significantly to nonattainment of the PM_{2.5} standard. (Id. at 42011, 42012).

precursors shall be implemented no later than four years after the area is reclassified (CAA section 189(b)(1)(B));

2. a demonstration (including air quality modeling) that the plan provides for attainment as expeditiously as practicable but not later than December 31, 2025, or where the state is seeking an extension of the attainment date under section 188(e), a demonstration that attainment by December 31, 2025, is impracticable and that the plan provides for attainment by the most expeditious alternative date practicable and not later than December 31, 2030 (CAA sections 189(b)(1)(A), 188(c)(2), and 188(e));

3. plan provisions that require RFP (CAA section 172(c)(2));

4. quantitative milestones that are to be achieved every three years until the area is redesignated to attainment and that demonstrate RFP toward attainment by the applicable date (CAA section 189(c));

5. provisions to assure that control requirements applicable to major stationary sources of PM_{2.5} also apply to major stationary sources of PM_{2.5} precursors, except where the state demonstrates to the EPA's satisfaction that such sources do not contribute significantly to PM_{2.5} levels that exceed the standard in the area (CAA section 189(e));

6. a comprehensive, accurate, current inventory of actual emissions from all sources of PM_{2.5} and PM_{2.5} precursors in the area (CAA section 172(c)(3));

7. contingency measures to be implemented if the area fails to meet RFP (including quantitative milestones and related reports) or to attain by the applicable attainment date (CAA section 172(c)(9)); and

8. a revision to the NNSR program to lower the applicable "major stationary source" ²⁵¹ thresholds from 100 tpy to 70 tpy (CAA section 189(b)(3)) and to satisfy the subpart 4 control requirements for major stationary sources of PM_{2.5} precursors (CAA section 189(e)).

As discussed in section IV.E of this proposed rule, California submitted NNSR SIP revisions for the SJV to address the subpart 4 NNSR requirements for Serious PM_{2.5} nonattainment areas on November 20, 2019. The EPA is evaluating this SIP submission and will act on it in a separate rulemaking.

Finally, reclassification of the SJV as Serious nonattainment for the 2012

²⁵¹ For any Serious area, the terms "major source" and "major stationary source" include any stationary source that emits or has the potential to emit at least 70 tpy of PM₁₀ (CAA sections 189(b)(3)).

annual PM_{2.5} NAAQS would lower the de minimis threshold under the CAA's general conformity requirements (40 CFR part 93, subpart B) from 100 tpy to 70 tpy for PM_{2.5} and PM_{2.5} precursors.²⁵² In this case, however, reclassification would have no impact on the applicable general conformity de minimis thresholds, because the SJV is already subject to the 70 tpy de minimis threshold for PM_{2.5} and all PM_{2.5} precursors as a result of the EPA's previous actions reclassifying the area as Serious nonattainment for the 1997 annual and 24-hour PM_{2.5} NAAQS and the 2006 24-hour PM_{2.5} NAAQS.²⁵³

C. Statutory Deadline for Submission of Serious Area Plan

When the EPA reclassifies a nonattainment area to a higher classification, the CAA sets the parameters for establishing deadlines for attainment plan SIP submissions for that higher classification. The State has already made submissions intended to address the Serious area attainment plan requirements for the 2012 PM_{2.5} NAAQS for the SJV, yet the EPA reclassification rulemaking must still establish the submission deadlines, as discussed in the following paragraphs. Among other things, such deadlines make clear the time frame for any future SIP submission should the State find the need to withdraw any particular element of the Serious area plan requirements (*i.e.*, without the submittal of a replacement element meeting the completeness criteria).

For an area reclassified as a Serious nonattainment area before the applicable attainment date under CAA section 188(b)(1), section 189(b)(2) requires the state to submit the required BACM provisions "no later than 18 months after reclassification of the area as a Serious Area" and to submit the required attainment demonstration "no later than 4 years after reclassification of the area to Serious." Section 189(b)(2) establishes outer bounds on the SIP submission deadlines as necessary or appropriate to assure consistency among the required submissions and to implement the statutory requirements.

The Act provides the state with up to 18 months after final reclassification of an area to Serious to submit the required BACM provisions. Because an up-to-date emissions inventory serves as the foundation for a state's BACM/BACT determination, the PM_{2.5} SIP Requirements Rule requires the state to submit the emissions inventory required under CAA section 172(c)(3) within 18

²⁵² 40 CFR 93.153(b), 81 FR 58010, 58126.

²⁵³ 80 FR 18528 and 81 FR 1514, respectively.

months after the effective date of final reclassification.²⁵⁴ Similarly, because an effective evaluation of BACM/BACT measures requires evaluation of the precursor pollutants that must be controlled to provide for expeditious attainment in the area, if the state chooses to submit an optional precursor insignificance demonstration to support a determination to exclude a PM_{2.5} precursor from the required control measure evaluations for the area, the EPA requires that the state submit any such demonstration by this same date. An 18-month time frame for submission of these plan elements is consistent with both the time frame for submission of BACM/BACT provisions under CAA section 189(b)(2) and the time frame for submission of subpart 1 plan elements under section 172(b) of the Act.²⁵⁵

The PM_{2.5} SIP Requirements Rule also establishes a specific deadline for submission of the attainment demonstration and attainment-related plan elements following discretionary reclassification, which is the earlier of four years from the date of reclassification, or the end of the eighth calendar year after designation.²⁵⁶ In this case, the earlier of these two dates will be the end of the eighth calendar year after designation—*i.e.*, December 31, 2023. The attainment-related plan elements required within the same timeframe as the attainment demonstration are as follows: (1) The RFP demonstration required under section 172(c)(2); (2) the quantitative milestones required under section 189(c); (3) any additional control measures necessary to meet the requirements of section 172(c)(6); and (4) the contingency measures required under section 172(c)(9). Although section 189(b)(2) generally provides for up to four years after a discretionary reclassification for the state to submit the required attainment demonstration, given the timing of this reclassification action less than two years before the Moderate area attainment date, it is appropriate in this case for the EPA to establish an earlier SIP submission deadline to assure timely implementation of the statutory requirements.

Finally, the PM_{2.5} SIP Requirements Rule establishes a regulatory requirement that the state submit

revised NNSR program requirements no later than 18 months after final reclassification.²⁵⁷ The Act does not specify a deadline for the state's submission of SIP revisions to meet NNSR program requirements to lower the "major stationary source" threshold from 100 tpy to 70 tpy (CAA section 189(b)(3)) and to address the control requirements for major stationary sources of PM_{2.5} precursors (CAA section 189(e))²⁵⁸ following reclassification of a Moderate PM_{2.5} nonattainment area as Serious nonattainment under subpart 4. Pursuant to the EPA's gap-filling authority in CAA section 301(a) and to effectuate the statutory control requirements in section 189 of the Act, the PM_{2.5} SIP Requirements Rule requires the state to submit these NNSR SIP revisions, as well as any necessary analysis of and additional control requirements for major stationary sources of PM_{2.5} precursors, no later than 18 months after the effective date of final reclassification of the SJV as Serious nonattainment for the 2012 PM_{2.5} standard. This due date will ensure that necessary control requirements for major sources are established in advance of the required attainment demonstration. An 18-month timeframe for submission of the NNSR SIP revisions also aligns with the statutory deadline for submission of BACM and BACT provisions and the broader analysis of PM_{2.5} precursors for potential controls on existing sources in the area.

Accordingly, if we finalize our proposal to reclassify the SJV as a Serious nonattainment area for the 2012 PM_{2.5} NAAQS, California would be required to submit the emissions inventory required under CAA section 172(c)(3), the BACM/BACT provisions required under CAA section 189(b)(1)(B), and any NNSR SIP revisions required to satisfy the requirements of CAA sections 189(b)(3) and 189(e) for the 2012 PM_{2.5} NAAQS no later than 18 months after the effective date of a final reclassification action. Additionally, California would be required to submit the Serious area attainment demonstration and all attainment-related plan elements no later than the end of the eighth calendar year after designation—*i.e.*, by December 31, 2023.

We note that the 2018 PM_{2.5} Plan submitted on May 10, 2019, includes a Serious area plan containing an attainment demonstration, emissions inventory, attainment-related plan elements, and BACM/BACT provisions. Also, the State submitted a SIP revision for the Serious area NNSR requirements on November 20, 2019. The EPA intends to evaluate and act on the Serious area plan and NNSR SIP submissions for the 2012 PM_{2.5} NAAQS in the SJV through separate rulemakings, as appropriate.

VI. Reclassification of Areas of Indian Country

Eight Indian tribes are located within the boundaries of the SJV nonattainment area for the 2012 PM_{2.5} NAAQS. These tribes include Big Sandy Rancheria of Western Mono Indians of California, Cold Springs Rancheria of Mono Indians of California, Northfork Rancheria of Mono Indians of California, Picayune Rancheria of Chukchansi Indians of California, Santa Rosa Indian Community of the Santa Rosa Rancheria, California, Table Mountain Rancheria, Tejon Indian Tribe, and Tule River Indian Tribe of the Tule River Reservation, California.

We have considered the relevance of our proposal to reclassify the SJV as Serious nonattainment for the 2012 PM_{2.5} standard for each tribe located therein. We believe that the same facts and circumstances that support the proposal for the non-Indian country lands also support the proposal for reservation areas of Indian country²⁵⁹ and any other areas of Indian country where the EPA or a tribe has demonstrated that the tribe has jurisdiction located within the SJV nonattainment area. The EPA is therefore proposing to exercise our authority under CAA section 188(b)(1) to reclassify areas of Indian country geographically located in the SJV nonattainment area. Section 188(b)(1) broadly authorizes the EPA to reclassify a nonattainment area—including any Indian country located within such an area—that the EPA determines cannot practicably attain the relevant standard by the applicable attainment date.

²⁵⁹ "Indian country" as defined at 18 U.S.C. 1151 refers to the following: "(a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same."

²⁵⁴ 81 FR 58010, 58077.

²⁵⁵ Section 172(b) requires the EPA to establish, concurrent with nonattainment area designations, a schedule extending no later than three years from the date of the nonattainment designation for states to submit plans or plan revisions meeting the applicable requirements of sections 110(a)(2) and 172(c) of the CAA.

²⁵⁶ 81 FR 58010, 58077.

²⁵⁷ *Id.* at 58078.

²⁵⁸ Section 189(e) requires that the control requirements applicable to major stationary sources of PM_{2.5} also apply to major stationary sources of PM_{2.5} precursors, except where the state demonstrates to the EPA's satisfaction that such sources do not contribute significantly to PM_{2.5} levels that exceed the standard in the area.

Directly-emitted PM_{2.5} and its precursor pollutants (*i.e.*, NO_x, SO₂, VOC, and ammonia) are emitted throughout a nonattainment area and can be transported throughout that nonattainment area. Therefore, boundaries for nonattainment areas are drawn to encompass both areas with direct sources of the pollutant problem as well as nearby areas in the same airshed. Initial classifications apply to the entire nonattainment area, *i.e.*, they exactly match the nonattainment area boundaries. The EPA believes this approach best ensures public health protection from the adverse effects of PM_{2.5} pollution. Therefore, it is generally counterproductive from an air quality and planning perspective to have a disparate classification for a land area located within the boundaries of a nonattainment area, such as the reservation areas of Indian country contained within the SJV PM_{2.5} nonattainment area. Violations of the 2012 PM_{2.5} standard, which are measured and modeled throughout the nonattainment area, as well as shared meteorological conditions, would dictate the same conclusion. Furthermore, emission increases in portions of a PM_{2.5} nonattainment area that are left classified as Moderate could counteract the effects of efforts to attain the standard within the overall area because less stringent requirements would apply in those Moderate portions relative to those that would apply in the portions of the area reclassified to Serious.

Uniformity of classification throughout a nonattainment area is thus a guiding principle and premise when an area is being reclassified. In this particular case, we are proposing to determine, based on the State's demonstration and current ambient air quality trends, that the entire SJV nonattainment area, including all reservations areas of Indian country and any other area located within the SJV where a tribe has jurisdiction, cannot practicably attain the 2012 PM_{2.5} standard by the applicable Moderate area attainment date of December 31, 2021.

In light of the considerations outlined above that support retention of a uniformly-classified PM_{2.5} nonattainment area, and our proposal to find that it is impracticable for the area to attain by the applicable attainment date, we propose to reclassify the entire SJV nonattainment area, including reservation areas of Indian country and any other area of Indian country located within it where the EPA or a tribe has demonstrated that the tribe has

jurisdiction, as Serious nonattainment for the 2012 PM_{2.5} standard.

Generally, the effect of reclassification is to lower the applicable "major source" threshold for purposes of the NNSR program and the Title V operating permit program from 100 tpy to 70 tpy,²⁶⁰ thus subjecting additional new or modified stationary sources to these requirements. Reclassification also lowers the de minimis threshold under the CAA's general conformity requirements from 100 tpy to 70 tpy.²⁶¹ In this case, however, reclassification would not change the "major source" thresholds because, as a result of the EPA's January 2016 reclassification of the SJV as a Serious nonattainment area for the 2006 PM_{2.5} NAAQS, the area is already subject to the 70 tpy major source threshold for Serious PM_{2.5} nonattainment areas in CAA section 189(b)(3).²⁶² Likewise, reclassification would have no impact on the applicable general conformity de minimis thresholds, because the SJV is already subject to the 70 tpy de minimis threshold for PM_{2.5} and all PM_{2.5} precursors as a result of the EPA's previous reclassification of the area as Serious for the 2006 PM_{2.5} NAAQS.²⁶³

The EPA has contacted tribal officials to invite government-to-government consultation on this rulemaking effort.²⁶⁴ The EPA specifically solicits additional comment on this proposed rule from tribal officials. We note that although eligible tribes may seek EPA approval of relevant tribal programs under the CAA, none of the affected tribes will be required to submit an implementation plan as a result of this reclassification.

VII. Review of Contingency Measure Element for the 2006 PM_{2.5} NAAQS

A. Requirements for Contingency Measures

With one exception, the SIP requirements for contingency measures that apply to areas classified as Serious for the 2006 PM_{2.5} NAAQS are the same as those described in section IV.H.1 of this document for areas that are classified as Moderate for the 2012 PM_{2.5} NAAQS and cannot practicably

attain the NAAQS by the statutory attainment date, and thus, are not repeated here. However, in addition to the contingency measures requirements that apply to Moderate areas with adequate impracticability demonstrations, states with areas classified as Serious must identify and adopt contingency measures to address the potential for the area to fail to attain the NAAQS by the applicable attainment date.

B. Summary of State's Contingency Measure Element for 2006 PM_{2.5} NAAQS

The EPA deferred action on the contingency measure element of the 2018 PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS when we took final action on the other elements in the 2018 PM_{2.5} Plan for that NAAQS.²⁶⁵ In this section of this document, we are proposing action on the contingency measure element of the 2018 PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS.

The 2018 PM_{2.5} Plan addresses the contingency measure requirement for the 2006 24-hour PM_{2.5} NAAQS by reference to the contingency measure portion of a December 2018 SIP submission that involved enhanced enforcement of CARB regulations in the SJV, a commitment to amend the District's residential wood burning rule (*i.e.*, District Rule 4901) to include contingent provisions, and updated emissions estimates for the year following the attainment year for use in evaluating whether the emissions reductions from the contingency measures are sufficient.²⁶⁶ Recently, CARB withdrew the enhanced enforcement portion of the December 2018 SIP submission as it pertained to the 2006 PM_{2.5} NAAQS in the SJV.²⁶⁷

Accordingly, we have evaluated the relevant portions of the 2018 PM_{2.5} Plan and District Rule 4901 (specifically, section 5.7.3 of Rule 4901) for compliance with the applicable requirements for Serious areas for the 2006 PM_{2.5} NAAQS.

With respect to the District contingency measure, the 2018 PM_{2.5} Plan calls for the District to amend District Rule 4901 to include a requirement in the rule with a trigger that that would be activated should the EPA issue a final rulemaking that the SJV failed to meet a regulatory requirement necessitating

²⁶⁰ CAA sections 189(b)(3) and 501(2)(B).

²⁶¹ 40 CFR part 93, subpart B.

²⁶² 81 FR 2993.

²⁶³ *Id.* and 40 CFR 93.153(b).

²⁶⁴ We sent letters dated March 3, 2021, to tribal officials offering government-to-government consultation. See also a summary of the EPA's outreach to tribes in the San Joaquin Valley; memorandum dated August 3, 2021, from Rory Mays, Air Planning Office, Air and Radiation Division, EPA Region IX, to Docket No. EPA-R09-OAR-2021-0543. We did not receive any request for consultation.

²⁶⁵ 85 FR 44192, at 44193 (July 22, 2020).

²⁶⁶ 2018 PM_{2.5} Plan, App. H (revised February 11, 2020), H-24 to H-26.

²⁶⁷ Letter dated March 19, 2021, from Richard W. Corey, Executive Officer, CARB, to Deborah Jordan, Acting Regional Administrator, EPA Region IX, with enclosures.

implementation of a contingency measure. In response to the commitment made in the 2018 PM_{2.5} Plan, in June 2019, the District adopted amendments to Rule 4901 including a contingency measure (in section 5.7.3 of the amended rule), and CARB submitted the amended rule to the EPA for approval as an attachment to a letter dated July 19, 2019.²⁶⁸ The EPA has taken final action to approve amended Rule 4901, but in that approval, we noted that we were not evaluating the contingency measure in section 5.7.3 of revised Rule 4901 for compliance with all requirements of the CAA and the EPA's implementing regulations that apply to such measures.²⁶⁹ Rather, we approved the measure into the SIP because it strengthened the rule by providing a possibility of additional curtailment days, and thus potentially additional emissions reductions. We indicated that we would evaluate whether this provision, in conjunction with other submitted provisions, meets the statutory and regulatory requirements for contingency measures in future actions. In this proposal, we are now evaluating District Rule 4901, specifically, section 5.7.3, for compliance with the requirements for contingency measures for purposes of the 2006 PM_{2.5} NAAQS.

District Rule 4901 is designed to limit emissions generated by the use of wood burning fireplaces, wood burning heaters, and outdoor wood burning devices. The rule establishes requirements for the sale/transfer, operation, and installation of wood burning devices and for advertising the sale of seasoned wood consistent with a moisture content limit within the SJV.

The rule includes a two-tiered, episodic wood burning curtailment requirement that applies during four winter months, November through February. During a level one episodic wood burning curtailment, section 5.7.1 prohibits any person from operating a wood burning fireplace or unregistered wood burning heater but permits the use of a properly operated wood burning heater that meets certification requirements and has a current registration with the District. Sections 5.9 through 5.11 impose specific registration requirements on any person operating a wood burning fireplace or wood burning heater and section 5.12 imposes specific certification requirements on wood burning heater

professionals. During a level two episodic wood burning curtailment, operation of any wood burning device is prohibited by section 5.7.2.

Prior to the 2019–2020 wood burning season, the District imposed a level one curtailment when the PM_{2.5} concentration was forecasted to be between 20–65 µg/m³ and imposed a level two curtailment when the PM_{2.5} concentration was forecasted to be above 65 µg/m³ or the PM₁₀ concentration was forecasted to be above 135 µg/m³. In 2019, the District adopted revisions to Rule 4901 to lower the wood burning curtailment thresholds in the “hot spot” counties of Madera, Fresno, and Kern. The District lowered the level one PM_{2.5} threshold for these three counties from 20 µg/m³ to 12 µg/m³, and the level two PM_{2.5} threshold from 65 µg/m³ to 35 µg/m³. The District did not modify the curtailment thresholds for other counties in the SJV, and those levels remained at 20 µg/m³ for level one and 65 µg/m³ for level two.

The District's 2019 revision to Rule 4901 also included the addition of a contingency measure in section 5.7.3 of the rule, requiring that 60 days following the effective date of an EPA final rulemaking that the SJV has failed to attain the 1997, 2006, or 2012 PM_{2.5} NAAQS by the applicable attainment date, the PM_{2.5} curtailment levels for any county that has failed to attain the applicable standard will be lowered to the curtailment levels in place for hot spot counties. The District estimates that the potential emissions reduction in direct PM_{2.5} would be in the range of 0.014 tpd (if the contingency is triggered in Kings County but not the other non-hot-spot counties) to 0.387 tpd (if the contingency is triggered in all five of the non-hot-spot counties), but there would be no emissions reduction if, at the time of the determination of failure to attain the 2006 PM_{2.5} NAAQS by the attainment date, violations of the 2006 PM_{2.5} NAAQS were only observed at monitors in the hot-spot counties.²⁷⁰ Corresponding potential emissions reduction in NO_x would be in the range of 0.002 tpd to 0.060 tpd, respectively, but as noted in the preceding paragraphs there may be no emissions reduction if the violations are monitored in the hot-spot counties only.²⁷¹

²⁷⁰ See Table B–13 in Appendix B from the District's Final Staff Report (June 20, 2019) for revisions to Rule 4901.

²⁷¹ NO_x emissions reductions from the contingency measure are based on the District's estimates for direct PM_{2.5} emissions using the ratio of direct PM_{2.5} to NO_x in Table 1 of the District's Final Staff Report (June 20, 2019) for revisions to Rule 4901.

The 2018 PM_{2.5} Plan also provides estimates of regional emissions in the year following the attainment year with which to evaluate the sufficiency of the emissions reductions from the contingency measure (*i.e.*, section 5.7.3 of Rule 4901). For the 2006 PM_{2.5} NAAQS, the attainment year is 2024 and the year after the attainment year is therefore 2025.²⁷² Based on Table H–5 in the 2018 PM_{2.5} Plan, the annual average emission reductions from 2024 to 2025 due to baseline measures and CARB and the District's aggregate tonnage commitment are estimated to be 0 tpd direct PM_{2.5} and 5.2 tpd NO_x. For comparison purposes, one year's worth of RFP (based on emissions estimates in the 2018 PM_{2.5} Plan) is approximately 0.6 tpd direct PM_{2.5} and 18.4 tpd NO_x.²⁷³

C. EPA Evaluation and Proposed Action

For the 2006 PM_{2.5} NAAQS, we have similarly evaluated the contingency measure demonstration in the 2018 PM_{2.5} Plan and associated contingency provision of the 2019 amendment to Rule 4901. Specifically, we have evaluated the contingency provision in District Rule 4901 (*i.e.*, section 5.7.3 of the rule) against the requirements of CAA section 172(c)(9) and 40 CFR 51.1014 for both attainment and RFP contingency measures, the latter of which also includes submittal of quantitation milestone reports and compliance with quantitative milestones.

As noted in our summary of the State's submission, the contingency provision in District Rule 4901 is structured to provide for implementation if the area fails to attain the 2006 PM_{2.5} NAAQS, not before, and is therefore consistent with CAA section 172(c)(9). However, as structured by the District, the contingency provision of Rule 4901 (*i.e.*, section 5.7.3) would provide for emissions reductions only in Kings, Merced, San Joaquin, Stanislaus, and/or Tulare counties, not the “hot spot” counties of Fresno, Kern, and Madera, and only if a violating monitoring site (*i.e.*, a site where the collected data represent a violation of the NAAQS) is located in said county. In other words, if the EPA's determination of failure to attain the NAAQS by the applicable attainment date indicates violations at monitoring location sites in Fresno and Kern (“hot spot” counties) and Tulare (non-hot-spot county) counties, the contingency

²⁷² 85 FR 44192, 44192.

²⁷³ One year's worth of RFP is based on the difference between the emissions estimates for 2013 and 2024 in Table H–6 of Appendix H, divided by 11 (*i.e.*, the number of years from 2013 to 2024).

²⁶⁸ Letter dated July 19, 2019, from Richard W. Corey, Executive Officer, CARB, to Mike Stoker, Regional Administrator, EPA Region IX.

²⁶⁹ 85 FR 44206 (July 22, 2020) (final approval of District Rule 4901); 85 FR 1131, 1132–33 (January 9, 2020) (proposed approval of District Rule 4901).

provision would provide for emissions reductions by lowering the wood burning curtailment thresholds in only Tulare County. The “hot spot” counties are already subject to the lower wood burning curtailment thresholds in the rule and thus would not be affected by the finding of failure to attain determination and the other non-“hot spot” counties (*i.e.*, other than Tulare County in this example) would not be subject to the lower wood burning curtailment thresholds.

In accordance with 40 CFR 51.1014, the contingency provision in District Rule 4901 identifies a specific triggering mechanism. In this case, the triggering mechanism in the rule is the EPA’s final determination that the SJV has failed to attain the 2006 PM_{2.5} NAAQS by the applicable attainment date.²⁷⁴ The rule also specifies a timeframe within which its requirements become effective after a failure-to-attain determination (*i.e.*, on and after 60 days from the effective date of the EPA’s final determination), and would take effect with minimal further action by the state or the EPA. However, the contingency provision in District Rule 4901 does not address the potential for State failures to meet a quantitative milestone, submit a quantitative milestone report, or failure to meet an RFP requirement.²⁷⁵

In addition, the contingency measure provision of Rule 4901 is not structured to achieve any additional emissions reductions if the EPA finds that the monitoring locations in the “hot spot” counties (*i.e.*, Fresno, Kern, or Madera Counties) are the only ones in the SJV that are violating the 2006 PM_{2.5} NAAQS as of the attainment date. To qualify as a contingency measure, a

²⁷⁴ Section 5.7.3 of Rule 4901 states that “the District shall notify the public of an Episodic Curtailment for the PM_{2.5} curtailment levels described in Sections 5.7.1.2 and 5.7.2.2 for any county that has failed to attain the applicable standard.” (emphasis added) We interpret this to mean that the District would apply the more stringent curtailment provisions for any county identified in the EPA’s final rule making the determination that the San Joaquin Valley failed to attain the applicable PM_{2.5} NAAQS.

²⁷⁵ We note that section 5.7.3 of District Rule 4901 applies the lower thresholds “on and after sixty days following the effective date of EPA final rulemaking,” which is appropriate as a contingency measure trigger for a failure to attain by the applicable attainment date given that the EPA conducts rulemaking to make such determinations. However, for the three other contingency triggers, *i.e.*, State failures to meet a quantitative milestone, submit a quantitative milestone report, or failure to meet an RFP requirement, the EPA may not conduct rulemaking but instead make the determinations through correspondence directly to the state. Thus, we recommend that section 5.7.3 of District Rule 4901 be amended to refer to “EPA final determinations” rather than to “EPA final rulemaking” when the rule is amended to include the additional contingency measure triggers.

measure must be structured to achieve emissions reductions, if triggered, and the contingency provision of District Rule 4901 provides for such reductions only under certain circumstances and should be revised to provide for additional emissions reductions in the SJV (if triggered) regardless of which monitoring site(s) is determined to be violating the 2006 PM_{2.5} NAAQS as of the attainment date.²⁷⁶

Next, we considered the adequacy of the section 5.7.3 of District Rule 4901 from the standpoint of the magnitude of emissions reductions the measures would provide (if triggered). Neither the CAA nor the EPA’s implementing regulations for the PM_{2.5} NAAQS establish a specific amount of emissions reductions that implementation of contingency measures must achieve, but we generally expect that contingency measures should provide for emissions reductions approximately equivalent to one year’s worth of RFP, which amounts to reductions of approximately 0.6 tpd of direct PM_{2.5} and 18.4 tpd of NO_x for the 2006 PM_{2.5} NAAQS in the SJV.²⁷⁷ As noted in our summary of the State’s submission, the emissions reductions from the contingency provisions in District Rule 4901 would amount to approximately 0.00 tpd to 0.387 tpd of direct PM_{2.5}, which equates to approximately 0% to 67% of one year’s worth of RFP for direct PM_{2.5}. With respect to NO_x emissions reductions, the contingency provisions in District Rule 4901 would amount to approximately 0.00 tpd to 0.06 tpd, which equates to approximately 0% to 0.3% of one year’s worth of RFP for NO_x.

The State’s contingency measure element in the 2018 PM_{2.5} Plan provides the larger SIP planning context in which to judge the adequacy of the amount of emission reductions resulting from the contingency measure by calculating the surplus emissions reductions estimated to be achieved in the year after the

²⁷⁶ The EPA believes that the most straightforward remedy under these circumstances would be for the District to amend section 5.7.3 of Rule 4901 to extend the lower wood burning curtailment thresholds region-wide if the EPA determines that the area has failed to attain the 2006 PM_{2.5} NAAQS by the applicable attainment date.

²⁷⁷ The calculation of one year’s worth of RFP is based on dividing the values in column E of table H-6 of Appendix H (updated February 11, 2020) of the 2018 PM_{2.5} Plan by 11, *i.e.*, the number of years between 2013 and 2024. As part of the EPA’s final approval of the State’s attainment plan for the 2006 PM_{2.5} NAAQS, we concluded that ammonia, SO_x, and VOC emissions do not contribute significantly to ambient PM_{2.5} levels that exceed the 2006 PM_{2.5} NAAQS in the San Joaquin Valley. 85 FR 17382, at 17390–17396 (March 27, 2020) (proposed rule); finalized at 85 FR 44192 (July 22, 2020).

attainment year. More specifically, the 2018 PM_{2.5} Plan identifies additional NO_x reductions in the year following the attainment year of 2024. For the SJV, the estimates of additional reductions in the post-attainment year (2025) are 0 tpd direct PM_{2.5} and 5.2 tpd NO_x.²⁷⁸ Generally, we will consider such surplus emissions reductions in evaluating the sufficiency of the emissions reductions from contingency measures identified by the state, however, in this case, because the identified contingency measure may result in no emissions reductions, the larger planning context is not relevant to our review of the sufficiency of the contingency measure.

For these reasons, we propose to disapprove the contingency measure element of the 2018 PM_{2.5} Plan under CAA section 179(c)(9) and 40 CFR 51.1014 with respect to the State’s Serious area attainment plan for the 2006 PM_{2.5} NAAQS in the SJV. While the contingency measure provision of the 2019 amendment to Rule 4901 has an adequate triggering mechanism for failure to attain, we propose to disapprove it because it may result in no emissions reductions if the area fails to attain the NAAQS by the applicable attainment date. Furthermore, as the contingency measure element and the contingency provision of Rule 4901 lack any to-be-triggered measure for failure to meet a quantitative milestone, submit a quantitative milestone report, or failure to meet an RFP requirement, we propose that the submission is also inadequate for RFP contingency measures.

Lastly, if the EPA finalizes the proposed disapproval of the contingency measure element for the 2006 PM_{2.5} NAAQS, the area would be eligible for a protective finding under the transportation conformity rule because the 2018 PM_{2.5} Plan reflects adopted control measures and contains enforceable commitments that fully satisfy the emissions reductions requirements for RFP and attainment for the 2006 PM_{2.5} NAAQS.²⁷⁹

²⁷⁸ These estimates are based on the annual average emission reductions from 2024 to 2025 due to baseline measures and CARB and the District’s aggregate tonnage commitment in Table H-5 of Appendix H (updated February 11, 2020) of the 2018 PM_{2.5} Plan. We also note that Table H-13 of Appendix H indicates that the year-over-year reductions for purposes of the 2006 PM_{2.5} NAAQS is 0.1 tpd direct PM_{2.5} and 4.2 tpd NO_x. However, the estimates in Table H-13 reflect emissions changes associated only with mobile sources whereas the appropriate comparison includes the entire emissions inventory.

²⁷⁹ 40 CFR 93.120(a)(3).

VIII. Summary of Proposed Actions and Request for Public Comment

Under CAA section 110(k)(3), the EPA is proposing to approve the following elements of the 2016 PM_{2.5} Plan and 2018 PM_{2.5} Plan submitted by California to address the CAA's Moderate area planning requirements for the 2012 PM_{2.5} NAAQS in the SJV nonattainment area:

1. The 2013 base year emissions inventories in the 2016 PM_{2.5} Plan, as revised in the 2018 PM_{2.5} Plan, as meeting the requirements of CAA section 172(c)(3) and 40 CFR 51.1008(a);

2. The reasonably available control measures/reasonably available control technology demonstration in the 2016 PM_{2.5} Plan, as supplemented in the 2018 PM_{2.5} Plan, as meeting the requirements of CAA sections 172(c)(1) and 189(a)(1)(C);

3. The demonstration in the 2016 PM_{2.5} Plan that attainment by the Moderate area attainment date of December 31, 2021, is impracticable as meeting the requirements of CAA section 189(a)(1)(B)(ii) and 40 CFR 51.1011(a);

4. The reasonable further progress demonstration in the 2016 PM_{2.5} Plan, as revised in 2018 PM_{2.5} Plan, as meeting the requirements of CAA section 172(c)(2) and 40 CFR 51.1012(a);

5. The quantitative milestones in the 2016 PM_{2.5} Plan, as revised in the 2018 PM_{2.5} Plan and the Valley State SIP Strategy, as meeting the requirements of CAA section 189(c) and 40 CFR 51.1013(a)(1); and

6. The motor vehicle emissions budgets for 2022 in the 2018 PM_{2.5} Plan as shown in Table 6 of this proposed rule because they are derived from an approvable RFP demonstration and meet the requirements of CAA section 176(c) and 40 CFR part 93, subpart A. With respect to the budgets, we are proposing to limit the duration of the approval of the budgets to last only until the effective date of the EPA's adequacy finding for any subsequently submitted budgets. We are proposing to do so at CARB's request and in light of the benefits of using EMFAC2017-derived budgets prior to our taking final action on the future SIP revision that includes the updated budgets.

Pursuant to CAA section 110(k)(3), the EPA proposes to disapprove the contingency measure element of the 2016 PM_{2.5} Plan for the 2012 PM_{2.5} NAAQS, as revised in the 2018 PM_{2.5} Plan and supplemented by section 5.7.3 of District Rule 4901, and the contingency measure element of the 2018 PM_{2.5} Plan for the 2006 PM_{2.5} NAAQS, as supplemented by section 5.7.3 of District Rule 4901, because, among other reasons, the elements include no specific measures to be undertaken if the state fails to submit a quantitative milestone report for the area, or if the area fails to meet RFP or a quantitative milestone. In addition, with respect to the contingency measure element in the 2018 PM_{2.5} Plan for the

2006 PM_{2.5} NAAQS (as supplemented by section 5.7.3 of District Rule 4901), the element includes a specific measure that may not result in any emissions reductions following a failure to attain the 2006 PM_{2.5} NAAQS by the applicable attainment date under certain circumstances.

If we finalize the disapproval of the contingency measure elements as proposed, the offset sanction in CAA section 179(b)(2) would apply in the SJV 18 months after the effective date of a final disapproval, and the highway funding sanctions in CAA section 179(b)(1) would apply in the area six months after the offset sanction is imposed.²⁸⁰ Neither sanction will be imposed under the CAA if the State submits and we approve, prior to the implementation of the sanctions, a SIP revision that corrects the deficiencies that we identify in our final action. The EPA intends to work with CARB and the SJVUAPCD to correct the deficiencies in a timely manner.

In addition to the sanctions, CAA section 110(c)(1) provides that the EPA must promulgate a federal implementation plan (FIP) addressing any disapproved elements of the plan two years after the effective date of disapproval unless the State submits, and the EPA approves, the required SIP submittal. As a result of the EPA's December 6, 2018 determination that California had failed to submit the required contingency measures for the 2006 PM_{2.5} NAAQS and the 2012 PM_{2.5} NAAQS, among other required SIP submissions for the SJV,²⁸¹ the EPA is already subject to a statutory deadline to promulgate a FIP for this purpose no later than two years after the effective date of that determination.²⁸²

Also, because we previously approved the Serious area plan RFP and attainment demonstrations and the motor vehicle emissions budgets for the 2006 PM_{2.5} NAAQS,²⁸³ and because in this proposed rule we are proposing to approve the Moderate area plan RACM, additional reasonable measures, and RFP demonstrations, and motor vehicle emission budgets for the 2012 PM_{2.5} NAAQS, we are proposing to issue a protective finding under 40 CFR 93.120(a)(3) to the disapproval of the contingency measures elements. Without a protective finding, the final disapprovals would result in a conformity freeze, under which only projects in the first four years of the most recent conforming Regional

Transportation Plan (RTP) and Transportation Improvement Programs (TIP) can proceed. Generally, during a freeze, no new RTPs, TIPs, or RTP/TIP amendments can be found to conform until another control strategy implementation plan revision fulfilling the same CAA requirements is submitted, the EPA finds its motor vehicle emissions budget(s) adequate pursuant to § 93.118 or approves the submission, and conformity to the implementation plan revision is determined.²⁸⁴ Under a protective finding, the final disapproval of the contingency measures elements would not result in a transportation conformity freeze in the SJV PM_{2.5} nonattainment area and the MPOs may continue to make transportation conformity determinations.

Finally, pursuant to CAA section 188(b)(1), the EPA is proposing to reclassify the SJV PM_{2.5} nonattainment area, including reservation areas of Indian country and any other area where the EPA or a tribe has demonstrated that a tribe has jurisdiction within the SJV, as Serious nonattainment for the 2012 PM_{2.5} standard based on the agency's determination that the SJV cannot practicably attain the standard by the Moderate area attainment date of December 31, 2021. Upon final reclassification as a Serious area, California will be required to submit, within 18 months after the effective date of the reclassification, an emissions inventory, provisions to assure that BACM shall be implemented no later than four years after the date of reclassification, and any NNSR SIP revisions required to satisfy the requirements of CAA sections 189(b)(3) and 189(e). California will also be required to submit, by December 31, 2023, a Serious area plan that satisfies the requirements of part D of title I of the Act. This plan must include a demonstration that the SJV will attain the 2012 PM_{2.5} standard as expeditiously as practicable but no later than December 31, 2025, or by the most expeditious alternative date practicable and no later than December 31, 2030, in accordance with the requirements of CAA sections 189(b) and 188(e).

We note that the 2018 PM_{2.5} Plan, submitted concurrently with the 2016 PM_{2.5} Plan on May 10, 2019, includes a Serious area attainment demonstration, emissions inventory, attainment-related plan elements, and BACM/BACT provisions. The State also submitted a SIP submission for the Serious area NNSR requirements on November 20,

²⁸⁰ 40 CFR 52.31.

²⁸¹ 83 FR 62720.

²⁸² Id.

²⁸³ 85 FR 44192.

²⁸⁴ 40 CFR 93.120(a)(2).

2019. The EPA intends to evaluate and act on the Serious area plan and NNSR SIP submissions for the 2012 PM_{2.5} NAAQS in the SJV through separate rulemakings, as appropriate.²⁸⁵

In addition, because the EPA is proposing to similarly reclassify reservation areas of Indian country and any other area of Indian country where the EPA or a tribe has demonstrated that the tribe has jurisdiction within the SJV PM_{2.5} nonattainment area as Serious nonattainment for the 2012 PM_{2.5} standard, consistent with our proposed reclassification of the surrounding non-Indian country lands, the EPA has invited consultation with interested tribes concerning this issue. Although eligible tribes may seek the EPA's approval of relevant tribal programs under the CAA, none of the affected tribes will be required to submit an implementation plan as a result of this reclassification.

We will accept comments from the public on these proposals for the next 30 days. The deadline and instructions for submission of comments are provided in the **DATES** and **ADDRESSES** sections at the beginning of this proposed rule.

IX. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at <http://www.epa.gov/lawsregulations/laws-and-executive-orders>.

A. Executive Order 12866: Regulatory Planning and Review, and Executive Order 13563: Improving Regulation and Regulatory Review

The proposed actions are not a significant regulatory action and were therefore not submitted to the Office of Management and Budget (OMB) for review.

B. Paperwork Reduction Act (PRA)

The proposed actions do not impose an information collection burden under the PRA because they do not contain any information collection activities.

C. Regulatory Flexibility Act (RFA)

I certify that the proposed actions will not have a significant economic impact on a substantial number of small entities under the RFA. The proposed actions will not impose any requirements on small entities. This proposed rule would approve or disapprove State plans as meeting federal requirements and would

not impose additional requirements beyond those imposed by State law. Additionally, the proposed rule would reclassify the SJV nonattainment area as Serious nonattainment for the 2012 PM_{2.5} NAAQS and would not itself regulate small entities.

D. Unfunded Mandates Reform Act (UMRA)

The proposed actions do not contain an unfunded mandate of \$100 million or more as described in UMRA, and does not significantly or uniquely affect small governments. This proposed rule would approve or disapprove State plans as meeting federal requirements and would not impose additional requirements beyond those imposed by State law. Additionally, the proposed rule would reclassify the SJV nonattainment area as Serious nonattainment for the 2012 PM_{2.5} NAAQS and would not itself impose any federal intergovernmental mandate. The proposed actions would not require any tribe to submit implementation plans.

E. Executive Order 13132: Federalism

The proposed actions do not have federalism implications. They will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

F. Executive Order 13175: Coordination With Indian Tribal Governments

Executive Order 13175, entitled "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249, November 9, 2000), requires the EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." "Policies that have Tribal implications" is defined in the Executive Order to include regulations that have "substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and the Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian Tribes."

Eight Indian tribes are located within the boundaries of the SJV nonattainment area for the 2012 PM_{2.5} NAAQS: The Big Sandy Rancheria of Western Mono Indians of California, the Cold Springs Rancheria of Mono Indians of California, the Northfork Rancheria of Mono Indians of California, the Picayune Rancheria of Chukchansi Indians of California, the Santa Rosa Indian Community of the Santa Rosa

Rancheria, California, the Table Mountain Rancheria, the Tejon Indian Tribe, and the Tule River Indian Tribe of the Tule River Reservation, California.

The EPA's proposed actions on the SIP elements submitted by California to address the Moderate area requirements for the 2012 PM_{2.5} NAAQS and the contingency measure requirement for the 2006 PM_{2.5} NAAQS would not have tribal implications because the SIP is not approved to apply on any Indian reservation land or in any other area where the EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those areas of Indian country, the proposed actions on the SIP submittals do not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175.

The EPA has concluded that the proposed reclassification might have tribal implications for the purposes of Executive Order 13175, but would not impose substantial direct costs upon the tribes, nor would it preempt tribal law. The proposed reclassification from Moderate to Serious for a PM_{2.5} NAAQS would typically affect the EPA's implementation of the new source review program because of the lower "major source" threshold triggered by reclassification (70 tons per year for direct PM_{2.5} and precursors to PM_{2.5}). However, because the SJV nonattainment area is already classified as Serious for the 1997 and 2006 PM_{2.5} NAAQS, the lower thresholds already apply within the nonattainment area, and the proposed reclassification from Moderate to Serious for the 2012 PM_{2.5} NAAQS would have no additional effect. The same is true for any tribal projects that require federal permits, approvals, or funding. Such projects are subject to the requirements of the EPA's general conformity rule, and federal permits, approvals, or funding for the projects would typically become more difficult to obtain because of the lower de minimis thresholds triggered by reclassification but, in this case, the lower de minimis thresholds already apply within the SJV.

Given the potential implications, the EPA contacted tribal officials during the process of developing this proposed rule to provide an opportunity to have meaningful and timely input into its development. On March 3, 2021, we sent letters to leaders of the eight tribes with areas of Indian country in the SJV nonattainment area inviting government-to-government consultation on the rulemaking effort. We requested that the tribal leaders, or their

²⁸⁵ We are establishing deadlines for submittal of SIP revisions that have already been submitted to timely address any elements that may be withdrawn in the future.

designated consultation representatives, notify us of their interest in government-to-government consultation by April 5, 2021. We intend to continue communicating with all eight tribes located within the boundaries of the SJV nonattainment area for the 2012 PM_{2.5} NAAQS as we move forward in developing a final rule. The EPA specifically solicits additional comment on this proposed rule from tribal officials.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that concern environmental health or safety risks that the EPA has reason to believe may disproportionately affect children, per the definition of “covered regulatory action” in section 2–202 of the Executive Order. The proposed rule is not subject to Executive Order 13045 because it would approve or disapprove a State plan implementing a federal standard, and reclassify the SJV nonattainment area as Serious

nonattainment for the 2012 PM_{2.5} NAAQS, triggering Serious area planning requirements under the CAA. This proposed action does not establish an environmental standard intended to mitigate health or safety risks.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

This proposed rule is not subject to Executive Order 13211, because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

This rulemaking does not involve technical standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Population

The EPA has determined that the proposed actions will not have potential disproportionately high and adverse human health or environmental effects on minority or low-income populations because they do not affect the level of protection provided to human health or

the environment. The proposed actions would only approve or disapprove State plans implementing a federal standard, and reclassify the SJV nonattainment area as Serious nonattainment for the 2012 PM_{2.5} NAAQS, triggering additional Serious area planning requirements under the CAA.

List of Subjects

40 CFR Part 52

Environmental protection, Air pollution control, Ammonia, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

40 CFR Part 81

Environmental protection, Air pollution control, Particulate matter.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: August 25, 2021.

Elizabeth Adams,

Acting Regional Administrator, Region IX.

[FR Doc. 2021–18764 Filed 8–31–21; 8:45 am]

BILLING CODE 6560–50–P