Chapter 5

DEMONSTRATION OF FEDERAL REQUIREMENTS FOR THE 2012 ANNUAL PM2.5 STANDARD

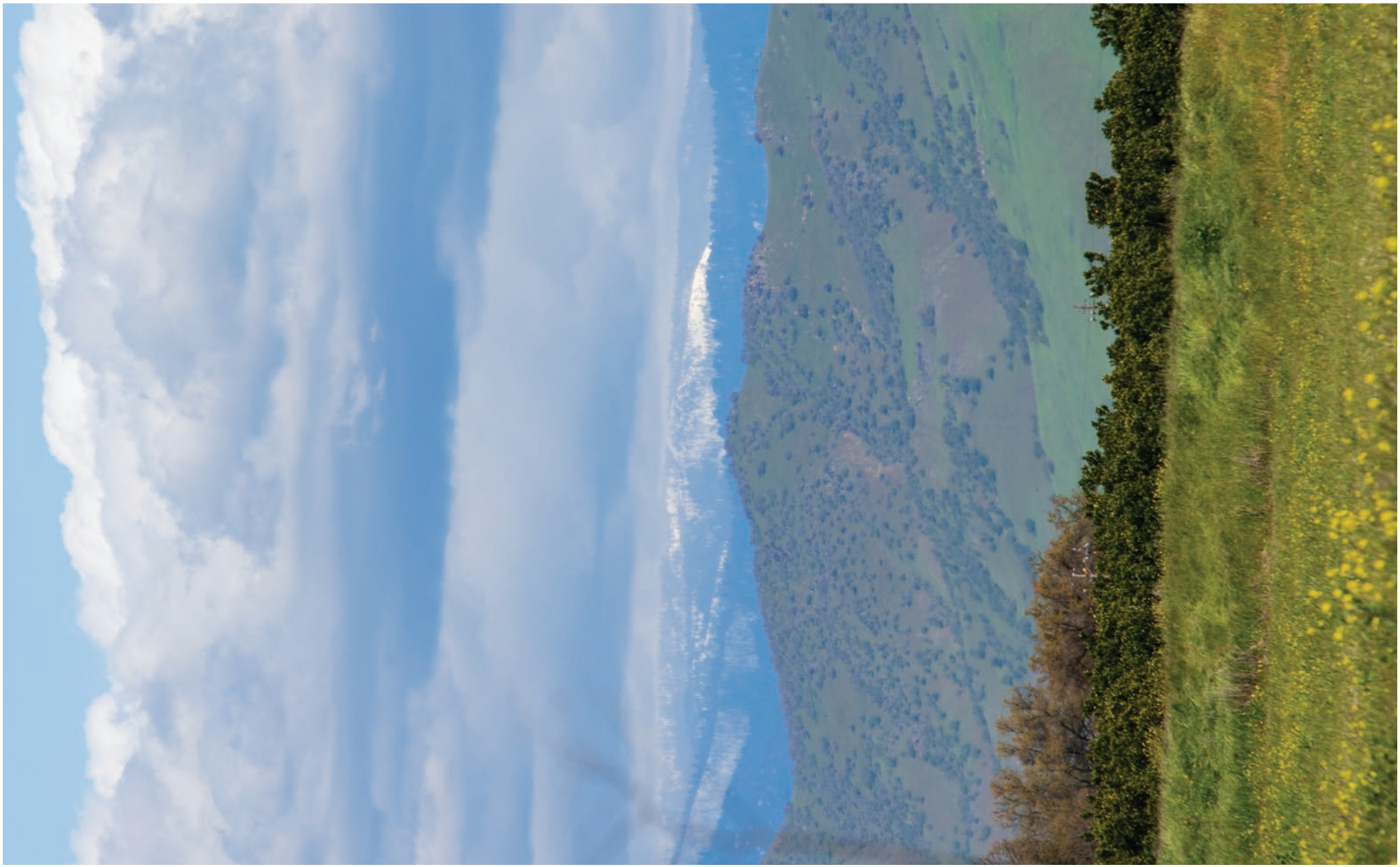

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TABLE OF CONTENTS

TABLE OF TABLES

Chapter 5: Demonstration of Federal Requirements for the 2012 Annual PM2.5 Standard

5.1 THE VALLEY'S ATTAINMENT CLASSIFICATION FOR THE 2012 PM2.5 NAAQS

The U.S. Environmental Protection Agency's (EPA) 2012 PM2.5 national ambient air quality standard (NAAQS, or standard) revised the annual average PM2.5 standard to 12 micrograms per cubic meter (µg/m³), while retaining the 24-hour standard of 35 µg/m³ set in 2006.[1] In 2015, EPA designated the Valley as Moderate nonattainment for the 2012 PM2.5 standard, with an attainment deadline of December 31, 2021. Under the federal Clean Air Act (CAA) Subpart 4, nonattainment areas are initially classified as "Moderate," with six years from its initial nonattainment designation date to reach attainment (though two one-year extensions are available in certain circumstances).[2] Areas may request reclassification to "Serious," with ten years from its initial attainment designation date to reach attainment.

Modeling and analysis by the San Joaquin Valley Air Pollution Control District (District) and the California Air Resources Board (CARB) demonstrated that the San Joaquin Valley (Valley) could not practicably attain the 2012 annual PM2.5 standard by the end of the sixth calendar year following the effective date of designation of the area (2021). Due to the impracticability of achieving the standard by the Moderate area attainment date, the District adopted the *2016 Moderate Area Plan for the 2012 PM2.5 Standard* (*2016 Moderate Plan*), including an attainment impracticability demonstration and a request for reclassification of the Valley from Moderate nonattainment to Serious nonattainment. Effective December 27, 2021, EPA finalized partial approval of the District's *2016 Moderate Plan* and reclassified the District as a Serious nonattainment area for the 2012 PM2.5 NAAQS, with an attainment deadline of December 31, 2025.[3]

The District and CARB previously addressed the Serious area requirements for the 2012 PM2.5 standard earlier than required as part of the integrated *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* (*2018 PM2.5 Plan*). The Serious area requirements were included in the *2018 PM2.5 Plan* in anticipation of EPA's reclassification of the Valley to Serious for the 2012 PM2.5 standard, years earlier than required in order to achieve early emissions reductions. In December 2021, EPA proposed approval of the Serious Plan for the 2012 PM2.5 standard, then reversed the decision and proposed disapproval in October 2022. In response to EPA's reversal, CARB withdrew the Serious Plan for the 2012 PM2.5 standard with District concurrence, and through revised and updated analysis developed this *2024 PM2.5 Plan* to address the Serious area requirements for the 2012 standard.

Despite the significant progress and stringent regulations on stationary and mobile sources, attainment by the current deadline of 2025 is not practicable, and extensive

[1] 78 FR 3086 (January 15, 2013). https://www.govinfo.gov/content/pkg/FR-2013-01-15/pdf/2012-30946.pdf
[2] 80 FR 2206 (January 15, 2015). https://www.govinfo.gov/content/pkg/FR-2015-01-15/pdf/2015-00021.pdf
[3] 86 FR 67343 (November 26, 2021). https://www.govinfo.gov/content/pkg/FR-2021-11-26/pdf/2021-25616.pdf

modeling demonstrates that the Valley will need additional emission reductions to meet the 2012 PM2.5 standard (Appendix J). Through this Serious Plan, the District is formally requesting an extension of the attainment deadline from 2025 to 2030 for the 2012 PM2.5 standard, pursuant to CAA §188(e).

5.2 FEDERAL REQUIREMENTS

This attainment Plan satisfies statutory requirements for a Serious nonattainment State Implementation Plan (SIP) submission and attainment extension request. Table 5-1 provides a summary of the requirements that are included in this Plan.

Table 5-1 Summary of Serious Nonattainment Area Plan Requirements

Serious Plan and Extension Request Elements	Source of Requirement	Location of Plan Where Element Satisfied
Current Attainment Date is Impracticable	40 CFR §51.1005(b)(1)(i)	Section 5.2.1 Appendix J
Compliance with Applicable SIP	40 CFR §51.1005(b)(1)(ii)	Section 5.2.2
Base Year and Attainment Projected Emissions Inventory	40 CFR §§51.1003(b), 51.1005(b)(2)(i) and 51.1008(b)	Appendix B
Identify Pollutants to be Addressed	CAA §189(e)	Appendices F and J
Best Available Control Measures (BACM) and Most Stringent Measures (MSM)	40 CFR §§51.1003(b), 51.1005(b)(1)(iii), and 51.1005(b)(2)(ii)	Section 5.2.3 Appendices C and D Attachment A
Attainment Demonstration and Modeling	40 CFR §§51.1005(b)(2)(iii) and 51.1011	Section 5.2.4 Appendices I and J
Reasonable Further Progress	40 CFR §§51.1005(b)(2)(iv) and 51.1012	Section 5.2.5 Appendix G
Quantitative Milestones	40 CFR §§51.1005(b)(2)(v) and 51.1013	Section 5.2.6 Appendix G
Contingency Measures	40 CFR §§51.1005(b)(2)(vi) and 51.1014	Section 5.2.7 Appendix G
Nonattainment New Source Review Plan Requirements	40 CFR §§51.1005(b)(2)(vii) and 51.165	Section 5.2.8 Appendix H
Transportation Conformity	40 CFR §51.1003(b and d)	Section 5.2.9 Appendix D

5.2.1 Demonstration of Impracticability

An impracticability demonstration uses modeling to show that the implementation of all best available control measures (BACM) and best available control technologies (BACT) will not bring the area into attainment by the statutory Serious area attainment date.[4] Modeling for this Plan (see Appendix J) demonstrates that the Valley cannot practicably attain the 2012 PM2.5 standard before the statutory deadline of December 31, 2025.

[4] CAA §189(b)(1)(A)

5.2.2 Compliance with the Applicable SIP

EPA interprets compliance with the applicable SIP to mean that "the state has implemented the control measures in the SIP revisions it has submitted to address the applicable requirements in CAA §§172 and 189."[5] The District's current SIP for the 2012 PM2.5 standard is the *2016 PM2.5 Plan*, which EPA approved as meeting Moderate area plan requirements (except for contingency measures), effective December 27, 2021.[6]

As a part of the development of the *2016 PM2.5 Plan*, the District followed EPA guidance for the control measure evaluation process for reasonably available control measures (RACM) and reasonably available control measures (RACT), and additional reasonable measures. The District did not identify any emission reduction opportunities that would qualify as RACT or additional feasible measures that could be made into commitments for rule amendments or rule adoptions to expedite attainment in the Valley and demonstrate RACM. Thus, the District satisfies the requirement for compliance with the applicable SIP.

5.2.3 Best Available Control Measures (BACM) and Most Stringent Measures (MSM)

As a part of the Serious area attainment demonstration for this standard, in addition to implementing all feasible measures identified as RACM and RACT through the Moderate area analysis, the District is required to identify, adopt, and implement the best available control measures feasible for implementation on sources of direct PM2.5 and significant PM2.5 precursors. The attainment plan submission must include provisions for the implementation of BACM no later than 4 years after reclassification of the area to Serious. As EPA reclassified the District to Serious nonattainment for the 2012 PM2.5 standard effective December 27, 2021, the District is required to implement BACM by 2025.

Additionally, to qualify for any extension of a Serious area attainment date, CAA §188(e) requires a state to ''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.'' The process for determining what qualifies as MSM includes the following:

a) Update emissions inventories (Appendix B);
b) Identify potential MSM (Appendices C and D);
c) Compare to control measures already adopted (Appendices C and D); and
d) Adopt and implement any technologically and economically feasible MSM that are more stringent than measures that are already approved into the SIP (Chapter 4).

[5] 81 FR 58094 (August 24, 2016). https://www.govinfo.gov/content/pkg/FR-2016-08-24/pdf/2016-18768.pdf
[6] 86 FR 67343 (November 26, 2021). https://www.govinfo.gov/content/pkg/FR-2021-11-26/pdf/2021-25616.pdf

EPA requires that implementation of MSM be as expeditious as practicable but no later than 1 year prior to the alternate Serious area attainment date. As the District is requesting an attainment date extension to 2030, MSM must be implemented no later than 2029.

To address initial elements required by the CAA for Serious PM2.5 nonattainment areas, the District and CARB developed the *Initial SIP Requirements for the 2012 Annual PM2.5 Standard* (*Initial SIP Requirements*), adopted by the District's Governing Board on October 19, 2023, and subsequently submitted to EPA through CARB on November 17, 2023, for inclusion in the SIP. The *Initial SIP Requirements* included an updated emissions inventory, precursor demonstration, and the demonstration that BACM requirements continue to be satisfied in the Valley.

Building on the analyses included in the *Initial SIP Requirements*, as part of this Plan, the District and CARB evaluated controls beyond BACM to identify potential MSM and determine the feasibility of implementing such measures in the Valley. Refer to Appendices C and D for these analyses. Additionally, Valley Metropolitan Planning Organizations evaluated local transportation control measures for potential MSM; this analysis is included in Attachment A. As discussed further in Chapter 4, all feasible control measures identified through these analyses will be implemented no later than 2029, satisfying MSM requirements.

5.2.4 Attainment Demonstration and Modeling

The Serious area Plan must demonstrate attainment, using air quality modeling, by the most expeditious date practicable after the statutory Serious area attainment date.[7] Although the Valley has some of the most stringent regulations in the nation that will continue to bring about significant reductions into the future, the Valley will need enormous additional emission reductions, specifically from sources that are under state and federal jurisdiction, in order to meet this standard. As shown below, and discussed in detail in Appendix J, attainment is not possible by the mandated Serious nonattainment area deadline of 2025 (based on 2017-2019 data). Air quality modeling demonstrates expeditious attainment of the standard in 2030.

5.2.4.1 Summary of Modeling Results

[This section provided by the California Air Resources Board]

Photochemical modeling plays a crucial role in demonstrating attainment of the national ambient air quality standards based on projected future year emissions. Currently, San Joaquin Valley (SJV or Valley) is designated as a serious nonattainment area for the 2012 annual $PM_{2.5}$ standard (12 µg/m^3) with an attainment deadline of 2030. Consistent with U.S. EPA guidance for model attainment demonstrations (U.S. EPA, 2018), photochemical modeling was used to project $PM_{2.5}$ design values (DVs) to the future.

[7] CAA §189(b)(1)(A)

2030 annual $PM_{2.5}$ DVs at each monitor in the Valley show attainment of the 2012 annual $PM_{2.5}$ standard.

The findings from the model attainment demonstration are summarized below. A detailed description of the model inputs, modeling procedures, and attainment test can be found in the Modeling Protocol and Attainment Demonstration Appendix of this document.

The current modeling approach draws on the products of large-scale, scientific studies as well as past $PM_{2.5}$ SIPs in the region, collaboration among technical staff at state and local regulatory agencies, and from participation in technical and policy groups in the region. In this work, the Weather Research and Forecasting (WRF) model version 4.21 was utilized to generate the annual meteorological fields. The Community Multiscale Air Quality (CMAQ) Model version 5.3.3 with state-of-the-science chemistry and aerosol treatment was used for modeling annual $PM_{2.5}$ in the Valley. Other model inputs and configuration, including the modeling domain definition, chemical mechanism, initial and boundary conditions, and emission processing can be found in the Modeling Protocol and Attainment Demonstration Appendix and Modeling Emissions Inventory Appendix.

The U.S. EPA modeling guidance (U.S. EPA, 2018)[8] recommends using modeling in a "relative" rather than "absolute" sense. Based on analysis of recent years' ambient $PM_{2.5}$ levels and meteorological conditions leading to elevated $PM_{2.5}$ concentrations, the year 2017 was selected for baseline modeling calculations. In particular, in 2017 SJV experienced one of the worst years for $PM_{2.5}$ pollution in the Valley within the last decade.

Specifying the baseline design value is a key consideration in the model attainment test, because this value is projected forward to the future and used to test for future attainment of the standard at each monitor. To minimize the influence of year-to-year variability in demonstrating attainment, the U.S. EPA modeling guidance recommends using the average of three DVs, where one of the DV years is the same as the baseline emissions inventory and modeling year. This average DV is referred to as the baseline (or reference) DV. Here, the average DVs from 2017, 2018, and 2019 are used to calculate baseline DVs (see Table 5-3 below for the baseline DVs utilized in the attainment demonstration modeling).

In order to use the modeling in a relative sense, three simulations were conducted: 1) base year simulation for 2017, which demonstrated that the model reasonably reproduced the observed $PM_{2.5}$ concentrations in the Valley; 2) reference (or baseline) year simulation for 2017, which was the same as the base year simulation, but excluded exceptional event emissions such as wildfires; and 3) future year simulations for 2030, which was the same as the reference year simulation, except projected anthropogenic emissions for 2030 were used in lieu of the 2017 emissions.

[8] U.S. EPA. (2018, 11 29). *Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze.* Retrieved from https://www.epa.gov/scram/sip-modeling-guidance-documents

Table 5-2 shows the 2017, 2030 baseline and 2030 attainment scenario SJV annual anthropogenic emissions for the five $PM_{2.5}$ precursors. These emission totals were calculated from the modeling inventory based on CEPAM 2019 version 1.04. Since the modeling inventory includes day-specific adjustments that are not included in the planning inventory, such as weekday/weekend differences in on-road mobile emissions, day-to-day changes in residential wood burning activity, and the effects of meteorology on ammonia emissions, the planning and modeling inventories are expected to be comparable but not identical. From 2017 to the 2030 attainment scenario, anthropogenic emissions in the SJV will drop approximately 64%, 12%, 19%, 2%, and 2% for Nitrogen Oxides (NOx), Reactive Organic Gases (ROG), primary $PM_{2.5}$, Sulfur Oxides (SOx), and NH_3, respectively. Among these five precursors, anthropogenic NOx emissions show the largest relative reduction, dropping from 216 tons/day in 2017 to 77 tons/day in 2030. Anthropogenic PM]$_{2.5}$ emissions will drop from 62 tons/day to 50 tons/day, reflecting a 19% reduction from 2017 to 2030. Compared to the 2030 baseline emissions, additional NOx and $PM_{2.5}$ emission reductions were implemented in the 2030 attainment inventories. Details about these additional emission reductions can be found in the Modeling Protocol and Attainment Demonstration Appendix, while the actual emission commitments are outlined in the SIP.

Table 5-2 SJV Model-Ready Annual Emissions for 2017, 2030 (baseline), and 2030 (attainment)

	Source Category	Stationary	Area	On-road Mobile	Other Mobile	Total	Change from 2017 to 2030
2017 (ton/day)	NOx	22.9	12.0	95.3	86.0	216.2	
	ROG	89.0	159.9	27.7	42.4	319	
	PM2.5	7.9	44.9	2.6	6.1	61.5	
	SOx	5.1	0.3	0.6	0.2	6.2	
	NH3	13.0	292.9	4.6	0.	310.5	
2030 baseline (ton/day)	NOx	18.5	6.0	20.3	53.3	98.1	-55%
	ROG	91.6	153.3	12.9	26.9	284.7	-11%
	PM2.5	6.8	38.2	1.4	4.1	50.5	-18%
	SOx	5.1	0.3	0.5	0.3	6.1	-2%
	NH3	14.2	284.3	6.7	0.1	305.2	-2%
2030 attainment (ton/day)	NOx	18.1	5.3	16.8	37.2	77.4	-64%
	ROG	91.6	153.1	12.7	23.6	281.0	-12%
	PM2.5	6.8	38.0	1.3	3.5	49.6	-19%
	SOx	5.1	0.3	0.5	0.3	6.1	-2%
	NH3	14.2	284.3	6.3	0.1	304.8	-2%

In the relative modeling approach, the fractional change (or ratio) in $PM_{2.5}$ concentration between the modeled future year (2030) and modeled baseline year (or reference year, 2017) are calculated. These ratios are called relative response factors (RRFs). Since $PM_{2.5}$ is comprised of different chemical species, which respond differently to changes in emissions of various pollutants, separate RRFs were calculated for individual $PM_{2.5}$ species. In addition, because of potential seasonal differences in $PM_{2.5}$ formation mechanisms, RRFs for each species were also calculated separately for each quarter.

The RRF for a specific $PM_{2.5}$ component j for each quarter is calculated using the following expression:

$$RRF_j = \frac{[C]_{j,\ future}}{[C]_{j,\ reference}} \quad (1)$$

Where for the annual $PM_{2.5}$ standard, $[C]_{j,\ future}$ is the modeled quarterly mean concentration for component j predicted for the future year averaged over the 3x3 array of grid cells surrounding the monitor, and $[C]_{j,reference}$ is the same, but for the reference year simulation.

The measured FRM/FEM (i.e., Federal Reference Method/Federal Equivalent Method) $PM_{2.5}$ must be separated into its various chemical components. Species concentrations were obtained from the four $PM_{2.5}$ chemical speciation sites in the Valley. These four speciation sites are located at: Bakersfield – California Avenue, Fresno – Garland, Visalia – North Church, and Modesto – 14th Street. Since not all of the 17 FRM/FEM $PM_{2.5}$ sites in the Valley have collocated speciation monitors, the speciated $PM_{2.5}$ measurements at one of the four speciation sites were utilized to represent the speciation profile at each of the FRM/FEM sites based on geographic proximity, analysis of local emission sources, and measurements from previous field studies. Based on completeness of the data, $PM_{2.5}$ speciation data from 2015 – 2019 were utilized. For each quarter, percentage contributions from individual chemical species to FRM/FEM $PM_{2.5}$ mass were calculated as the average of the corresponding quarter from 2015-2019 for the annual standard calculation. [9]

Projected 2030 annual $PM_{2.5}$ DVs for all sites are given in Table 5-3. For the annual standard, the Bakersfield-Planz site has the highest projected DV at 12.0 $\mu g/m^3$, rounded to the nearest tenths digit following the U.S. EPA's guidance (U.S. EPA 2018). This DV meets the 2012 annual $PM_{2.5}$ standard of 12 $\mu g/m^3$. Since projecting future year $PM_{2.5}$ DVs is performed by projecting individual $PM_{2.5}$ components and then summing those components to get the total $PM_{2.5}$, it is useful to examine the RRFs associated with individual components to evaluate how the changes in each component contribute to the overall change in $PM_{2.5}$. From 2017 to 2030, there are substantial reductions projected for ammonium nitrate, Elemental Carbon (EC), and Organic Matter (OM), a slight decrease in sulfate, but a slight increase in crustal material (i.e., other primary $PM_{2.5}$ such as fugitive dust emissions). The reduction in ammonium nitrate is a direct result of NO_x emission reductions in 2030 compared to 2017, while EC and OM reductions are primarily tied to the reduction in primary $PM_{2.5}$ emissions. Detailed RRFs and base/future year concentrations for each individual species can be found in the Modeling Protocol and Attainment Demonstration Appendix.

To evaluate the impact of reducing emissions of different $PM_{2.5}$ precursors to $PM_{2.5}$ DVs, a series of model sensitivity simulations were performed, for which anthropogenic emissions within the SJV were reduced by a certain percentage from the baseline

[9] Frank, N. H. (2006). Retained Nitrate, Hydrated Sulfates, and Carbonaceous Mass in Federal Reference Method Fine Particulate Matter for Six Eastern U.S. Cities. *Journal of the Air & Waste Management Association, 56*(4), 500-511. doi:10.1080/10473289.2006.10464517

emissions. Following U.S. EPA precursor demonstration guidance (U.S. EPA, 2016) [10] as well as considering SJV's control strategies, sensitivity runs involving 30% emission reductions were performed for NOx and direct $PM_{2.5}$. For other precursors (i.e., ammonia, VOCs, and SOx), both 30% and 70% emission reductions were performed. In addition, sensitivity simulations were performed for years 2017 and 2030. The key conclusion from the sensitivity runs is that in 2030, reductions of direct $PM_{2.5}$ and NOx emissions will continue to have a significant impact on annual $PM_{2.5}$ DVs, while reductions of ammonia, ROG, and SOx have a much smaller impact compared to that of direct $PM_{2.5}$ and NOx.

The U.S. EPA attainment modeling guidance also recommends conducting an unmonitored area analysis to ensure that there are no regions outside of the existing monitoring network that could exceed the standard if a monitor was present at that location. Following the U.S. EPA recommended methodology, this unmonitored area analysis shows that in 2030, every modeling grid cell within the SJV meets the 2012 annual $PM_{2.5}$ standards except for a small area surrounding the Lemoore military facility due to emissions from the operations at that facility.

Table 5-3 2017 baseline and projected 2030 future year annual $PM_{2.5}$ DVs at each monitor

Site AQS ID	Name	Base DV (µg/m^3)	2030 Annual DV (µg/m^3)	2030 Annual DV (µg/m^3, rounded to the tenths digit)
60290016	Bakersfield - Planz	16.97	11.98	12.0
60311004	Hanford	15.73	11.04	11.0
60290010	Bakersfield - Golden	15.52	10.82	10.8
61072002	Visalia	15.43	10.50	10.5
60290014	Bakersfield - Cal. Ave.	15.12	10.52	10.5
60310004	Corcoran	14.95	10.90	10.9
60195025	Fresno - Hamilton	13.99	9.81	9.8
60190011	Fresno - Garland	13.69	9.49	9.5
60990006	Turlock	12.7	9.69	9.7
60195001	Clovis	12.69	8.99	9.0
60470003	Merced - S. Coffee	12.28	9.31	9.3
60771002	Stockton	12.21	10.16	10.2
60392010	Madera	12.11	8.75	8.8
60472510	Merced - M. Street	11.73	8.73	8.7
60990005	Modesto	11.16	8.54	8.5
60772010	Manteca	10.37	8.38	8.4
60192009	Tranquility	8.19	6.37	6.4

[10] U.S. EPA. (2016). *PM2.5 Precursor Demonstration Guidance*. Retrieved from: https://www.epa.gov/sites/production/files/2016-11/documents/transmittal_memo_and_draft_pm25_precursor_demo_guidance_11_17_16.pdf

5.2.4.2 Attainment Demonstration

Attaining federal health-based air quality standards is an important milestone for improving public health. As detailed in Appendix J, this Plan demonstrates that the Valley will attain the federal 2012 PM2.5 standard as expeditiously as practicable, with all feasible measures and strategies being implemented to accomplish this goal.

The attainment demonstration for this Plan includes the benefits of CARB and District control programs that provide ongoing emission reductions, as well as new measure commitments that will be implemented according to the schedule included in Chapter 4. The PM2.5 and NOx reductions result from implementation of MSM, which includes the ongoing implementation of stringent regulations for stationary and area sources under the District's jurisdiction, in addition to the implementation of stringent requirements for mobile sources under CARB's jurisdiction. Appendices C and D contain the evaluations of BACM and MSM feasible for implementation in the Valley.

Given the expeditious timeframe of the District and CARB's aggressive control strategy that will achieve the enormous amount of emissions reductions necessary to bring the Valley into attainment, this Plan demonstrates that the Valley will attain the standard as expeditiously as practicable, as validated in Appendix G. Modeling performed by CARB and the District demonstrates the Valley will attain the 2012 PM2.5 standard in 2030. See above for the summary of modeling results and Appendix J for more detail.

5.2.5 Reasonable Further Progress (RFP)

This CAA §189(d) Plan must demonstrate Reasonable Further Progress (RFP) pursuant to 40 CFR §§51.1003(c)(1)(v) and 51.1012.[11] RFP is the incremental emission reductions leading to the attainment date of a standard for an area. Refer to Appendix G for a full description and the RFP demonstration.

5.2.6 Quantitative Milestones

CAA Subpart 4 §189(c)(1) requires Plans submitted to EPA to contain quantitative milestones which are to be achieved every three years until the area is re-designated attainment and which demonstrate reasonable further progress as defined in CAA §171.

For a Serious nonattainment area, the quantitative milestones shall be achieved no later than milestone dates of 7.5 and 10.5 years from the date of designation. The Valley was designated Nonattainment for the 2012 PM2.5 NAAQS effective on April 15, 2015.[12] Therefore, the future quantitative milestones dates for the 2012 PM2.5 NAAQS for the San Joaquin Valley are 2025, 2028, and 2031.[13] Please refer to Appendix G for specific quantitative milestones.

[11] See also 81 FR 58103-58104
[12] 80 FR 2206 (January 15, 2015). https://www.govinfo.gov/content/pkg/FR-2015-01-15/pdf/2015-00021.pdf
[13] 40 CFR 51.1013(a)

5.2.7 Contingency Measures

All PM2.5 attainment Plans must contain contingency measures that are consistent with CAA §172(c)(9) and 40 CFR §51.1014. Contingency measures are additional control measures to be implemented in the event that EPA issues final rulemaking that the Valley failed to meet a regulatory requirement necessitating implementation of a contingency measure. Due to the difficulty nonattainment areas face in addressing CAA contingency requirements in light of the recent court decisions, described further in Appendix G, the District, CARB, and other agencies have urged EPA to provide updated federal guidance. In response, EPA developed the *Draft Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter* (*Draft Guidance*)[14] on March 17, 2023. The District and CARB have addressed contingency measure requirements for this Plan pursuant to the *Draft Guidance*, as presented in Appendix G.

5.2.8 Fulfillment of Serious Area Permitting Requirements

Pursuant to The District's New and Modified Stationary Source Review Rule (Rule 2201) is designed to meet state and federal NNSR requirements, and applies to new and modified stationary sources that emit NOx, VOC, PM10, PM2.5, SOx, CO, and other pollutants subject to District permitting requirements. Subpart 4 §189(b)(3) of the CAA requires areas designated as Serious nonattainment to establish the "major stationary source" threshold at 70 tpy. Rule 2201 sets the major source emission thresholds at 10 tpy for NOx and 70 tpy for PM2.5, which meets the CAA requirements specified in Subpart 4 §189(b)(3) for areas designated as Serious nonattainment.

The District adopted amendments to Rule 2201 on August 15, 2019, which CARB submitted to EPA for inclusion in California's SIP on November 20, 2019. EPA published findings in the Federal Register on July 29, 2022, of its evaluation of the rule for meeting the applicable CAA requirements for state NSR programs, as well as other CAA general requirements for SIP submittals. From its evaluation, EPA proposed approval of the majority of the District's amendments, and also provided specific comments.[15] The District adopted amendments to Rule 2201 on April 20, 2023, to address EPA's comments, which CARB submitted to EPA for inclusion in California's SIP on October 13, 2023.

[14] EPA. *DRAFT: Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter.* March 17, 2023. Retrieved from: https://www.epa.gov/system/files/documents/2023-03/CMTF%202022%20guidance%203-17-23.pdf

[15] 87 FR 45730, *Limited Approval and Limited Disapproval of California Air Plan Revisions; San Joaquin Valley Air Pollution Control District; Stationary Source Permits*

5.2.9 Transportation Conformity

This CAA §189(d) Plan must include transportation conformity budgets for the attainment year pursuant to 40 CFR §51.1003(d).[16] Refer to Appendix D for more information.

5.2.10 Title VI of the Civil Rights Act of 1964

Title VI of the U.S. Civil Rights Act of 1964 (Title VI) provides that no person in the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.[17] Other relevant federal laws prohibit discrimination in the use of federal funds based on disability, sex and age.[18] As a recipient of federal funds and assistance from EPA, CARB and the District must ensure they comply with Title VI and U.S. EPA's Title VI implementation regulations in its relevant programs and activities.[19]

5.2.10.1 District Compliance with Title VI

The District has a long history of robust community engagement and dedication to the achievement of environmental justice in all of its programs, originating from Governing Board adopted Core Values that were laid down over a decade ago and are key to the District's commitment to a culture of inclusivity, including:

> **Respect for the Opinions and Interest of All Valley Residents** – The District shall respect the interests and opinions of all Valley residents and fully consider these opinions, seeking collaboration with federal, state, and local agencies, agriculture, businesses, community groups and residents in carrying out the District's mission.
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> **Robust Public Outreach and Education on Valley Air Quality Progress and Continuing Air Quality Efforts** – As we move forward in achieving our mission, the District shall continue its ongoing efforts to educate the public about air quality, and the significant clean air investments and air quality progress that have been made in the Valley.
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> **Accountability to the public** – The District serves, and is ultimately accountable to, the people of the Valley for the wise and appropriate use of public resources, and for accomplishing the District's mission with integrity and honesty.

[16] See also 81 FR 58103.
[17] 42 U.S.C. Section 2000d to 2000d-7
[18] Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. §794; Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. §§1681 et seq.; Age Discrimination Act of 1975, 42 U.S.C. §§6101 et seq.; and Federal Water Pollution Control Act Amendments of 1972, Pub. L. 92-500 §13, 86 Stat. 903 (codified as amended at 33 U.S.C. §1251 (1972))
[19] 40 CFR Part 7; §7.15

Open and transparent public processes – The District shall continue to provide meaningful opportunities for public input and be responsive to all public inquiries.

The District's Core Values provide the backdrop for fair and equal access to the benefits of any program or activity administered by the District, and to prohibit and prevent discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by the District.

In accordance with the District's Accessibility and Non-Discrimination Notice and Policy, the District is committed to an open and transparent public participation process in all activities including the permitting process, rulemaking, plan development and enforcement. The District's policy is to also prohibit and prevent retaliation or intimidation against any individual or group because they have exercised their rights to participate in any program or activity offered or conducted by the District, or to oppose any action prohibited by this Policy. Members of the public who believe they or others were unlawfully denied full and equal access to a District program or activity may file a discrimination complaint with the District under this policy. This non-discrimination policy also applies to other people or entities affiliated with the District, including contractors or grantees that the District utilizes to provide benefits and services to members of the public who must administer its programs and activities without regard to race, color, national original, sex, age, disability, socioeconomic status, or any other legally protected basis. More information regarding the District's Accessibility and Non-Discrimination Notice and Policy is available on the District's website at https://ww2.valleyair.org/about/accessibility-and-non-discrimination/.

As an important component of the District's public participation process, the District solicits input from the Citizen's Advisory Committee (CAC), which includes representatives from industrial, governmental and environmental interests. The CAC was formed under the California Health and Safety Code for the purpose of soliciting public input and sharing information with the public regarding District activities.

In addition, the District is dedicated to the achievement of Environmental Justice to protect the health of Valley residents that may be disproportionately affected by air pollution. To this endeavor, the District has a long standing Environmental Justice Strategy, which is a living document that was developed beginning in 2004, formally adopted in 2007, and amended several times, most recently in 2015.[20] The District developed this Environmental Justice Strategy to identify and address any gaps in existing programs, policies, and activities that may impede the achievement of environmental justice. This strategy is the overarching environmental justice vision for the District. It sets forth the mission and goals that will guide the District in further integrating environmental justice into programs, policies and activities. The Environmental Justice Strategy is the product of collaboration between District staff and environmental justice advocates. Out of the Environmental Justice Strategy came the Environmental Justice Advisory Group (EJAG) that meets monthly in a public forum to

[20] SJVAPCD. *Environmental Justice Strategy*. Amended May 7, 2015. Retrieved from: https://ww2.valleyair.org/media/xzhpycbe/ej-strategy.pdf

provide advice and guidance to the District with respect to the implementation of the Environmental Justice Strategy. The EJAG also works to collaboratively educate the public and community stakeholders about current District activities and air quality in general.

More recently, through meaningful and effective implementation of Assembly Bill 617 (AB 617), the District has been actively participating with and facilitating full engagement of all sectors within each of the Valley's selected disadvantaged communities. AB 617, signed into law in July 2017, initiated a statewide effort to monitor and reduce localized air pollution, and highly improve public health, in communities that experience disproportionate burdens from exposure to air pollutants through new community-focused and community-driven actions. The communities of South Central Fresno, Shafter, Stockton, and Arvin/Lamont have been prioritized by the District and subsequently selected by CARB as communities in the San Joaquin Valley to receive clean air resources available under AB 617, based on a technical analysis of several pollution and poverty-related criteria. AB 617 provides mechanisms and resources to implement community-specific air quality monitoring networks; to develop, implement, and track emission reduction programs; to improve availability of data and other technical information; and to invest substantial funding in the community through voluntary incentive funding measures. Importantly, these measures are guided by advice and knowledge of local community members, through their input and involvement on Steering Committees for each AB 617-selected community.

The District has a long history of building partnerships to find effective, efficient, and innovative strategies for improving air quality and protecting the health of the Valley's most vulnerable populations. Ensuring Valley residents have equitable access to all District programs and resources is crucial to the District's mission of improving public health in the Valley. To support these efforts, the District continuously seeks community input in the implementation of environmental justice strategies to help communities disproportionately impacted by economic and environmental inequities. The District has committed to continuously work closely with Valley residents and stakeholders to help communities disproportionately impacted by economic and environmental inequities by forging new partnerships with businesses, and identifying and leveraging clean air opportunities. The District has prioritized outreach efforts in communities most in need by building partnerships with schools and community based organizations, attending community events, and ensuring engagement materials and presentations are available in multiple languages. To provide equitable access to the District's programs, the District has continued to work directly in impacted communities and ensure events are accessible to those that need it most.

Consistent with the District's mission and efforts mentioned above, the District conducts a robust public process to ensure meaningful public engagement in developing attainment plans and regulations. In March 2023, the District held an initial workshop to begin the public process for this Plan, and to solicit suggestions for actions the District could take to encourage and facilitate more robust public engagement throughout plan development. The District received requests to hold workshops in the evenings to accommodate those who work during the day, provide timely public notice of

workshops, and provide adequate opportunity for the public to comment on specific control measures for this Plan's strategy. In response to these requests, the District scheduled all subsequent workshops in the evening and notified the public of workshops as early as possible. Additionally, throughout the public process for the development of this Plan, the District presented all potential control measures evaluated as part of this Plan, including those suggested by the public, and provided opportunities for the public and interested stakeholders to offer comments and suggestions to help guide strategy development.

The public was notified in advance of public workshops via the District's email lists and website, and other public forums. To promote an equitable public process, workshop materials were made available in English and Spanish, and the District provided simultaneous Spanish interpretation during all plan development workshops. Simultaneous interpretation in other languages was made available upon request. In addition, the District conducted the workshops through a hybrid approach, where members of the public are welcome to attend either in person, or join virtually through a real-time webinar environment. Finally, through the public process, the District provided regular updates at District Governing Board meetings, CAC meetings, and EJAG meetings.

The District provided 30 days for public review of plan documents, and invited public comment throughout the entire public process. The comments received as a result of this robust engagement effort were integrated into the Plan as feasible. Measures suggested by the public that are included as proposed measures/strategies in this Plan include further reductions from residential wood burning, and ongoing evaluation of building electrification opportunities. Further information on the public process for the development of this Plan, including details of public meetings, is included in Chapter 1.

5.2.10.2 CARB Compliance with Title VI

In developing the 2022 State SIP Strategy's robust suite of control measures, CARB staff engaged in a thorough public process that addresses the requirements of Title VI. CARB will continue to address the requirements of Title VI in implementation of the 2022 State SIP Strategy and related Clean Air Act implementation activities. Written guidance from U.S. EPA is needed to provide additional detail on Title VI requirements and expectations and support for effective implementation efforts.

Many low-income and disadvantaged communities in nonattainment areas, and across the State, continue to experience disproportionately high levels of air pollution and the resulting detrimental impacts to their health. Research shows large disparities in exposure to pollution between disadvantaged communities and other communities. There are disparities between white and non-white populations in California, with Black and Latino populations experiencing significantly greater air pollution impacts than white populations. Mobile source pollution exposures show some of the highest disparities. Mobile sources are the largest sources of pollution exposure disparity for Black populations and disadvantaged community residents, when compared to the average population in California. Specifically, mobile sources accounted for 45% of exposure

disparity for the Black population, and 37% of exposure disparity for people in disadvantaged communities.[21] While significant progress has been made in reducing mobile and stationary source pollution in California through regulatory and other program activities, disparities in the location of pollution and cumulative exposures continue.

In 2023, CARB adopted the following Vision for Racial Equity to guide our external work, including the implementation of the Community Air Protection Program. CARB commits to just social change by working at all levels within the organization and externally to address environmental injustices and advance racial equity in the achievement of its mission. CARB works toward a future where all Californians breathe healthy and clean air, benefit from actions to address climate change, and where race is no longer a predictor of life outcomes. In working to realize this vision, CARB prioritizes environmental justice, uses tools to operationalize racial equity, and conducts meaningful community engagement in its policy and planning efforts and programs to address the longstanding environmental and health inequities from elevated levels of toxic air contaminants, criteria pollutants, and secondary impacts of climate change. It is imperative to optimize California's control programs to maximize emissions reductions and provide targeted near-term benefits in those communities that continue to bear the brunt of poor air quality. Specific efforts include a commitment to apply a racial equity lens in considering benefits and burdens of CARB's programs and policies, including regulatory actions. A racial equity lens is a set of questions to estimate impacts and benefits on the basis of race, ethnicity or other relevant categories, and considering alternatives.

Using a racial equity lens also requires a commitment to meaningful community engagement. In support of this commitment as part of the development of the 2022 State SIP Strategy, CARB contracted a number of community experts to vet and refine a model framework for community engagement. As noted above, while significant progress has been made to address air pollution statewide and in local communities, ensuring all Californians have access to healthy air quality is imperative.

In addition to these important efforts, the 2022 State SIP Strategy measures such as the Advanced Clean Fleets and In-Use Locomotive Regulations will reduce mobile source emissions from heavy-duty trucks and other sources around warehouses, railyards, and ports, as well as reducing other emissions, which in turn will reduce corresponding health risk in California's most impacted communities.

CARB prioritized public participation as an essential part of developing the measures included in the 2022 State SIP Strategy. CARB initiated the public process for the 2022 State SIP Strategy with a workshop in July 2021. After the workshop, CARB staff reached out to and met with a number of community-based organizations who provided input on the potential control measures. CARB released the 2022 State SIP Strategy: Draft Measures document which considered the input from the community-based organizations and comments received during the first workshop.

[21] Apte et al (2019). A Method to Prioritize Sources for Reducing High PM2.5 Exposures in Environmental Justice Communities in California. CARB Research Contract Number 17RD006

CARB staff held a second workshop discussing the Draft Measures document in October 2021 and received additional input from a broad array of interested parties. The workshop provided a detailed discussion on the potential measures and allowed for the public and interested parties to comment on every facet of each potential measure. CARB staff also participated in the San Joaquin Valley measure workshops as part of their SIP development process. CARB staff released the Draft 2022 State SIP Strategy in January 2022, prior to a third workshop, and presented an informational update to the Board at the Board Meeting in February 2022 to discuss and obtain public feedback. The input from numerous interested parties and community-based organizations framed the control measures in the Strategy such as the Zero-Emissions Trucks and Pesticide Measures.

These workshops and Board updates provided forums in both English and Spanish and afforded any special accommodations if requested to facilitate discussing the proposed measures in a public setting and to provide additional opportunity for public feedback, input, and ideas. And finally, CARB released the Proposed 2022 State SIP Strategy and hosted our 4th workshop in August 2022, prior to the CARB Board adopting the 2022 State SIP Strategy in September 2022. The workshops were well attended by a wide range of interested parties including community-based organizations. CARB staff listened to interested parties, evaluated their recommendations, and included some of these recommendations as measures that were appropriate for the 2022 State SIP Strategy. In order for a public suggestion to be included as a SIP measure, it needed to meet U.S. EPA-required integrity elements. SIP measures are required to be quantifiable, enforceable, surplus, and permanent. Measures suggested by the public that were ultimately adopted in the 2022 State SIP Strategy include a regulation to reduce emissions of reactive organic gas from pesticides in collaboration with the California Department of Pesticide Regulation and a zero-emission truck measure to help ensure that smaller trucking companies have more consistent access to zero-emission truck incentives.

Following the Board's approval of the 2022 State SIP Strategy, the public engagement process continues as each measure within the strategy goes through its own public process to engage with impacted communities and interested parties to further develop the measures prior to being brought to the Board for consideration as a regulation or other program. As development and implementation of these measures progress, CARB staff will continue to identify and implement opportunities to mitigate air pollution associated with racial inequities and meaningfully engage and partner with communities most impacted to address long standing disparities and challenges. As CARB cannot do this alone, CARB will also continue to partner with other authorities such as air districts including the San Joaquin Valley APCD, other State agencies, and the federal government to ensure emissions reduction are achieved.

These connected efforts, as well as interagency efforts, will provide additional pathways to address Title VI requirements and support achieving the goal where ZIP Code or race does not predict air pollution exposures. CARB has reviewed U.S. EPA and U.S. Department of Justice resources for Title VI and environmental justice policies, and

looks forward to written guidance from U.S. EPA to address Clean Air Act section 110(a)(2)(E) as the State develops future clean air plans.

Civil Rights Policy and Discrimination Complaint Process

Under CARB's written Civil Rights Policy and Discrimination Complaint process (Civil Rights Policy), CARB has a policy of nondiscrimination in its programs and activities and implements a process for discrimination complaints filed with CARB, which is available on CARB's website. The Civil Rights Officer coordinates implementation of CARB's nondiscrimination activities, including as the Equal Employment Opportunity (EEO) Officer for employment purposes, and who can be reached at *EEOP@arb.ca.gov*, or (279) 208-7110.[22]

The Civil Rights Policy and Discrimination Complaint Process provides the following information about the nondiscrimination policy and its applicability:

> It is CARB policy to provide fair and equal access to the benefits of a program or activity administered by CARB. CARB will not tolerate discrimination against any person(s) seeking to participate in, or receive the benefits of, any program or activity offered or conducted by CARB. Members of the public who believe they were unlawfully denied full and equal access to a CARB program or activity may file a civil rights complaint with CARB under this policy. This non-discrimination policy also applies to people or entities, including contractors, subcontractors, or grantees that CARB utilizes to provide benefits and services to members of the public. [. . .]

As described in the Civil Rights Policy and Discrimination Complaint Process, the Civil Rights Officer coordinates implementation of nondiscrimination activities:

> CARB's Executive Officer will have final authority and responsibility for compliance with this policy. CARB's Civil Rights Officer, on behalf of the Executive Officer, will coordinate this policy's implementation within CARB, including work with the Ombudsman's Office, Office of Communications, and the staff and managers within a program or activity offered by CARB. The Civil Rights Officer coordinates compliance efforts, receives inquiries concerning non-discrimination requirements, and ensures CARB is complying with state and federal reporting and record retention requirements, including those required by Code of Federal Regulations, title 40, section 7.10 et seq.

The Civil Rights Policy and Discrimination Complaint Process also describes in detail the complaint procedure, as follows:

[22] CARB. California Air Resources Board and Civil Rights. *https://ww2.arb.ca.gov/california-air-resources-board-and-civil-rights*; Civil Rights Policy and Discrimination Compliant Process. November 1, 2016. *https://ww2.arb.ca.gov/sites/default/files/2023-01/2016-11-03%20CARB%20Civil%20Rights%20Policy%20Revised%20Final.pdf*

> A Civil rights complaint may be filed against CARB or other people or entities affiliated with CARB, including contractors, subcontractors, or grantees that CARB utilizes to provide benefits and services to members of the public. The complainant must file his or her complaint within one year of the alleged discrimination. This one-year time limit may be extended up to, but no more than, an additional 90 days if the complainant first obtained knowledge of the facts of the alleged violation after the expiration of the one-year time limit. [. . .]
>
> The Civil Rights Officer will review the facts presented and collected and reach a determination on the merits of the complaint based on a preponderance of the evidence. The Civil Rights Officer will inform the complainant in writing when CARB has reached a determination on the merits of the discrimination complaint. Where the complainant has articulated facts that do not appear discriminatory but warrants further review, the Civil Rights Officer, in his or her discretion, may forward the complaint to a party within CARB for action. The Civil Rights Officer will inform the complainant, either verbally or in writing, before facilitating the transfer. [. . .]
>
> CARB will not tolerate retaliation against a complainant or a participant in the complaint process. Anyone who believes that they have been subject to retaliation in violation of this policy may file a complaint of retaliation with CARB following the procedures outlined in this policy.

There is a Civil Rights Complaint Form available[23] on the webpage, which should be used by members of the public to file a complaint of discrimination against CARB that an individual believes occurred during the administration of its programs and services offered to the public. As described on CARB's webpage, for all complaints submitted, the Civil Rights Officer will review the complaint to determine if there is a prima facie complaint (which means, if all facts alleged were true, would a violation of the applicable policy exist). If the Civil Rights Officer identifies a prima facie complaint in the jurisdiction of the Civil Rights Office, the Civil Rights Office will investigate and determine whether there is a violation of the policy.

The laws and regulations that CARB implements through this policy include:

- Code of Federal Regulations, Title 40 Parts 5 and 7;
- Title VI of the U.S. Civil Rights Act of 1964, as amended;
- Section 504 of the Rehabilitation Act of 1973;
- Age Discrimination Act of 1975;
- Title IX of the Education Amendments of 1972;
- California Government Code, title 2, Division 3, Part 1, Chapter 2, Article 9.5, *Discrimination*, section 11135 et seq.; and
- California Code of Regulations, title 2, section 10000 et seq.

[23] CARB. Civil Rights Complaint Form. July 2019. *https://ww2.arb.ca.gov/sites/default/files/2023-01/eo_eeo_033_civil_rights_complaints_form.pdf*

As part of its overarching civil rights and environmental justice efforts, CARB is in the process of updating its Civil Rights Policy and will make those publicly available once complete. These updates will reflect available U.S. EPA and U.S. Department of Justice resources for Title VI and environmental justice policies. CARB encourages U.S. EPA to issue additional guidance to further clarify Title VI requirements and expectations to assist state implementation efforts.