Staff Report

Review of the San Joaquin Valley 2024 Plan for the 2012 12 µg/m3 Annual PM2.5 Standard and Amendments to the Agricultural Equipment Incentive Measure and the 1997 15 µg/m3 State Implementation Plan Revision

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CALIFORNIA
AIR RESOURCES BOARD

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Executive Summary

This report presents the California Air Resources Board (CARB or Board) staff assessment of the San Joaquin Valley Air Pollution Control District (District) *2024 Plan for the 2012 PM2.5 Standard* (2024 PM2.5 Plan or Plan). The Plan sets forth a strategy to attain the 2012 annual fine particulate matter (PM2.5) National Ambient Air Quality Standard (NAAQS or standard) of 12 micrograms per cubic meter (µg/m3) by 2030. Also, in this report CARB is proposing a State Implementation Plan (SIP) revision to amend the *San Joaquin Valley Agricultural Equipment Incentive Measure* (Valley Incentive Measure) to quantify emission reductions in 2023 and include the amendment in the *State Implementation Plan Revision for the 15 µg/m3 Annual PM2.5 Standard for the San Joaquin Valley* (15 µg/m3 SIP Revision).

The Clean Air Act (Act) establishes SIP planning requirements for the areas that exceed the health-based NAAQS. These areas, known as nonattainment areas, must develop a SIP that demonstrates that they will attain the standard by specified dates and addresses other requirements. The San Joaquin Valley Air Basin (San Joaquin Valley or Valley) is classified under the Act as a serious nonattainment area for the 12 µg/m3 annual PM2.5 standard and currently has an attainment deadline of 2025. As described in the 2024 PM2.5 Plan, due to the impracticability of attaining the standard by 2025, the District is requesting an attainment date extension to 2030.

Based on air quality modeling, the 2024 PM2.5 Plan demonstrates that the Valley will attain the 12 µg/m3 annual PM2.5 standard as expeditiously as practicable by the 2030 attainment deadline as a result of emissions reductions from implementing the CARB and District control measures in the Plan. The base year used for the emissions inventory and the air quality modeling is 2017. In 2017, the San Joaquin Valley monitoring site with the highest annual PM2.5 design value (3-year average of annual average PM2.5 levels) is Bakersfield-Planz, with an annual design value of 16.97 µg/m3. In 2030, Bakersfield-Planz remains the site with the highest projected annual PM2.5 levels. After implementation of the 2024 PM2.5 Plan strategy, Bakersfield-Planz is projected to have a 2030 attainment year annual design value of 11.98 µg/m3, which is below the annual PM2.5 standard of 12.0 µg/m3.

The 2024 PM2.5 Plan control strategy builds on current CARB and District controls on mobile, stationary, and area sources. The control programs developed for previous PM2.5 and ozone SIPs provide the bulk of the reductions needed for attainment in 2030. The 2024 PM2.5 Plan also relies on commitments from CARB and the District to strengthen or add new measures that provide additional emissions reductions needed to demonstrate attainment. Commitments are in the form of both regulatory and incentive-based measures. Funding for the incentive-based measures has already been identified. CARB is committing in the 2024 PM2.5 Plan to aggregate emissions reductions of 7.3 tons per day (tpd) of oxides of nitrogen (NOx) and 0.2 tpd PM2.5 in 2030. The District is committing in the 2024 PM2.5 Plan to aggregate emissions reductions of 0.02 tpd PM2.5 in 2030. Taken together, CARB and District measures implemented for the 2024 PM2.5 Plan will provide significant air quality benefits for the Valley and provide for attainment of the 12.0 µg/m3 annual PM2.5 standard.

U.S. EPA modeling guidance requires that modeled attainment demonstrations be accompanied by a Weight of Evidence (WOE) analysis to provide a set of complementary analyses. Examining an air quality problem in a variety of ways provides a more informed basis for the attainment strategy as well as better understanding of the overall problem and the level and mix of emissions controls needed for attainment. CARB staff prepared the WOE, provided in Appendix A to this Staff Report, which includes an assessment of PM2.5 air quality trends, PM2.5 precursor emission trends, meteorology impacts on PM2.5 air quality trends, and a summary of corroborating analyses. The WOE indicates that the San Joaquin Valley is on track to attain the 12 µg/m3 annual PM2.5 standard by the 2030 attainment date, which is consistent with design value projections derived from the regional air quality modeling.

CARB staff used the U.S. Environmental Protection Agency (U.S. EPA) Environmental Benefits Mapping and Analysis Program (BenMAP) tool[1] to provide a quantitative estimate of the cases of avoided mortality and morbidity outcomes associated with modeled changes in PM2.5 between the business-as-usual (or baseline) and the attainment control strategy for 2030. CARB staff analyzed the value of health benefits associated with 12 health outcomes: cardiopulmonary mortality, acute myocardial infarction, hospitalizations for cardiovascular illness, cardiovascular emergency department (ED) visits, lung cancer incidence, asthma onset, asthma symptoms, hospitalizations for respiratory illness, respiratory ED visits, work loss days, hospitalizations for Alzheimer's disease, and hospitalizations for Parkinson's disease.[2] These health outcomes have been identified by U.S. EPA as having a causal or likely causal relationship with exposure to PM2.5 based on a substantial body of scientific evidence.[3][4]

CARB staff evaluated the avoided health endpoints associated with the emission reductions of the 2024 PM2.5 Plan for the attainment year (2030). Table 1 shows the avoided health endpoints for 2030 relative to the baseline or business as usual case expected to be seen in the San Joaquin Valley. Children in particular will benefit from the reduced cases of asthma onset and asthma symptoms due to the District implementation plans for the attainment year. Further, the attainment control strategy will lead to an estimated 111 avoided deaths.

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[1] U.S. EPA. (2023). Environmental Benefits Mapping and Analysis Program - Community Edition: User's Manual. Retrieved May 31, 2024, from *https://www.epa.gov/sites/default/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf*

[2] California Air Resources Board Updated Health Endpoints Bulletin. Retrieved April 4, 2023 from *https://ww2.arb.ca.gov/sites/default/files/2022-11/California%20Air%20Resources%20Board%20Updated%20Health%20Endpoints%20Bulletin%20-%20Edited%20Nov%202022_0.pdf*

[3] U.S. EPA. Technical Support Document (TSD) for the Final Revised Cross-State Air Pollution Rule Update for the 2008 Ozone Season NAAQS, March 2021. (web link: *https://www.epa.gov/sites/default/files/2021-03/documents/estimating_pm2.5-_and_ozone-attributable_health_benefits_tsd_march_2021.pdf*)

[4] U.S. EPA. (2019). Integrated Science Assessment for Particulate Matter (Issue EPA/600/R-19/188). (web link: *https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=347534*)

Table 1. Avoided Mortality and Morbidity Incidents Associated with 2024 PM2.5 Plan Measures for the Year 2030

Health Endpoint	Age Range	Avoided Cases
Mortality (Cardiopulmonary)	30-99	111
Acute Myocardial Infarction (Heart Attacks)	18-99	13
Hospital Admissions, Cardiovascular	65-99	16
ED Visits, Cardiovascular	0-99	32
Lung Cancer Incidence	30-99	8
Asthma Onset	0-17	434
Asthma Symptoms	6-17	79,748
Hospital Admissions, Respiratory	65-99	3
ED Visits, Respiratory	0-99	91
Work Loss Days	18-64	16,535
Hospital Admissions, Alzheimer's Disease	65-99	37
Hospital Admissions, Parkinson's Disease	65-99	5

CARB staff has reviewed the 2024 PM2.5 Plan and has concluded that, together with this Staff Report, it meets the requirements of the Act for the 12 µg/m3 annual PM2.5 standard for a serious nonattainment area requesting an attainment deadline extension, including attainment demonstration, emissions inventories, Best Available Control Measure demonstration, Most Stringent Measure demonstrations, Reasonable Further Progress demonstration, quantitative milestones, contingency measures, and transportation conformity budgets.

The District Governing Board will consider adoption of the 2024 PM2.5 Plan on June 20, 2024, and the CARB Board will consider the Plan on July 25, 2024. If adopted, the Plan will be forwarded to U.S. EPA as a revision to the California SIP.

As part of the 15 µg/m3 SIP Revision, adopted by CARB on September 23, 2021, CARB committed to 2023 aggregate emission reductions of 3.0 tpd of NOx and 0.04 tpd of PM2.5 from CARB's Heavy-Duty Inspection and Maintenance Program. CARB is now proposing a SIP revision to amend the Valley Incentive Measure to include a quantification of emission

reductions from existing Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer) and Funding Agricultural Replacement Measures for Emission Reductions Program (FARMER) agriculture equipment projects for 2023 and to amend the 15 µg/m3 SIP Revision to allow the use of the Valley Incentive Measure as a substitute measure to provide emission reductions needed to meet the 2023 aggregate emission reduction commitment in the 15 µg/m3 SIP Revision. The agricultural equipment projects completed by December 31, 2022, and in place in 2023, resulted in emissions reductions of 5.0 tpd of NOx and 0.27 tpd of PM2.5 in 2023, in excess to the aggregate commitment.

Background

Fine particulate matter up to 2.5 micrometers in diameter—PM2.5—is made up of many constituent particles and liquid droplets that vary in size and chemical composition. PM2.5 contains a diverse set of substances including elements such as carbon and metals, compounds such as nitrates, sulfates, and organic materials, and complex mixtures such as diesel exhaust and soil or dust. Some of the particles (primary PM2.5) are directly emitted into the atmosphere while others (secondary PM2.5) result when gases are transformed into particles through physical and chemical processes in the atmosphere.

Numerous health effects studies have linked exposure to PM2.5 to increased severity of asthma attacks, development of chronic bronchitis, decreased lung function in children, increased respiratory and cardiovascular hospitalizations, and even premature death in people with existing cardiac or respiratory disease. In addition, California has identified particulate exhaust from diesel engines as a toxic air contaminant suspected to cause cancer, other serious illnesses, and premature death. Those most sensitive to PM2.5 pollution include people with existing respiratory and cardiac problems, children, and older adults.

NAAQS establishes the levels above which PM2.5 may cause adverse health effects. In 1997, U.S. EPA adopted the first set of PM2.5 standards, a 24-hour standard of 65 µg/m3 and an annual standard of 15 µg/m3. In 2006, the 24-hour standard was strengthened to 35 µg/m3, and in 2012, the annual standard was lowered to 12 µg/m3. In February 2024, U.S. EPA further lowered the annual standard to 9 µg/m3.

The Act establishes planning requirements for areas that exceed health-based standards. These nonattainment areas must develop and implement SIPs that demonstrate how they will attain the standards by specified dates. The 2024 PM2.5 Plan is the third SIP that CARB and the District have developed for the 12 µg/m3 annual PM2.5 standard. The 2016 *Moderate Area Plan for the 2012 PM2.5 Standard* (2016 Moderate Area Plan) was developed to address requirements for the 12 µg/m3 annual PM2.5 standard for an area classified as moderate nonattainment area. The 2016 Moderate Area Plan included a demonstration that attainment by the moderate area deadline was impracticable. CARB and the District also developed the comprehensive *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards* (2018 PM2.5 Plan) which addressed serious area requirements and included a request for reclassification to serious for the 12 µg/m3 annual PM2.5 standard. The 2016 Moderate Area Plan and 2018 PM2.5 Plan were submitted together to U.S. EPA in May 2019. Effective December 2021, U.S. EPA finalized approval of the 2016 Moderate Area Plan except contingency measures and reclassified the Valley as serious nonattainment for the 12 µg/m3 annual PM2.5 standard.[5] That same month, U.S. EPA proposed to approve the serious area plan for all serious PM2.5 area requirements except contingency measures[6];

[5] *86 Fed. Reg. 67,343* (November 26, 2021)
[6] *86 Fed. Reg. 74,310* (December 29, 2021)

however, U.S. EPA subsequently re-proposed a disapproval in October 2022.[7] CARB withdrew the serious area plan for the 12 µg/m3 annual PM2.5 standard with District concurrence.

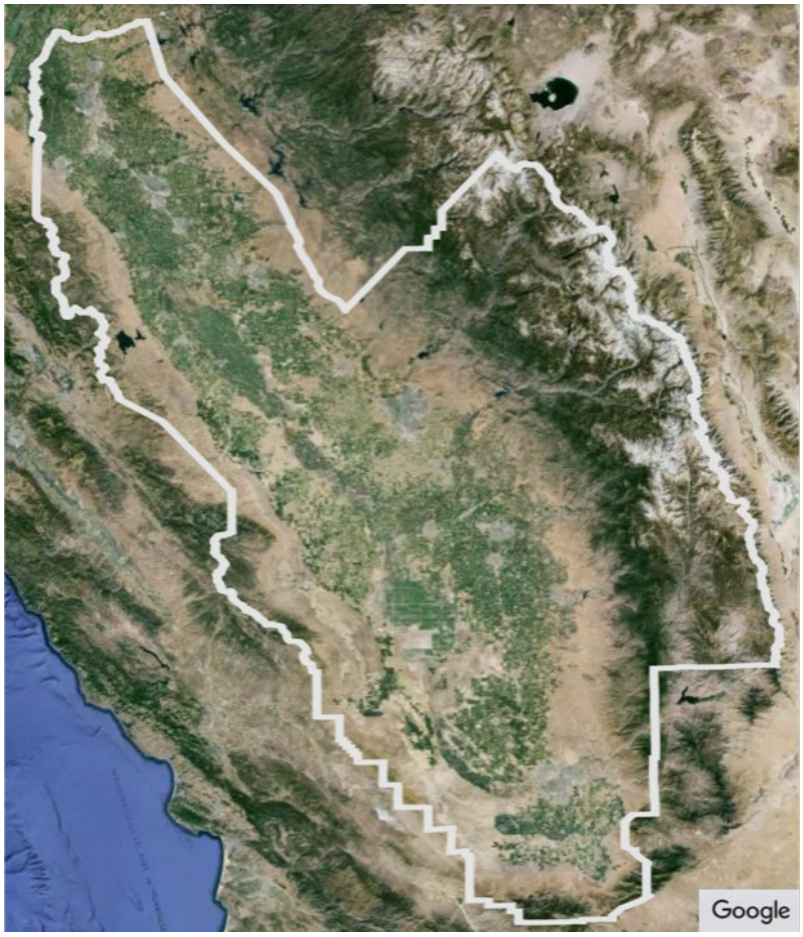
The process to develop an updated serious area SIP for the 12 µg/m3 annual PM2.5 standard kicked off with a public workshop in March 2023. CARB and the District hosted four subsequent public workshops over the course of plan development. Initial SIP elements required for the 12 µg/m3 annual PM2.5 serious area plan were addressed through separate submittals. The base year emissions inventories, the precursor demonstration, and Best Available Control Measure (BACM) were adopted in the *Initial SIP Requirements for the 2012 Annual PM2.5 Standard* by the District Governing Board on October 19, 2023, and subsequently submitted to U.S. EPA through CARB on November 21, 2023. Amendments to District Rule 2201 (New and Modified Stationary Source Review) were submitted to U.S. EPA on October 17, 2023, satisfying the New Source Review (NSR) requirement. The 2024 PM2.5 Plan submittal addresses the remaining nonattainment area SIP requirements pursuant to the Act.

[7] *87 Fed. Reg. 60,494* (October 5, 2022)

Nature and Extent of the PM2.5 Problem and Progress in the San Joaquin Valley

The San Joaquin Valley is a large geographic area covering nearly 25,000 square miles with a string of major cities and a population of roughly four million. The Valley is a lowland area bordered by the Sierra Nevada Mountains to the east, the Pacific Coast Range to the west, and the Tehachapi Mountains to the south (see Figure 1). The surrounding mountains and meteorology create ideal conditions for air pollution formation and retention in the Valley. Geography and large-scale regional and local weather patterns influence the accumulation, formation, and dispersion of air pollutants in the Valley. The mountains act as air flow barriers, with the resulting stagnant conditions favoring the accumulation of pollutants. To the north, the Valley borders the Sacramento Valley and Delta lowland, which allows for some level of pollutant dispersion. Because of geography and meteorology, PM2.5 concentrations are generally higher in the southern and central portions of the Valley. Both the emission levels and the meteorology conditions make it exceedingly difficult for the Valley to meet the NAAQS for both PM2.5 and ozone.

Figure 1. Topographical Map of the San Joaquin Valley

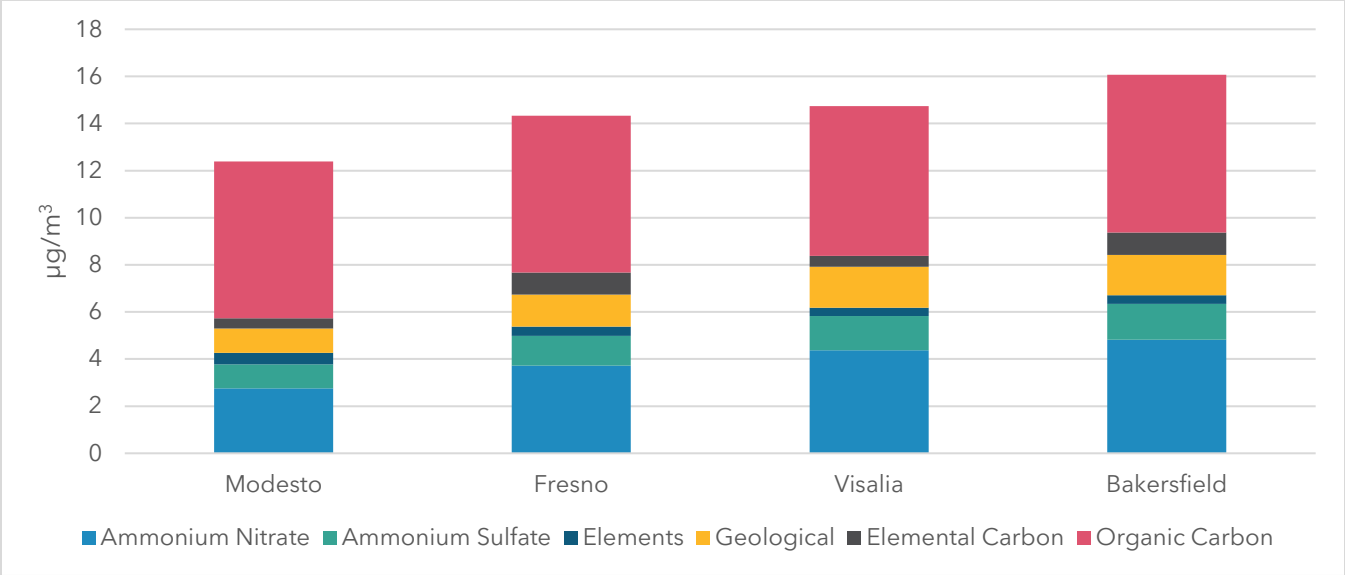


PM2.5 is a complex mixture of many chemical species generated from a wide array of sources. Some PM2.5 (primary PM2.5) is emitted directly into the air in the form of soot, smoke, or dust, while other PM2.5 (secondary PM2.5) can form in the atmosphere from the reactions of precursor gases, forming compounds such as ammonium nitrate and ammonium sulfate. The relative mixture of these primary and secondary constituents in a region drives the nature of the necessary control strategy.

To support the air quality planning process, CARB and the District operate a comprehensive monitoring network that provides ongoing measurement of PM2.5 concentrations and chemical composition. In addition, numerous special studies have been conducted in the Valley. The largest of these, the California Regional Particulate Air Quality Study (CRPAQS), occurred in 1999 through 2001. This study included monitoring at over 100 locations, with results published in peer-reviewed publications and presented at national and international conferences. CRPAQS findings continue to provide a strong scientific foundation for planning efforts. CalNex 2010 and the DISCOVER-AQ study in 2013 further contributed to CARB's understanding of PM2.5 air quality in the San Joaquin Valley. The Valley continues to be a focus of intensive study with numerous research efforts ongoing related to understanding air quality.

These and other studies along with current chemical speciation air quality monitoring have indicated that ammonium nitrate is an important contributor to PM2.5 pollution in the Valley (see Figure 2) on both an annual and a 24-hour basis. Although both NOx and ammonia play a role in ammonium nitrate formation, modeled sensitivity analysis demonstrates that NOx controls are more effective at reducing PM2.5 levels in the Valley. This is because ammonium nitrate formation in the Valley is limited by the availability of nitric acid instead of ammonia, so ammonia reductions are less effective than NOx reductions in reducing ammonium nitrate concentrations. Previous air quality studies including DISCOVER-AQ have indicated ammonia in excess of NOx in the San Joaquin Valley. Thus, programs aimed at reducing emissions of NOx—the limiting precursor for ammonium nitrate formation—are vital to reducing nitrate concentrations and, consequently, overall PM2.5 concentrations in the Valley.

Figure 2. PM2.5 Chemical Component Levels at Four Sites in San Joaquin Valley, 2020-2022



Additionally, seasonal patterns point to the importance of reducing direct emissions of PM2.5 in the winter. PM2.5 concentrations in the Valley exhibit a strong seasonal pattern, with concentrations over the 35 µg/m3 24-hour PM2.5 standard occurring primarily during the winter months. Cold temperatures, fog, stagnant airflow, and extended periods without rainfall result in episodes of elevated PM2.5 that can persist for a week or more. Episodic activities such as seasonal wood burning also add to the pollution burden during the winter. PM2.5 concentrations are generally higher in the central and southern portions of the Valley, with the highest levels recorded in the urban areas of Fresno and Bakersfield.

Air Quality Trends

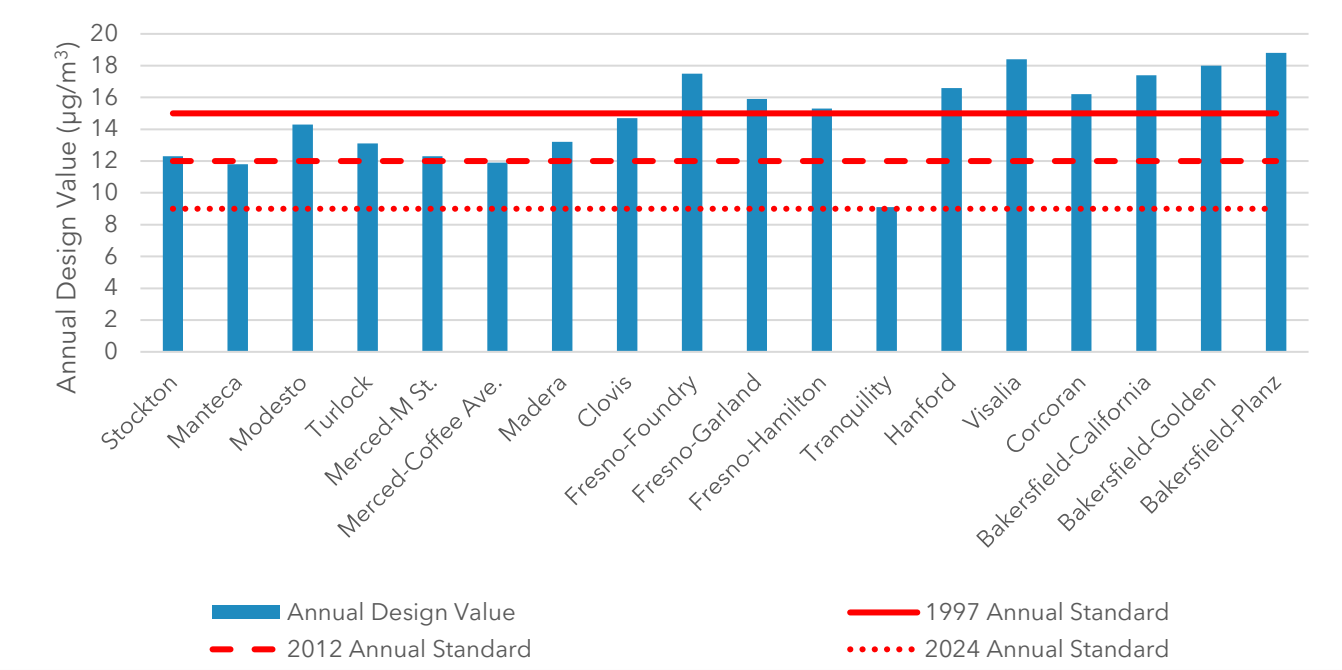
To determine attainment for the NAAQS, the corresponding design value at each monitoring site must be calculated following the form of the standard U.S. EPA established when they promulgated the NAAQS. A design value is a statistic that describes the air quality status of a given location relative to the level of the NAAQS. The PM2.5 annual design value represents a three-year average of the annual average PM2.5 concentrations measured at a certain site. If the annual PM2.5 design value is equal to or below the 12.0 µg/m3 annual PM2.5 standard, the site meets the standard. All sites in the nonattainment area must meet the standard for the Valley to attain the standard.

Since 2023 PM2.5 data were recently certified but the chemical speciation data are still unavailable, 2022 PM2.5 air quality data are used for the majority of the analysis. A short summary of 2023 PM2.5 air quality data is included below.

2022 Annual PM2.5 Design Values

Figure 3 illustrates the 2022 annual PM2.5 design values at all regulatory monitoring sites in the Valley, ordered north to south. Eight out of eighteen monitoring sites met the 15.0 µg/m3 annual PM2.5 standard in 2022. The Bakersfield-Planz monitoring site had the highest annual PM2.5 design value of 18.8 µg/m3 in the Valley, followed closely by Visalia-Ashland/Church[8] with a design value of 18.4 µg/m3. These values have not been adjusted for exceptional events such as wildfires.

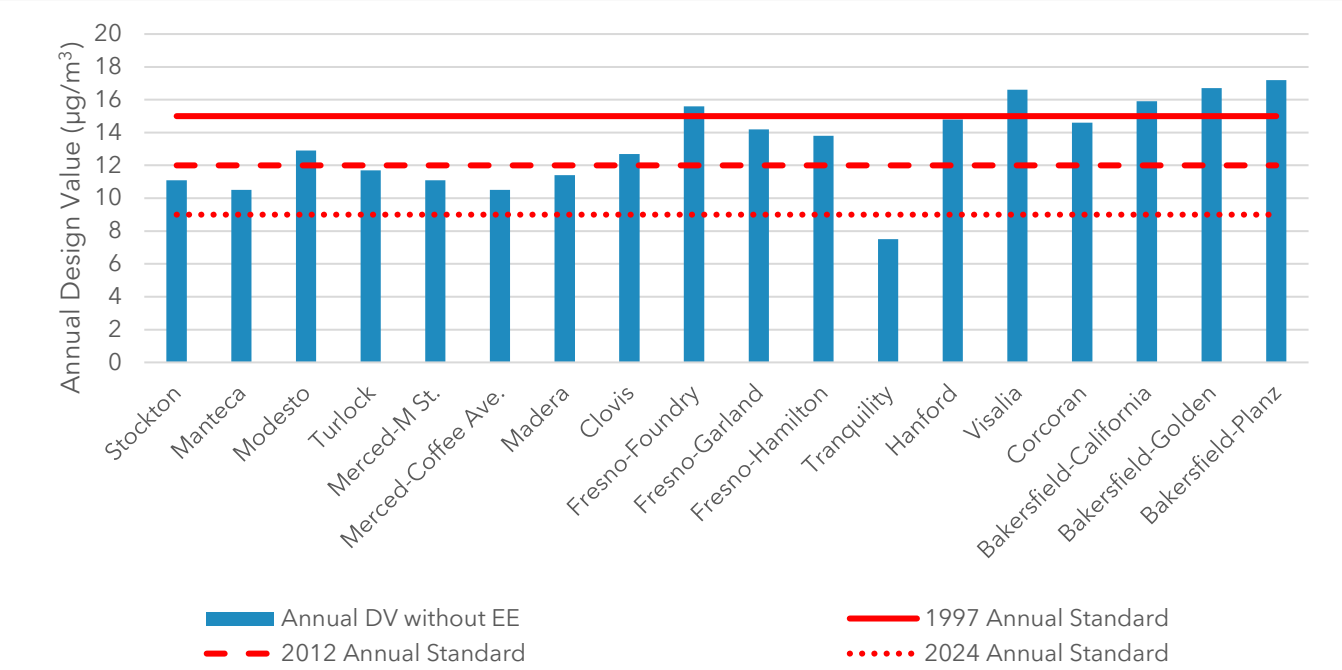
Figure 3. 2022 Annual PM2.5 Design Values



California was hit by historic wildfire during the span of 2020-2022 and the PM2.5 annual design values were severely impacted. Removing the wildfire days from the 2020-2022 design value calculation, as shown in Figure 4, thirteen of the eighteen sites sit below the 15.0 µg/m3 annual PM2.5 standard. Seven sites would attain the 12.0 µg/m3 annual PM2.5 standard, while two other sites (Clovis and Modesto) are very close to attainment. These lower design value sites are mostly located in the northern part of the Valley, while the highest sites (Bakersfield and Visalia) are in the southern part of the Valley.

[8] Visalia-N. Church St. (AQS ID 061072002) was relocated to Visalia-W. Ashland Ave. (AQS ID 061072003) at the beginning of 2022. The Visalia site data in this Staff Report combine data from both sites.

Figure 4. 2022 PM2.5 Annual Design Values without Wildfire Days

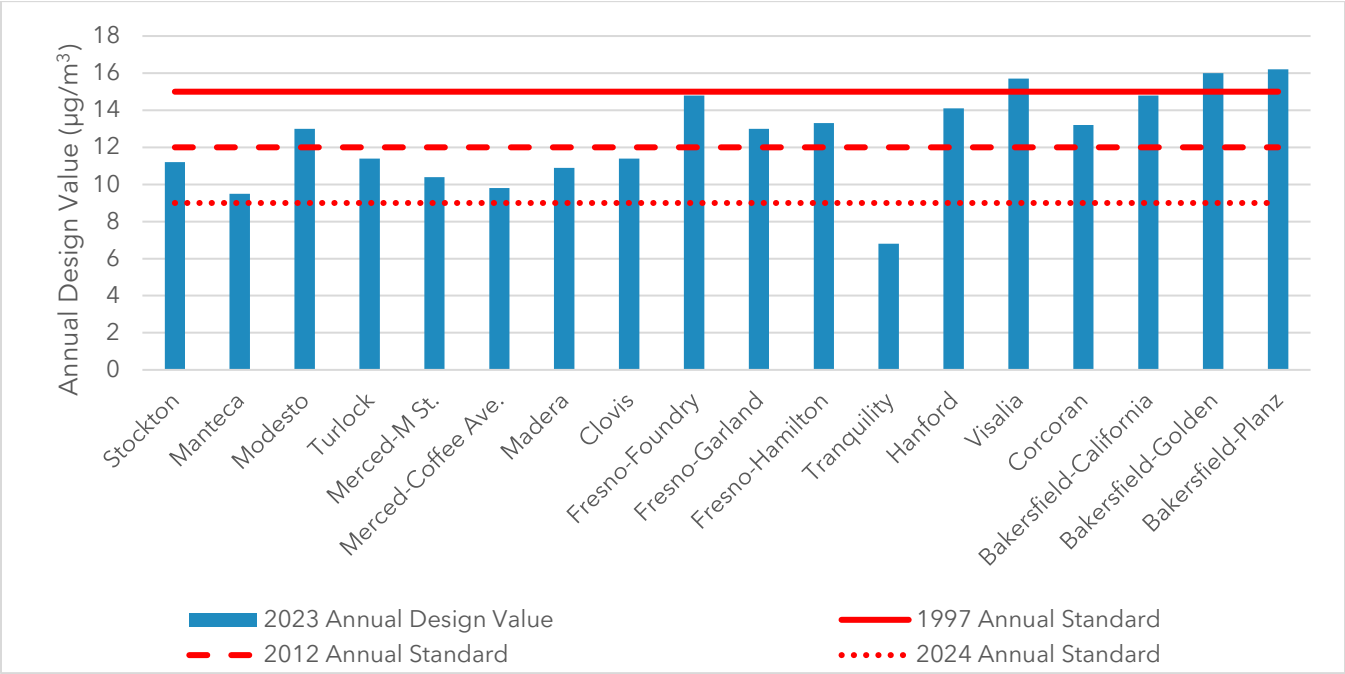


2023 PM2.5 Levels

2023 PM2.5 air quality data were recently certified and show air quality improvement compared to the previous year. In 2023, California was mostly free of wildfire impact and had abundant rainfall. The PM2.5 levels observed in 2023 were thus more representative of the typical scenario for California and were more useful in examining air quality progress.

As shown in Figure 5, the 2023 PM2.5 annual design values are overall 2-3 µg/m3 less than previous design values. Only three sites remain nonattainment for the 15 µg/m3 annual PM2.5 standard based on 2023 design values. The highest site is still Bakersfield-Planz, but the design value drops to 16.2 µg/m3 compared to 18.4 µg/m3 in 2022.

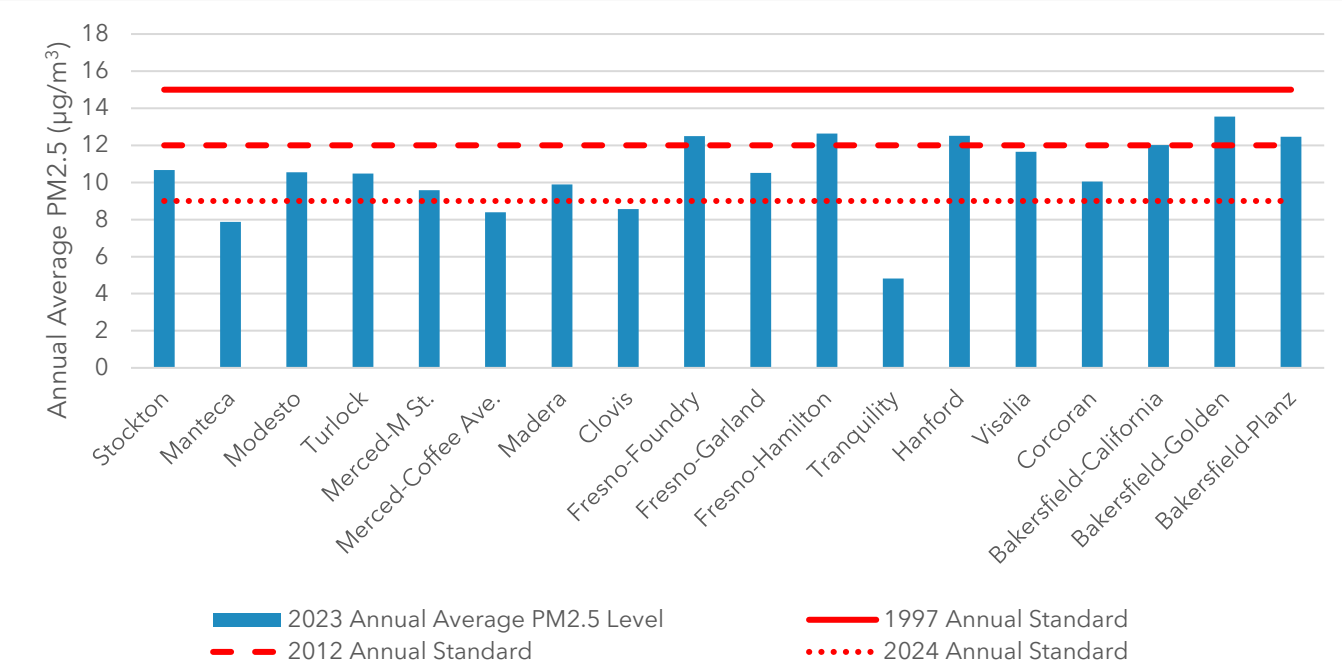
Figure 5. 2023 Annual PM2.5 Design Values



Further, as shown in Figure 6, 2023 was a clean year for the 15.0 µg/m3 annual PM2.5 standard since all sites had annual average PM2.5 levels below the standard. In fact, only five sites had an annual average level above 12.0 µg/m3 in 2023, with Bakersfield-Golden the highest site at 13.6 µg/m3.[9]

[9] On May 23, 2024, CARB submitted a request for a one-year attainment date extension to December 31, 2024, for the 15.0 µg/m3 annual PM2.5 standard. This request is possible because the Valley had a clean year below the standard in 2023 and because the State has met its previous SIP commitments for the standard. See *https://ww2.arb.ca.gov/resources/documents/2018-san-joaquin-valley-pm2-5-plan*

Figure 6. 2023 PM2.5 Annual Average Levels

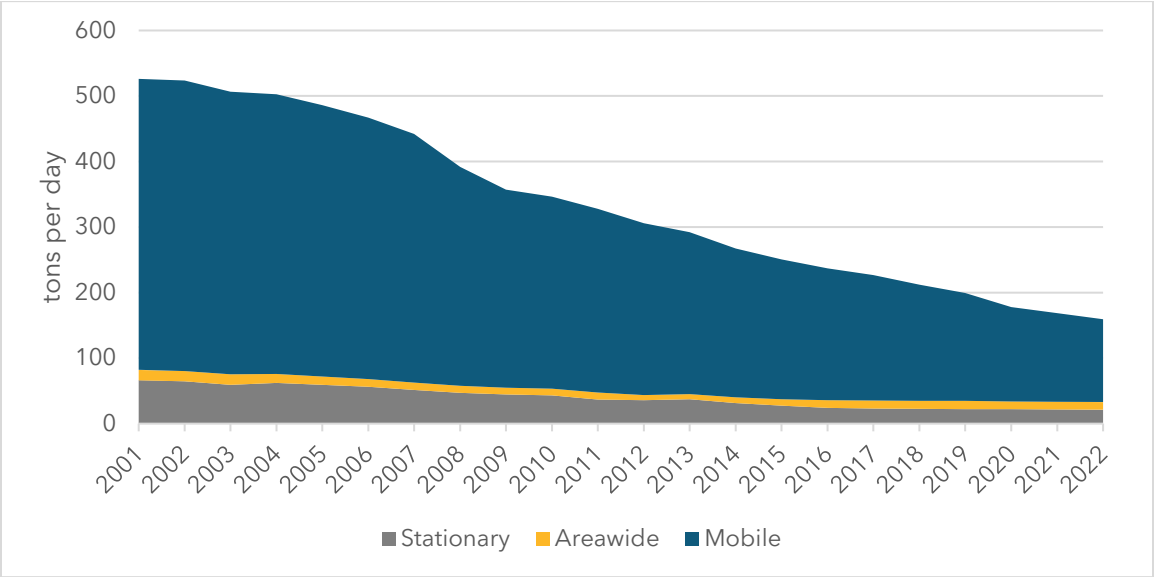


Emissions Trends and Effectiveness of Controls

Reductions in anthropogenic emissions of primary PM2.5 and the precursor NOx are key to reducing PM2.5 levels in the Valley. Model sensitivity simulations were performed for the 2024 PM2.5 Plan, following U.S. EPA guidance, to evaluate the impact of reducing emissions of different PM2.5 precursors on PM2.5 levels in the Valley. This modeling shows that NOx and directly emitted PM2.5 emissions are significant precursors to PM2.5 in the Valley, while reactive organic gases (ROG), oxides of sulfur (SOx), and ammonia emissions are not considered significant. Thus, this section focuses on NOx and PM2.5 emissions, presenting the emission reduction progress made in the past two decades in the Valley. The planning emission inventory is based on CARB's California Emissions Projection Analysis Model (CEPAM) for 2022 PM2.5 Plans (Version 1.00) for the San Joaquin Valley with a baseline year of 2017.

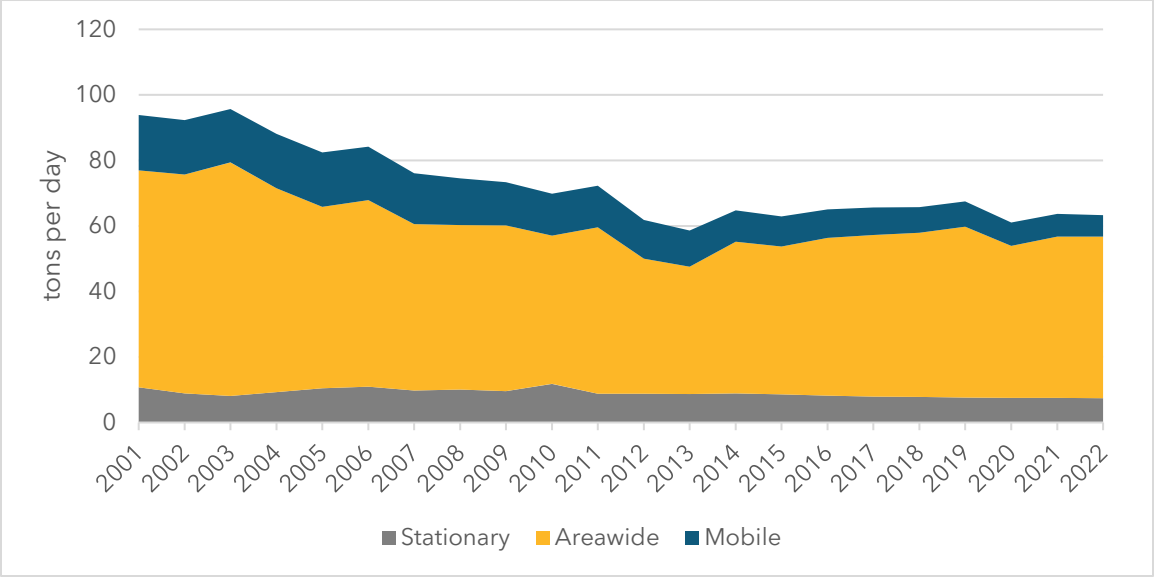
Figure 7 illustrates the reductions in NOx emissions in the past two decades. NOx emissions have decreased by 360 tpd or 70% from 2001 to 2022. Most of the reductions were from mobile sources, notably from heavy-duty trucks, off-road farm equipment, and light-duty passenger vehicles. The reductions in both heavy-heavy-duty trucks and light-duty passenger vehicles were close to 90% of the 2001 level. These are direct results from the aggressive emission control programs by CARB. Stationary and areawide sources had a combined reduction of 60% from 2001 to 2022, due to regulations from the District.

Figure 7. NOx Emission Trends in San Joaquin Valley



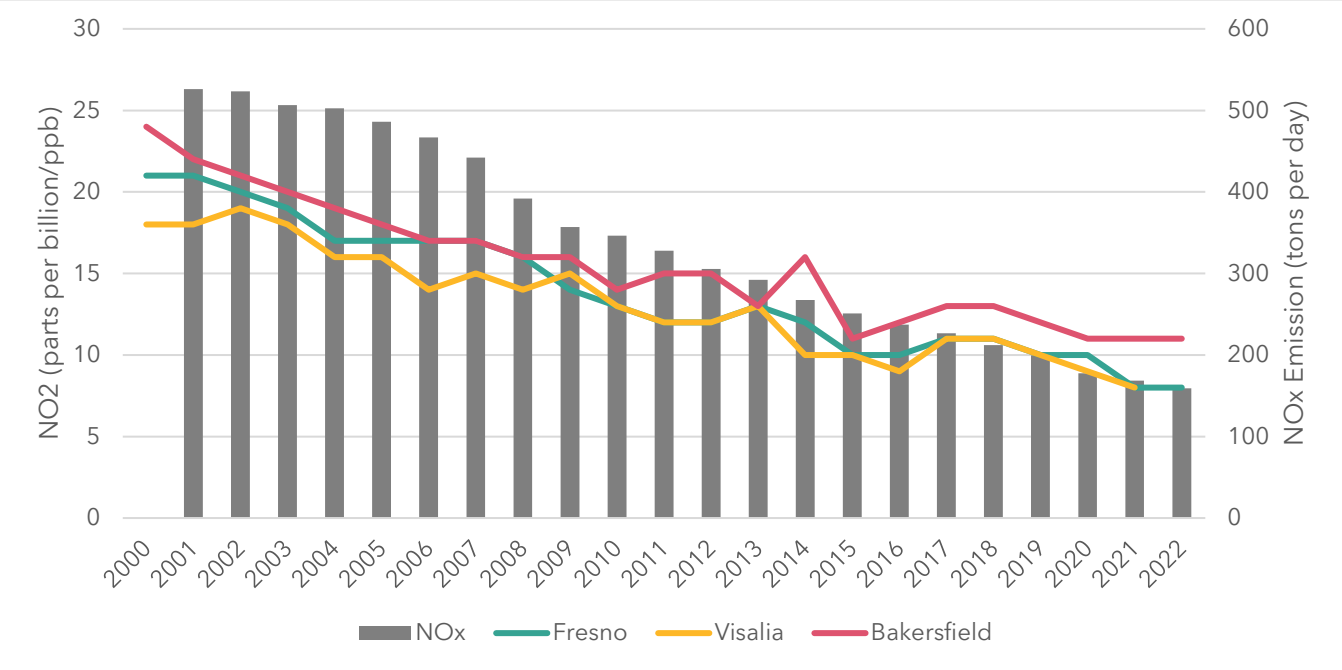
Primary PM2.5 emissions decreased by 30 tpd or 31% in total from 2001 to 2022 (Figure 8). Most of the reduction occurred in areawide sources, notably from residential fuel combustion, farming operations, agricultural burning, and fugitive windblown dust. Heavy-heavy-duty vehicles also had a nearly 90% reduction in primary PM2.5 emissions within the same period.

Figure 8. Primary PM2.5 Emission Trends in San Joaquin Valley



The emissions reduction progress for the past two decades largely matched with the observed decreases in the ambient levels of ammonium nitrate and carbonaceous PM2.5 levels. Ambient monitoring of NO2 concentrations in the Valley also corroborates the NOx emissions reduction progress in the Valley (Figure 9).

Figure 9. Trends of Annual Average Ambient NO2 Concentrations and San Joaquin Valley NOx Emissions



This evidence strongly supports that the improvement in annual PM2.5 levels in the Valley are direct results of California's aggressive control measures and regulation efforts. Ongoing implementation of CARB and District control programs has had substantial benefits improving air quality in the Valley and further emission reductions in the future are expected to provide continuing progress towards attaining the 12 µg/m3 annual PM2.5 standard.

Attainment Demonstration

Demonstrating attainment is a cornerstone of the SIP. The Act requires the use of air quality modeling to relate PM2.5 air quality to emissions in a region and simulate future air quality based on changes in emissions. The modeled attainment demonstration in this Plan was prepared using photochemical dispersion and meteorological modeling tools developed in response to U.S. EPA modeling guidelines and recommendations from air quality modeling experts. The modeling uses emission inventories, with measurements of meteorology and air quality, to establish the relationship between emissions and air quality.

The 2024 PM2.5 Plan air quality modeling demonstrates that the Valley will attain the 12 µg/m3 annual PM2.5 standard as expeditiously as practicable by the 2030 attainment deadline. In addition, a series of model sensitivity simulations were performed for the Plan, following U.S. EPA guidance, to evaluate the impact of reducing emissions of different PM2.5 precursors on PM2.5 levels in the Valley. This modeling shows that NOx and directly emitted PM2.5 emissions are significant precursors to PM2.5 in the Valley, while ROG, SOx, and ammonia emissions are not considered significant. Thus, the Plan control strategy focuses on achieving reductions in NOx and direct PM2.5 emissions. The attainment demonstration relies on the benefits of CARB and the District's current control programs, including measures from CARB's *2016 State Strategy for the State Implementation Plan* (2016 State SIP Strategy) and *2022 State Strategy for the State Implementation Plan* (2022 State SIP Strategy) and aggregate emissions reduction commitments in the 2024 PM2.5 Plan.

The Valley air quality monitoring site with the highest 2017 annual PM2.5 design value (3-year average of annual average PM2.5 levels) is Bakersfield-Planz with a value of 16.97 µg/m3. In 2030, after implementing the 2024 PM2.5 Plan strategy, Bakersfield-Planz remains the high site with a projected 2030 attainment year annual design value of 11.98 µg/m3, which is below the annual PM2.5 standard of 12.0 µg/m3. 2017 base year and 2030 future year design values for all Valley sites are shown below in Table 2.

Table 2. 2017 Base Year Design and 2030 Attainment Year Design Values

Site	2017 Base Design Value, Annual PM2.5 (µg/m3)	2030 Attainment Year Design Value, Annual PM2.5 (µg/m3)
Bakersfield-Planz	16.97	11.98
Hanford	15.73	11.04
Bakersfield-Golden	15.52	10.82
Visalia	15.43	10.50
Bakersfield-California	15.12	10.52
Corcoran	14.95	10.90
Fresno-Hamilton	13.99	9.81
Fresno-Garland	13.69	9.49
Turlock	12.7	9.69
Clovis	12.69	8.99
Merced-S. Coffee	12.28	9.31
Stockton	12.21	10.16
Madera	12.11	8.75
Merced-M. St	11.73	8.73
Modesto	11.16	8.54
Manteca	10.37	8.38
Tranquility	8.19	6.37

For more details on the modeling inventory, attainment demonstration, and modeling protocol, see *Appendix I* and *Appendix J* of the 2024 PM2.5 Plan.

Health Benefit Assessment of the 2024 PM2.5 Plan Control Strategy

CARB staff evaluated the health benefits associated with reductions in PM2.5 from the proposed 2024 PM2.5 Plan measures using inputs from advanced air quality modeling for the attainment year of 2030. Community Multiscale Air Quality Modeling System (CMAQ) results were inputted into U.S. EPA's BenMAP - Community Edition v1.5.8.29 software.[10] BenMAP provided a quantitative estimate of the cases of avoided mortality and morbidity outcomes associated with modeled changes in PM2.5 between the business-as-usual (BAU) and attainment demonstration for the year 2030.

Population data were created using U.S. EPA's PopGrid program based on 2010 U.S. Census data and then projected to 2030 in BenMAP. The selection of input data, including concentration-response functions and baseline incidence rates, followed those recommended by the U.S. EPA and described in the BenMAP v1.5.8 User's Manual. CARB analyzed the value of health benefits associated with 12 health outcomes: cardiopulmonary mortality, acute myocardial infarction, hospitalizations for cardiovascular illness, cardiovascular emergency department (ED) visits, lung cancer incidence, asthma onset, asthma symptoms, hospitalizations for respiratory illness, respiratory ED visits, work loss days, hospitalizations for Alzheimer's disease, and hospitalizations for Parkinson's disease.[11] These health outcomes have been identified by U.S. EPA as having a causal or likely causal relationship with exposure to PM2.5 based on a substantial body of scientific evidence.[12][13]

CARB staff evaluated the avoided health endpoints associated with the emission reductions of the district implementation plans for the attainment year (2030). Table 3 shows the avoided health endpoints for 2030 relative to the BAU expected to be seen in the San Joaquin Valley. Children in particular will benefit from the reduced cases of asthma onset and asthma symptoms due to the district implementation plans for the attainment year. This may lead to better health outcomes in these children when they become adults since studies have shown that childhood asthma puts individuals at greater risk for respiratory disease and lower respiratory function in adulthood. Adults are also expected to benefit from the district implementation plans due to fewer hospitalizations and illnesses, lost work days, nonfatal acute myocardial infarctions (heart attacks), lung cancer incidences, and

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[10] U.S. EPA. (2023). Environmental Benefits Mapping and Analysis Program - Community Edition: User's Manual. Retrieved May 31, 2024 from *https://www.epa.gov/sites/default/files/2015-04/documents/benmap-ce_user_manual_march_2015.pdf*

[11] California Air Resources Board Updated Health Endpoints Bulletin. Retrieved April 4, 2023 from *https://ww2.arb.ca.gov/sites/default/files/2022-11/California%20Air%20Resources%20Board%20Updated%20Health%20Endpoints%20Bulletin%20-%20Edited%20Nov%202022_0.pdf*

[12] U.S. EPA. Technical Support Document (TSD) for the Final Revised Cross-State Air Pollution Rule Update for the 2008 Ozone Season NAAQS, March 2021. (web link: *https://www.epa.gov/sites/default/files/2021-03/documents/estimating_pm2.5-_and_ozone-attributable_health_benefits_tsd_march_2021.pdf*)

[13] U.S. EPA. (2019). Integrated Science Assessment for Particulate Matter (Issue EPA/600/R-19/188). (web link: *https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=347534*)

cardiopulmonary mortality. Seniors may benefit from reduced cases of hospitalizations for not just cardiovascular and respiratory diseases, but also neurological conditions (Alzheimer's and Parkinson's diseases). And there will be fewer ED visits for both cardiovascular and respiratory diseases across all ages in the population. While CARB staff evaluated several health endpoints, note that this analysis still only captures a portion of the health benefits of the Implementation Plan measures. A more comprehensive analysis could include additional endpoints when quantitative approaches based on the most up-to-date scientific information are available in the future.

Table 3. Avoided Mortality and Morbidity Incidents Associated with San Joaquin Valley Air District State Implementation Plan Measures for the Year 2030

Health Endpoint	Age Range	Avoided Cases
Mortality (Cardiopulmonary)	30-99	111
Acute Myocardial Infarction (Heart Attacks)	18-99	13
Hospital Admissions, Cardiovascular	65-99	16
ED Visits, Cardiovascular	0-99	32
Lung Cancer Incidence	30-99	8
Asthma Onset	0-17	434
Asthma Symptoms	6-17	79,748
Hospital Admissions, Respiratory	65-99	3
ED Visits, Respiratory	0-99	91
Work Loss Days	18-64	16,535
Hospital Admissions, Alzheimer's Disease	65-99	37
Hospital Admissions, Parkinson's Disease	65-99	5

Control Strategy

The control strategy in a SIP describes the measures and actions that provide the emissions reductions needed to attain the standard. The 2024 PM2.5 Plan control strategy builds on current CARB and District controls on mobile, stationary, and area sources. The control programs developed for previous PM2.5 and ozone SIPs will provide the bulk of the reductions needed for attainment in 2030; however, the 2024 PM2.5 Plan also relies on commitments from CARB and the District to strengthen or add new measures to provide additional emissions reductions needed to demonstrate attainment. The optional precursor demonstration developed by CARB and the District as part of the *Initial SIP Requirements for the 2012 Annual PM2.5 Standard* shows that directly emitted PM2.5 and NOx are the significant precursors to PM2.5 in the San Joaquin Valley (see *Appendix F* of the 2024 PM2.5 Plan). Therefore, the control strategy includes CARB and District measures that focus on reducing emissions of PM2.5 and NOx as the most effective path to attainment. Commitments are in the form of both regulatory and incentive-based measures. Funding for the incentive-based measures has already been identified. Taken together, CARB and District measures implemented for the 2024 PM2.5 Plan will provide significant air quality benefits for the Valley and contribute to attainment of the 12 µg/m3 annual PM2.5 standard as expeditiously as practicable.

In addition to reducing emissions from sources under CARB and District authority, it is critical to achieve emissions reductions from sources that are primarily regulated at the federal and international level. It is imperative that the federal government and other relevant regulatory entities act decisively to reduce emissions from these primarily federally and internationally regulated sources of air pollution. CARB and the air districts in California have taken actions to not only petition federal agencies for action, but also to directly reduce emissions using programmatic mechanisms within our respective authorities. CARB continues to explore additional actions, many of which may require a waiver or authorization under the Act.

CARB Measures

Overview of Commitment

SIPs may contain enforceable commitments to achieve the level of emissions necessary to meet federal air quality standards, as defined by the attainment demonstration. CARB's *2022 State Strategy for the State Implementation Plan* (2022 State SIP Strategy) lists new SIP measures for which potential emissions reduction SIP commitments for the San Joaquin Valley in 2030 are now estimated based on the measures identified and quantified to date. Adoption of the 2022 State SIP Strategy and the measure schedule by the CARB Board on September 22, 2022, formed the basis of the commitments for emission reductions by the 2030 attainment deadline for the San Joaquin Valley that are proposed for CARB Board consideration in the 2024 PM2.5 Plan and this Staff Report. The commitments consist of two components:

1. A commitment to bring an item to the CARB Board for defined new measures or take other specified actions within CARB's authority; and
2. A commitment to achieve aggregate emissions reductions by specific dates.

As part of each SIP needing emission reductions from the State, the total aggregate emissions reductions and the obligation to make certain proposals to the CARB Board or take other actions within CARB's authority specified in the 2022 State SIP Strategy would become enforceable upon approval by U.S. EPA. While the 2022 State SIP Strategy discusses a range of measures and actions, those measures and actions are still subject to CARB's formal approval process and would not be final until the CARB Board takes action.

Commitment to Act on Measures

For each of the SIP measures shown in Table 4, CARB committed in the 2022 State SIP Strategy to address each measure as described. For each measure committed to, CARB staff would undertake the actions detailed for each measure. In the instance of measures that involve the development of a rule under CARB's regulatory authority, CARB committed to bring a publicly noticed item before the CARB Board that is either a proposed rule or is a recommendation that the CARB Board direct staff to not pursue a rule covering that subject matter at that time. This recommendation would be based on an explanation of why such a rule is unlikely to achieve the relevant emission reductions in the relevant timeframe and would include a demonstration that the overall aggregate commitment will be achieved despite that rule not being pursued. This public process and CARB Board hearing would provide additional opportunity for public and stakeholder input, as well as ongoing technology review, and assessments of costs and environmental impacts. The measures, as proposed by staff to the CARB Board or adopted by the CARB Board, may provide more or less than the initial emission reduction estimates. In addition, action by the CARB Board may include any action within its discretion.

Table 4. 2022 State SIP Strategy Measures and Schedule

CARB Measure	Action Date	Implementation Begins
On-Road Heavy-Duty		
Advanced Clean Fleets Regulation	2023	2024
Zero-Emissions Trucks Measure	2028	2030
On-Road Light-Duty		
Clean Miles Standard	2021	2023
Off-Road Equipment		
Tier 5 Off-Road Vehicles and Equipment	2025	2029
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	2022	2024
Transport Refrigeration Unit Regulation Part 2	2026	2028
Commercial Harbor Craft Amendments	2022	2023
Cargo Handling Equipment Amendments	2027	2030
Other		
Zero-Emission Standard for Space and Water Heaters	2025	2030
Primarily Federally and Internationally Regulated Sources—CARB Measures		
In-Use Locomotive Regulation	2023	2024

Commitment to Achieve Emission Reductions

The following section describes the estimated emission reductions and potential commitment from the SIP measures identified and quantified to date for the San Joaquin Valley. This Staff Report includes the aggregate commitment of emissions reductions from State sources for CARB Board consideration, as summarized below. While CARB includes estimates of the emission reductions in 2030 from each of the individual new measures, CARB's overall commitment is to achieve the total emission reductions necessary from

State-regulated sources to attain the standards, reflecting the combined reductions from the existing control strategy and new measures. Therefore, if a particular measure does not get its expected emission reductions, the State's overall commitment to achieving the total aggregate emissions reductions still exists. If actual emission decreases occur that exceed the projections reflected in the current emission inventory, CARB will submit an updated emissions inventory to U.S. EPA as part of a SIP revision. The SIP revision would outline the changes that have occurred and provide appropriate tracking to demonstrate that aggregate emissions reductions sufficient for attainment are being achieved through enforceable emission reduction measures. CARB's emission reduction commitments may be achieved through a combination of actions including but not limited to the implementation of control measures; the expenditure of local, State, or federal incentive funds; or through other enforceable measures.

Emissions Reductions

CARB's control programs, including the measures in the 2022 State SIP Strategy, provide emission reduction benefits throughout the State. Although the existing control program will provide mobile source emission reductions necessary to meet the attainment needs of many areas of the State, the remaining measures from CARB's *2016 State Strategy for the State Implementation Plan* (2016 State SIP Strategy) and new measures in the 2022 State SIP Strategy are needed to provide further reductions to achieve the 12 µg/m3 annual PM2.5 standard in the San Joaquin Valley and enhance air quality progress towards the 9 µg/m3 annual PM2.5 standard promulgated in 2024.

Emission Reductions from Current Programs

Table 5 provides the mobile source emissions under CARB and District current programs for the San Joaquin Valley. Ongoing implementation of current control programs is projected to reduce mobile source emissions of direct PM2.5 and NOx by 3.2 tpd and 115.7 tpd, in the San Joaquin Valley in 2030 compared to 2017 levels, respectively. Achieving the benefits projected from the current control program will continue to require significant efforts for implementation and enforcement and thus represents an important element of the overall strategy.

Table 5. San Joaquin Valley Baseline Mobile Source Emissions*

Pollutant	2017 Emissions (tpd)	2030 Emissions (tpd)	Change
PM2.5	8.4	5.2	-38%
NOx	191.4	75.7	-60%

* Source: 2022 PM2.5 CEPAM v1.00; represents the current baseline emissions with adopted CARB and District measures.

Emission Reductions from 2022 State SIP Strategy Measures

In addition to controlling direct PM2.5, air quality modeling has determined that NOx is a significant precursor for the 12 µg/m3 annual PM2.5 standard in the San Joaquin Valley. Air quality modeling indicates that both direct PM2.5 and NOx emissions from all sources in San Joaquin Valley will need to decrease in order to attain the 12 µg/m3 annual PM2.5 standard in 2030. A significant fraction of the needed reductions will come from the existing control program already in the baseline emission inventory. In addition, as described below, one measure commitment included in the 2016 State SIP Strategy has not yet been acted upon, and a number of measure commitments included in both the 2016 and 2022 State SIP Strategies were very recently adopted and are thus not yet in the baseline emissions inventory.

The measures contained in the 2022 State SIP Strategy commitment reflect a variety of State actions across on-road and off-road vehicle and appliance sectors. Collectively, emissions reductions from CARB's current control program, reductions from the 2016 and 2022 State SIP Strategy measures adopted but not yet in the baseline, reductions from the remaining 2016 State SIP Strategy measures, and reductions estimated from the future measures identified in the 2022 State SIP Strategy and quantified below will provide the reductions needed from State sources to support attainment of the 12 µg/m3 annual PM2.5 standard in the San Joaquin Valley. Table 6, Table 7, Table 8, and Table 9 summarize the reductions from the identified and quantified measures. In Table 6, the reductions estimated from the remaining 2016 State SIP Strategy measure and future measures identified in the 2022 State SIP Strategy are included as CARB's aggregate emissions reductions commitment for the year 2030.

Table 6. 2030 San Joaquin Valley Emissions Reductions from CARB Programs*

CARB Programs in San Joaquin Valley	2030 NOx (tpd)	2030 PM2.5 (tpd)
Current Mobile Source Control Program+	115.6	3.2
2016 and 2022 State SIP Strategy Measures Adopted (not yet in baseline inventory)	12.9	0.5.
CARB Aggregate Emissions Reductions Commitment	7.3	0.2
2016 State SIP Strategy Measure Remaining	3.0	<0.1
2022 State SIP Strategy Measures Remaining	4.3	0.2
Total Reductions	**136.0**	**3.9**

* Numbers may not add up due to rounding
+ Current Control Program represents the current baseline emissions with adopted CARB and District measures (Source 2022 PM2.5 CEPAM v1.00)

Table 7 reflects the 2016 and 2022 State SIP Strategy measure commitments that the CARB Board has recently adopted. The associated emissions reductions from these recently adopted measures are not yet all accounted for in the baseline emissions inventory. Nonetheless, CARB measure commitments are achieving emissions reductions and will contribute towards attainment of the 12 µg/m3 annual PM2.5 standard in San Joaquin Valley in 2030.

Table 7. San Joaquin Valley Expected Emissions Reductions from 2016 and 2022 State SIP Strategy Recently Adopted Measures*

Adopted 2016 and 2022 State SIP Strategy Measures	2030 NOx (tpd)	2030 PM2.5 (tpd)
On-Road Heavy-Duty		
Advanced Clean Fleets Regulation	1.6	<0.1
Total On-Road Heavy-Duty Reductions	1.6	<0.1
On-Road Light-Duty		
Advanced Clean Cars II	0.3	0.1
Clean Miles Standard	<0.1	<0.1
Total On-Road Light-Duty Reductions	0.3	0.1
Off-Road Equipment		
Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation	1.4	0.1
Commercial Harbor Craft Amendments	<0.1	<0.1
Transport Refrigeration Unit Part 1	0.2	<0.1
Total Off-Road Equipment Reductions	1.6	0.1
Primarily Federally and Internationally Regulated Sources—CARB Measures		
In-Use Locomotive Regulation	9.2	0.2
Total Primarily Federally and Internationally Regulated Sources—CARB Measures	9.2	0.2
Emissions Reductions	**12.9**	**0.5**

* Numbers may not add up due to rounding

Although most of the CARB measure commitments from the 2016 State SIP Strategy have been adopted, there remains the Zero-Emission Forklift measure which will be acted upon by the CARB Board in 2024. In addition, there is one other measure commitment from the *San Joaquin Valley Supplement to the 2016 State Strategy to the State Implementation Plan* (Valley State SIP Strategy), the Accelerated Turnover of Agricultural Equipment measure, for which CARB has estimated reductions in 2030. While CARB adopted a SIP-creditable incentive measure to fulfill this commitment in 2019, CARB staff proposes to develop another SIP-creditable incentive measure to fully document the incentive projects from this Accelerated Turnover of Agricultural Equipment measure that provide for SIP-creditable emissions reductions in the 2030 attainment year. The 2030 quantification of these projects will be brought to the CARB Board for consideration in 2030. Table 8 below shows the timeline and anticipated emission reductions for these measures.

Table 8. San Joaquin Valley Reductions from Remaining 2016 State SIP Strategy Measures

Remaining 2016 State SIP Strategy Measure	Action	Implementation Begins	2030 NOx (tpd)	2030 PM2.5 (tpd)
Zero-Emission Forklift	2024	2026	<0.1	<0.1
Accelerated Turnover of Agricultural Equipment	2030	Ongoing	3.0	NYQ*
Total			**3.0**	**<0.1**

* NYQ = Not Yet Quantified

Finally, Table 9 reflects the CARB measures from the 2022 State SIP Strategy still to be brought to the CARB Board for consideration that will provide the final 4.3 tpd of NOx and 0.2 tpd of direct PM2.5 emissions reductions needed from State measures to support attainment of the 12 µg/m3 annual PM2.5 standard in San Joaquin Valley in 2030.

Table 9. San Joaquin Valley Expected Emissions Reductions from the Remaining 2022 State SIP Strategy Measures*

Remaining 2022 State SIP Strategy Measures	2030 NOx (tpd)	2030 PM2.5 (tpd)
On-Road Heavy-Duty		
Zero-Emissions Trucks Measure	1.1	<0.1
Total On-Road Heavy-Duty Reductions	1.1	<0.1
Off-Road Equipment		
Tier 5 Off-Road Vehicles and Equipment	0.6	<0.1
Transport Refrigeration Unit Part 2	1.3	<0.1
Cargo Handling Equipment Amendments	<0.1	<0.1
Total Off-Road Equipment Reductions	2.0	<0.1
Other		
Zero-Emission Standard for Space and Water Heaters	1.1	0.1
Total Other Reductions	1.1	0.1
Emissions Reductions	**4.3**	**0.2**

* Numbers may not add up due to rounding

CARB's mobile source measures and aggregate emissions reduction commitment can also be found in *Chapter 4* of the 2024 PM2.5 Plan.

District Measures

The District is responsible principally for stationary and area sources located within the Valley. Numerous adopted District rules controlling emissions from stationary and area sources achieve emission reductions on and after the Plan base year of 2017, as shown in Table 10. These significant ongoing reductions achieved and maintained through the District's current adopted air quality regulations will contribute to progress towards attainment. The adopted control strategy achieves 12.8 tpd NOx reductions and 6.9 tpd PM2.5 reductions in 2030.

Table 10. District Rules Achieving Emission Reductions On and After 2017

District Rule	Action Date	Implementation Begins
Rule 2201 New Source Review Rule	2023	Ongoing
Rule 4103 Open Burning	2021	2021-2025
Rule 4308 Boilers, Steam Generators, and Process Heaters—0.075 MMBtu/hr to Less than 2.0 MMBtu/hr	2013	2015-2034
Rule 4311 Flares	2020	2024
Rule 4306/4320 Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr	2020	2024
Rule 4352 Solid Fuel Fired Boilers, Steam Generators, and Process Heaters	2021	2024
Rule 4354 Glass Melting Furnaces	2021	2024, 2030
Rule 4550 Conservation Management Practices	2004	Ongoing
Rule 4702 Internal Combustion Engines	2021	2024, 2030
Rule 4901 Wood Burning Fireplaces and Wood Burning Heaters	2023	2019
Rule 4902 Residential Water Heaters	2009	2010-2024
Rule 4095 Natural Gas-Fired, Fan-Type Central Furnaces	2024	2015-2045
Rule 9510 Indirect Source Review	2017	Ongoing
Rule 9610 State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs	2013	Ongoing
Reg. VIII Fugitive PM10 Prohibitions	2004	Ongoing

The 2024 PM2.5 Plan also includes new regulatory and incentive-based commitments from the District. Brief descriptions of the commitments follow.

Rule 4901 Residential Wood Burning: The District's residential wood burning emission reduction strategy includes wood burning curtailments implemented through District Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), in conjunction with the District's incentive grant program for fireplace and woodstove change-outs, and robust

public education and outreach efforts. The District commits to further reduce PM2.5 emissions from wood-burning fireplaces and heaters by extending the winter wood-burning curtailment season an additional month. Currently the curtailment season runs from November 1 through the end of February; this strategy will extend the curtailment season through March 31, providing an additional 0.02 tpd PM2.5 emission reductions in 2030.

Fireplace and Woodstove Change-Out Program: The District currently operates the Fireplace & Woodstove Change-Out Program which helps Valley residents replace high-polluting wood-burning devices and open-hearth fireplaces with cleaner alternatives such as natural gas or U.S. EPA-certified wood/pellet devices and electric heat pumps. In November 2023, U.S. EPA finalized approval of the program into the SIP, making the determination that the program complies with Act requirements.[14] However, as part of the approval, U.S. EPA did not include SIP credit for the quantified emission reductions achieved. The significant emission reductions achieved through this successful program contribute towards expeditious attainment of the 12 µg/m3 annual PM2.5 standard and are necessary to demonstrate attainment of the standard by 2030. Therefore, as part of the Plan's attainment strategy, the District is requesting that U.S. EPA provide SIP credit for the emissions reductions achieved by this program. In addition, the District will be quantifying and requesting SIP credit, through the existing quantification methodology approved by U.S. EPA, for projects completed through 2026.

Rule 4550 Conservation Management Practices: Rule 4550 was adopted to help bring the Valley into attainment of federal PM10 standards and applies to on-field farming and agricultural operation sites located within the Valley. Implementation of Rule 4550 by agricultural operations has resulted in the reduction of PM2.5 emissions through the reduction of passes of agricultural equipment and implementation of other conservation practices. The District continues to add to the list of conservation management practices available to agricultural operators; most recently, in April 2024, Rule 4550 was amended to add low-dust nut harvesters as an option (more information below). The District commits to evaluate the feasibility and effectiveness of conservation management practices on fallowed lands that are tilled or otherwise worked with implements of husbandry to reduce windblown PM2.5 emissions from disturbed fallowed acreage.

Low-Dust Nut Harvester Replacement Program: To date, the District has successfully obligated over $20.7 million to replace 241 pieces of nut-harvesting equipment with low-dust nut harvesting equipment through its Low-Dust Nut Harvester Replacement Program. To facilitate the transition to low-dust nut harvesting technology, in April 2024, based on recommendations from the San Joaquin Valley-wide Air Pollution Study Agency AgTech Committee, the District added Low-Dust Nut Harvesters to the approved Rule 4550 Conservation Management Program list of control measures. Through Rule 4550's menu-based approach, as upheld in court, nut farmers may now select to use a low-dust harvester as part of complying with the requirements of Rule 4550. While CARB has

[14] *88 Fed. Reg. 83,034* (November 28, 2023)

authority over tailpipe emissions from off-road harvesting equipment, the District's Conservation Management Program is the appropriate avenue for reducing non-tailpipe harvest emissions like dust.

The District commits to pursuing a multipart strategy to continue progress reducing emissions from nut harvesting. The strategy includes:

- Evaluating potential enhancements to the District's emission reduction strategy for nut harvesting emissions;
- Supporting future research efforts aimed at furthering the understanding of the amount and type of harvesters operating in the San Joaquin Valley and potential emissions reductions achievable through newly available harvester technologies (including evolving practices such as the use of conditioning equipment); and
- Continuing incentive-based efforts supporting the accelerated deployment of cleaner technologies for nut harvesting including the District's current allocation of $25 million in funding for the Low-Dust Nut Harvester Replacement Program in the Adopted 2023-24 District Budget and Recommended 2024-25 District Budget.

Table 11 below summarizes the NOx and PM2.5 emission reductions in 2030 from implementation of District programs, including reductions from the adopted control strategy and the new regulatory and incentive-based aggregate commitments being made by the District in the 2024 PM2.5 Plan. Like CARB, the District commits to achieving aggregate emissions reductions. While the table includes estimates of the emission reductions from each of the individual measures, final measures as proposed for adoption into the SIP may provide more or less than the initial emission reduction estimates.

Table 11. 2030 Emissions Reductions from District Programs

Measures	Action Date	Implementation Begins	2030 NOx (tpd)	2030 PM2.5 (tpd)
Adopted Control Strategy for Stationary and Area Sources	See Table 10	See Table 10	12.8	6.9
New Regulatory and Incentive-Based Aggregate Commitments				
Rule 4550 Conservation Management Practices	2026	2028	NYQ*	NYQ
Rule 4901 Residential Wood Burning	2025	2026	NYQ	0.02
Fireplace and Woodstove Change-Out Program	Ongoing	Ongoing	NYQ	NYQ
Low-Dust Nut Harvester Replacement Program	Ongoing	Ongoing	NYQ	NYQ
Total Reductions			**12.8**	**6.92**

* NYQ = Not Yet Quantified

The District's stationary and area source measures and aggregate emissions reduction commitment can be found in *Chapter 4* of the 2024 PM2.5 Plan.

Other Clean Air Act Requirements

In addition to the attainment demonstration and control strategy, the Act requires the following elements be included in the 2024 PM2.5 Plan:

- An emissions inventory for manmade and natural or biogenic sources of PM2.5 air pollution in the nonattainment area;
- Demonstration that best available control measures (BACM) and most stringent measures (MSM) are in place;
- Demonstration of reasonable further progress (RFP) towards attainment;
- Quantitative milestones;
- Contingency measures in the event the area fails to meet RFP or attainment; and
- Transportation conformity emission budgets to ensure transportation plans and projects are consistent with the SIP.

The 2024 PM2.5 Plan contains each of these required elements, as discussed below, satisfying Act requirements. Other requirements, including Nonattainment New Source Review and a precursor demonstration, have already been addressed by CARB and the District through previous submittals.

Emissions Inventory

An emissions inventory is the foundation of the SIP. It contains a systematic listing of the sources of air pollutants with an estimate of the amount of pollutants from each source or source category over a given period of time. The inventory is the primary input to air quality modeling for the attainment demonstration and is used to develop the SIP control strategy. The emissions inventory in the 2024 PM2.5 Plan includes emissions for the base year (2017), attainment year (2030), and applicable milestone years to demonstrate RFP (2025, 2028, 2031). The inventory includes directly emitted PM2.5 as well as the PM2.5 precursors NOx, SOx, ROG, and ammonia.

A SIP must include base year emissions inventories for all PM2.5 precursors and natural (non-anthropogenic) emissions and future year emissions inventories for the attainment precursors (direct PM2.5 and NOx in this SIP). Base year emissions inventories were submitted to U.S. EPA in November 2023 as part of the *Initial SIP Requirements for the 2012 Annual PM2.5 Standard*. The base year emissions inventories, except for the inventory for ammonia, are being updated in this submission of the complete 2024 PM2.5 Plan.

Table 12 summarizes the 2017 anthropogenic and natural (non-anthropogenic) emissions inventories for primary PM2.5 and the four PM2.5 precursors. Table 13 summarizes the 2030 anthropogenic emissions inventories for primary PM2.5 and NOx, the two PM2.5 precursors controlled through the 2024 PM2.5 Plan. From 2017 to 2030, NOx emissions drop 57%, and PM2.5 emissions drop 15.4%.

Table 12. San Joaquin Valley Annual Emissions (tpd) for 2017*

Source	NOx	PM2.5	ROG	SOx	Ammonia
Anthropogenic Emissions					
Stationary	23.0	7.9	83.5	5.1	13.0
Area	12.3	49.4	166.3	0.6	292.6
On-Road Mobile	104.3	2.7	30.2	0.6	4.8
Other Mobile	87.1	5.7	41.9	0.2	0.1
Total Anthropogenic Emissions	**226.7**	**65.7**	**321.9**	**6.4**	**310.5**
Natural (Non-Anthropogenic) Emissions	17.9	143.6	701.9	9.6	24.0

* Numbers may not add up due to rounding

Table 13. San Joaquin Valley Annual Emissions (tpd) for 2030*

Source	NOx	PM2.5
Stationary	16.2	6.8
Area	6.3	43.6
On-Road Mobile	22.0	1.3
Other Mobile	53.7	3.9
Total	**98.2**	**55.6**

* Numbers may not add up due to rounding

The planning emissions inventory, along with a description of the methodology used to create it, can be found in *Appendix B* of the 2024 PM2.5 Plan.

Best Available Control Measures and Most Stringent Measures Demonstration

For an area classified as serious nonattainment, a SIP must show that Best Available Control Measures (BACM), including Best Available Control Technology (BACT) for major stationary sources, are in place for the control of direct PM2.5 and PM2.5 precursors. U.S. EPA defines

a BACM level of control as the maximum degree of emissions reductions achievable from a source or source category considering energy, economic, and environmental impacts. Further, as discussed in *Chapter 5* of the 2024 PM2.5 Plan, because the Valley has requested an attainment date extension for the 12 µg/m3 annual PM2.5 standard, the SIP must demonstrate additional control measure stringency, going beyond BACM to satisfy Most Stringent Measure (MSM) requirements. U.S. EPA defines a MSM level of control as the maximum degree of emission reductions that has been required or achieved from a source or source category in any other attainment plan or in practice in any other state and that can feasibly be implemented in the area.

The 2024 PM2.5 Plan contains analyses demonstrating that measures adopted by CARB and the District are BACM/MSM in compliance with the requirements of the Act. The District control measure evaluation is provided in *Appendix C* and the State control measure evaluation is provided in *Appendix D*.

Reasonable Further Progress Demonstration

The Act requires attainment plans to demonstrate reasonable further progress (RFP). RFP is the steady progress in emission reductions between the baseline year and attainment date, and ensures that nonattainment areas will begin reducing the emissions causing air pollution in a timely manner and not delay implementation of control programs until immediately before the attainment deadline. Ongoing implementation of CARB and District measures will achieve reductions of NOx and direct PM2.5 emissions to meet target emissions levels in RFP milestone years, satisfying Act requirements.

For the 12 µg/m3 annual PM2.5 standard, the emissions that must demonstrate RFP include direct PM2.5 and applicable precursors. As discussed above, CARB determined that SOx, ROG, and ammonia do not contribute significantly to PM2.5 levels in the San Joaquin Valley; as such, they are excluded from the RFP demonstration. For NOx and direct PM2.5, a demonstration is required showing that emissions will be decreased in a linear manner from the base year emissions to the attainment inventory.

Table 14 below provides a summary of the RFP targets for NOx and direct PM2.5 in the milestone years 2025 and 2028, the attainment year 2030, and the post-attainment year 2031. The RFP targets show emission reductions that are generally linear.

Table 14. Generally Linear RFP Targets for NOx and PM2.5

Pollutant	2025	2028	2030	2031
NOx	135.19	101.36	78.0	78.0
PM2.5	59.04	56.54	54.88	54.88

The RFP discussion and demonstrations can be found in *Appendix G* of the 2024 PM2.5 Plan.

Quantitative Milestones

The Act requires that PM2.5 SIPs include quantitative milestones to demonstrate that reasonable further progress has been made towards attaining the PM2.5 standard. In the 2024 PM2.5 Plan, milestone years for the 12 µg/m3 annual PM2.5 standard are 2025 and 2028, with an additional post-attainment year of 2031. For each of these years, CARB and the District will report on progress made implementing measures in the 2024 PM2.5 Plan. CARB is committing to report on implementation of key mobile source measures including the Clean Truck Check Program (previously known as the Heavy-Duty Vehicle Inspection and Maintenance Program), the Advanced Clean Fleets Regulation, and the In-Use Off-Road Diesel-Fueled Fleets Regulation, as well as the status of any new CARB SIP measures adopted between 2024 and 2030 that provide for attainment of the 12 µg/m3 standard.

Detailed discussion of the quantitative milestones can be found in *Appendix G* of the 2024 PM2.5 Plan.

Contingency Measures

Contingency measures are required for all federal PM2.5 standards. The Act and General Preamble of U.S. EPA guidance provide the basic requirements and framework for establishing contingency measures. In addition, a 2016 court case, Bahr v. U.S. EPA (*Bahr*), has provided further interpretation of implementation requirements. Contingency must take effect with minimal action by either the State or the U.S. EPA following a determination by the U.S. EPA Administrator that the nonattainment area has failed to: (1) meet any RFP requirement in an attainment plan, (2) meet any quantitative milestone in an attainment plan, (3) submit a quantitative milestone report, or (4) attain the applicable PM2.5 standard by the applicable attainment date.

In 2023, CARB and the District submitted three measures to address contingency measure requirements for PM2.5 standards in the Valley, including the 12 µg/m3 annual PM2.5 standard. These submittals also served to resolve a November 26, 2021, U.S. EPA disapproval and U.S. EPA's August 7, 2023, proposed *Federal Implementation Plan for Contingency Measures for the Fine Particulate Matter Standards; San Joaquin Valley*. These

measures, collectively referred to as the San Joaquin Valley Contingency Measures package, are as follows.

1. The *PM2.5 Contingency Measure State Implementation Plan Revision* included a contingency measure feasibility analysis of all emission sources under District and CARB control, an amendment to Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) to add a contingency measure provision, and a commitment to evaluate District Rule 8051 (Open Areas) for a potential second contingency measure. The PM2.5 Contingency Measure State Implementation Plan Revision was adopted by the District on May 18, 2023, and submitted by CARB to U.S. EPA on June 8, 2023; [15]
2. *Amendments to Rule 8051: Open Areas* included revisions to District Rule 8051 to add a contingency provision and was adopted by the District on September 21, 2023, and submitted by CARB to U.S. EPA on October 16, 2023;[16] and
3. The *California Smog Check Contingency Measure State Implementation Plan Revision* included a trigger for the 12 µg/m3 PM2.5 standard in the San Joaquin Valley. The *California Smog Check Contingency Measure State Implementation Plan Revision* was adopted by CARB on October 26, 2023, and submitted to U.S. EPA on November 13, 2023.[17]

The San Joaquin Valley Contingency Measures package was developed by CARB and the District consistent with U.S. EPA *Draft Guidance on the Preparation of State Implementation Plan Provisions that Address the Nonattainment Area Contingency Measure Requirements for Ozone and Particulate Matter* published in March 2023. In two separate actions in December 2023, U.S. EPA proposed approval of the measures in the San Joaquin Valley Contingency Measures package.[18] The San Joaquin Valley Contingency Measures package, consisting of the three measures described above, satisfies Act contingency measure requirements for the 12 µg/m3 annual PM2.5 standard.

Detailed discussion of contingency measures for the 12 µg/m3 annual PM2.5 standard is provided in *Appendix G* of the 2024 PM2.5 Plan.

Transportation Conformity Budgets

The Act establishes transportation conformity requirements intended to ensure that transportation activities do not interfere with air quality. Transportation plans, programs, and projects that obtain federal funds or approvals must not result in emissions that exceed the

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[15] SJVAPCD. *PM2.5 Contingency Measure State Implementation Plan Revision*. May 18, 2023. *https://ww2.valleyair.org/media/hgqb1amd/0000-pm25-contingency-measure-sip-revision.pdf*

[16] SJVAPCD. *Amendments to Rule 8051 (Open Areas)*. September 21, 2023. *https://ww2.valleyair.org/media/04efhheh/item-9_-adopt-proposed-ammendments-to-rule-8051.pdf*

[17] CARB. *California Smog Check Contingency Measure State Implementation Plan Revision*. Published September 15, 2023. *https://ww2.arb.ca.gov/sites/default/files/2023-09/Smog_Check_CM_SIP_Revision_Final.pdf*

[18] *88 Fed. Reg. 87,981* (December 20, 2023); *88 Fed. Reg. 87,988* (December 20, 2023)

"motor vehicle budget," the portion of the total emissions inventory from on-road highway and transit vehicles in all RFP milestone years and the attainment year of an approved SIP.

The 2024 PM2.5 Plan establishes county-level on-road motor vehicle emission budgets for NOx and direct PM2.5 using CARB's EMFAC2021 on-road emissions inventory model. These emission budgets fulfill the requirements of the Act and U.S. EPA regulations to ensure that transportation projects will not interfere with progress and attainment of the PM2.5 standards.

Additional details on the on-road motor vehicle emission budgets can be found in *Appendix D* of the 2024 PM2.5 Plan.

Requirements Addressed through Separate Submittals

Initial SIP elements required for the 12 µg/m3 annual PM2.5 standard serious area plan—including base year emissions inventories, precursor demonstration, and BACM—were addressed through the District and CARB's *Initial SIP Requirements for the 2012 Annual PM2.5 Standard*, as adopted by the District Governing Board on October 19, 2023, and subsequently submitted to U.S. EPA through CARB on November 21, 2023. Nonattainment New Source Review was submitted separately to U.S. EPA as a revision to the California SIP on October 17, 2023. In the precursor demonstration, CARB followed U.S. EPA guidance to evaluate if ammonia, SOx, and ROG, contribute significantly to PM2.5 levels that exceed the 12 µg/m3 annual PM2.5 standard. Using sensitivity-based analysis in the base and future years, CARB determined that ammonia, SOx, and ROG are not significant precursors to PM2.5 in the San Joaquin Valley (see *Appendix F* to the 2024 PM2.5 Plan).

Civil Rights, Environmental Justice, and Equity

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.[19] Other relevant federal laws prohibit discrimination in the use of federal funds based on disability, sex and age.[20] In addition, state law under Government Code § 11135 provides that state funds may not be used to unlawfully deny full and equal access to the benefits of, or unlawfully subject to discrimination under any program or activity that is conducted, operated, or administered by the state or by any state agency on the basis of specific protected categories, including race, national origin, ethnic group identification, ancestry, religion, age, sex, sexual orientation, gender identity, gender expression, marital status, color, genetic information, medical condition, and mental or physical disability. As a recipient of federal and state funds, CARB must ensure it complies with U.S. civil rights laws, U.S. EPA's Title VI implementation regulations, state civil rights laws, and the California Civil Rights Department implementation regulations in its relevant programs and policies. CARB implements its Civil Rights Policy to meet these obligations as described further below.

Additionally, state law defines environmental justice as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Government Code, § 65040.12, subd. (e)(1)). Environmental justice includes, but is not limited to, all of the following: (A) The availability of a healthy environment for all people. (B) The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not disproportionately borne by those populations and communities. (C) Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision making process. (D) At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions (Government Code, § 65040.12, subd. (e)(2)). The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into CARB's programs consistent with the directives of state law. These policies apply to all communities in California but are intended to address the disproportionate environmental exposure burden borne by low-income communities

[19] 42 U.S.C. section 2000d to 2000d-7.

[20] 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))

and communities of color. Environmental justice is one of CARB's core values and fundamental to achieving its mission.

Over the past 30 years, CARB, local air districts, and federal air pollution control programs have made substantial progress towards improving air quality in California. Despite this progress, some areas in California still exceed health-based air quality standards for ozone and PM. One of the most important factors for identifying disadvantaged communities is disproportionate effects of environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.

Central to CARB's mission is the commitment to racial equity and environmental justice and ensuring a clean and healthy environment for all Californians. Many low-income and overburdened communities within the nonattainment areas, and across the State, continue to experience disproportionately high levels of air pollution and the resulting detrimental impacts to their health. Research[21] shows large disparities in exposure to pollution between disadvantaged and other communities as well as between racial groups, with Black and Latino populations experiencing significantly greater air pollution impacts than white populations. Mobile source pollution exposures show some of the highest disparities second to the industrial sector.[22] To address longstanding environmental and health inequities from elevated levels of criteria pollutants (and toxic air contaminants), CARB prioritizes environmental justice, incorporating racial equity, and conducting meaningful community engagement in its policy and planning efforts and programs. 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.

Consistent with the Act, the State is providing the necessary assurances that implementing the 2024 PM2.5 Plan would not be prohibited by Title VI. In developing the 2024 PM2.5 Plan and other relevant planning documents, CARB staff engaged in a thorough public process to seek public input on the plan and address the requirements of Title VI and other relevant laws. The 2024 PM2.5 Plan and other relevant planning documents meet CARB's applicable obligations under the Act and Title VI and do not disproportionately impact people of any race, color, or national origin. Further, they are consistent with CARB's environmental justice policies, and efforts to incorporate racial equity and engage with communities in policy and planning programs. The 2024 PM2.5 Plan will result in emissions reductions that cause public health benefits across the San Joaquin Valley.

[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

[22] Ibid.

Public Involvement in Development of the 2016 State SIP Strategy, Valley State SIP Strategy, 2022 State SIP Strategy, and 2024 PM2.5 Plan

The 2024 PM2.5 Plan relies on CARB emission reduction measures and commitments contained in the *2016 State Strategy for the State Implementation Plan* (2016 State SIP Strategy)[23], the *San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan* (Valley State SIP Strategy,[24] and the *2022 State Strategy for the State Implementation Plan* (2022 State SIP Strategy).[25] CARB prioritized public participation with impacted communities as an essential part of developing the measures in these strategies which form the basis of the 2024 PM2.5 Plan.

The 2024 PM2.5 Plan includes commitments and measures from these strategies specific to the San Joaquin Valley. Each of these documents has been submitted into the California SIP. In developing the 2016 State SIP Strategy, Valley State SIP Strategy, 2022 State SIP Strategy, and 2024 PM2.5 Plan, CARB staff engaged in a thorough public process to seek input on the draft strategies and plans and address the requirements of Title VI. Efforts undertaken by California in developing these plans are consistent with prioritizing environmental justice and ultimately will reduce mobile source emissions from heavy-duty trucks and other indirect pollution sources around facilities like warehouses, railyards, and ports, as well as reducing other emissions, which will reduce health risk in California's most impacted communities. CARB will continue to address the requirements of Title VI in implementing the above plans and related Act requirements. To facilitate and guide future state implementation efforts, CARB encourages U.S. EPA to finalize guidance to further clarify Title VI requirements and expectations.

2016 State SIP Strategy

On May 17, 2016, CARB released the Proposed 2016 State SIP Strategy, which described CARB's proposed commitment to achieve the mobile source and consumer products emission reductions needed to meet federal air quality standards over the next 15 years with a focus on ozone attainment for the 75 parts per billion (ppb) 8-hour ozone standard. Staff conducted a public workshop in Sacramento and participated in a San Joaquin Valley ozone plan workshop. Finally, staff presented the strategy and proposed measures to the Board on September 22, 2016, to receive Board direction, as well as to provide an

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[23] CARB. 2016 State Strategy for the State Implementation Plan. *https://ww2.arb.ca.gov/sites/default/files/classic/planning/sip/2016sip/rev2016statesip.pdf*

[24] CARB. San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan. *https://ww2.arb.ca.gov/sites/default/files/classic/planning/sip/2016sip/valleystrategy.pdf?_ga=2.112888324.1669500841.1716396186-83677240.1631807913*

[25] CARB. 2022 State Strategy for the State Implementation Plan. *https://ww2.arb.ca.gov/sites/default/files/2022-11/Proposed_2022_State_SIP_Strategy.pdf*

additional opportunity for public comment. CARB released the Revised 2016 State SIP Strategy on March 7, 2017, and the Board approved it on March 23, 2017.

Within the context of the 2016 State SIP Strategy, the Board also directed staff to return at a later date with a proposal to achieve additional emission reductions from mobile sources by 2024 and 2025, as part of a comprehensive plan to attain the PM2.5 standards in the San Joaquin Valley. CARB implemented this direction and provided many opportunities for public engagement on meeting the PM2.5 standards, including the 12 µg/m3 standard. CARB held a workshop in Fresno in December 2016 with community members and stakeholders to discuss specific emission reduction needs, strategy approaches, and opportunities for early reductions to meet PM2.5 standards in the Valley. In May 2017, CARB held a second community meeting in Fresno and then provided an update to the Board on the progress of identifying the emission reductions needed to meet PM2.5 standards in the San Joaquin Valley, including from the Heavy-Duty Inspection and Maintenance Program. In September 2017, CARB and the District co-hosted a workshop in Bakersfield to continue the public process and CARB staff also updated the Board on the progress on the additional emission reductions. In August 2018, CARB, the District, and U.S. EPA held a community meeting in Fresno that presented the attainment strategy for all PM2.5 standards, including the 12 µg/m3 standard.

Valley State SIP Strategy

The Valley State SIP Strategy builds on the measures approved in the 2016 State SIP Strategy by including San Joaquin Valley-specific measures that provide for the mobile source emissions reductions needed to attain the PM2.5 standards in 2024 and 2025 for the 2018 PM2.5 Plan. Documents related to the Valley State SIP Strategy were published for public review 30 days in advance of any Board hearings. CARB Board hearings and CARB-hosted workshops related to the Valley State SIP Strategy offered simultaneous Spanish translation. Throughout the process of developing the Valley State SIP Strategy, CARB staff were in regular contact with community-based organizations, providing updates, responding to questions, and listening to feedback. The Valley State SIP Strategy was published on the CARB website for public review on September 21, 2018, in advance of the Board hearing, which was held on October 25, 2018.

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 proactively reached out to and met separately with a number of community-based organizations who provided input on the potential control measures proposed by CARB. CARB staff published the 2022 State SIP Strategy Draft Measures document on October 6, 2021, which included the new "Public Measure Suggestions" section reflecting input coming out of these meetings with community-based organizations and suggestions from members of the public.

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 presented a detailed discussion on the potential measures and allowed for the public and interested parties to comment on each potential measure. CARB staff also participated in the Valley control 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 an informational update was presented at the Board Meeting in February 2022 to discuss and obtain public feedback. As a result of these extensive outreach and engagement efforts, CARB received many suggestions for potential additional State measures to be included in the Proposed 2022 State SIP Strategy. Many of the items have also been included or discussed as part of various Community Emissions Reduction Programs developed by selected communities, together with their air district partners, under CARB's Assembly Bill 617 Community Air Protection Program. CARB explored ways in which these community-based concepts could be included as measures in the Proposed 2022 State SIP Strategy and welcomed feedback and additional suggestions from the public during the remainder of the Strategy development process. CARB, in coordination with the Department of Pesticide Regulation, included the Pesticides: 1,3-Dichloropropene Health Risk Mitigation measure in the 2022 State SIP Strategy based on public input.

These workshops and Board updates for the 2022 State SIP Strategy 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 opportunities for public feedback, input, and ideas. And finally, CARB released the Proposed 2022 State SIP Strategy and hosted a fourth workshop in August 2022, prior to the 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 in the San Joaquin Valley. 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 processes continue as each measure within the Strategy goes through its own public process to engage with impacted communities and stakeholders 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 longstanding 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 Air Pollution Control District, other State agencies, and the federal government to ensure emissions reductions are achieved.

2024 PM2.5 Plan

In addition to the public process for the 2016 State SIP Strategy, Valley State SIP Strategy, and 2022 State SIP Strategy, CARB and the District undertook an appropriate public process to develop the 2024 PM2.5 Plan as outlined in detail in *Chapter 1* of the 2024 PM2.5 Plan.

Recent and Continuing Efforts

CARB prioritizes environmental justice, incorporating racial equity, and conducting meaningful community engagement in its policy and planning efforts and programs. This work aims 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.

Across the agency, CARB is engaged in specific localized efforts including development of community air monitoring networks to learn about local exposures, development of a racial equity assessment lens to consider benefits and burdens of CARB programmatic work in the planning stages, continuously increasing and improving community engagement efforts, and implementation of Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017), known as the Community Air Protection Program.[26] Significant progress has been made to address air pollution statewide and in local communities, and it is imperative to also ensure all Californians have access to healthy air quality.

Despite significant air quality and public health improvements through California's air quality programs, many communities continue to be impacted by air pollution. AB 617 requires community-focused and community-driven action to reduce air pollution and improve public health in communities that experience disproportionate burdens from exposure to air pollutants in California. CARB and air districts implement AB 617 through the Community Air Protection Program, which has created new opportunities for CARB and the local air districts including the San Joaquin Valley Air Pollution Control District to understand community member concerns through active participation in envisioning, developing, and implementing actions to clean the air in their communities. The Community Air Protection Program was first implemented starting in 2018 and has since had 19 communities selected into the Program. In the San Joaquin Valley, four communities have been selected: South Central Fresno, Shafter, Stockton, and Arvin/Lamont, representing about 385 thousand people. Each of these communities has an approved Community Emission Reduction Plan (CERP) and Community Air Monitoring Plan (CAMP), to implement

[26] CARB. Community Air Protection Program. *https://ww2.arb.ca.gov/capp*

local monitoring and emission reduction strategies to reduce both criteria and toxic air pollutants in these cumulative emissions burdened communities.[27]

CARB updated the AB 617 Statewide Strategy in October 2023, also referred to as the Community Air Protection Program Blueprint 2.0. The revision of the Program Blueprint with input from community-based organizations and impacted communities resulted in the design of more efficient approaches to maximize similar air quality benefits for more impacted communities.

In 2023, CARB adopted the Vision for Racial Equity to guide our external work, including the development of State Implementation Plans, 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, CARB recently contracted with 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.

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 Title VI guidance from U.S. EPA to address Act section 110(a)(2)(E) as the State develops future clean air plans.

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[27] CERPs for South Central Fresno, Shafter, Stockton, and Arvin/Lamont are available on the District AB 617 webpage at *https://community.valleyair.org/community-emission-reduction-programs*. CAMPs are available at *https://community.valleyair.org/community-air-monitoring*.

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.[28]

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

> It is the California Air Resources Board (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 nondiscrimination 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:

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[28] 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 Complaint 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[29] available 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

[29] 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*

- California Code of Regulations, title 2, section 10000 et seq.

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. As mentioned above, CARB encourages U.S. EPA to issue additional guidance to further clarify Title VI requirements and expectations to assist state implementation efforts.

Amendments to the 15 µg/m3 SIP Revision and Agricultural Equipment Incentive Measure for the 1997 PM2.5 Standard

Background

15 µg/m3 SIP Revision

CARB adopted the 15 µg/m3 SIP Revision on September 23, 2021. As part of the 15 µg/m3 SIP Revision, CARB committed to 2023 aggregate emission reductions of 3.0 tpd of NOx and 0.04 tpd of PM2.5 from CARB's Heavy-Duty Inspection and Maintenance Program. On December 14, 2023, U.S. EPA approved the 15 µg/m3 SIP Revision along with CARB's aggregate commitment of 3.0 tpd of NOx and 0.04 tpd of PM2.5 emission reductions. This U.S. EPA approval also recognized that the Valley Incentive Measure adopted by the Board on December 12, 2019, and approved by U.S. EPA on December 27, 2021, for Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer) and Funding Agricultural Replacement Measures for Emission Reductions Program (FARMER) agricultural equipment projects provided extra emission reductions in the 2023 timeframe.

Valley Incentive Measure

CARB's Valley State SIP Strategy contains the State's emission reduction commitment for the San Joaquin Valley attainment demonstration for the 35 µg/m3 24-hour PM2.5 standard in 2024 and 12 µg/m3 annual PM2.5 in 2025, including a commitment to adopt an agricultural equipment incentive measure. On December 12, 2019, CARB adopted the Valley Incentive Measure to fulfill the commitment for Board consideration by 2020 and demonstrate how an increment of emissions reductions from incentive programs will be quantified towards the State's aggregate commitment in the California SIP. According to U.S. EPA guidelines, emissions reductions achieved from the implementation of an incentive program can be credited towards the state's aggregate commitment if they meet the following integrity elements: enforceable, quantifiable, surplus, and permanent.[30] The Valley Incentive Measure also documented that these reductions met U.S. EPA's integrity elements for SIP-creditable emission reductions, enforceable, quantifiable, surplus, and permanent. CARB submitted the Valley Incentive Measure to U.S. EPA to be included in the California SIP. U.S. EPA proposed to approve the Valley Incentive Measure on March 23, 2020, and finalized approval of a majority of the projects in the Valley Incentive Measure on

[30] See "Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)," October 24, 1997, at page 6-7; "Improving Air Quality with Economic Incentive Programs," January 2001 at Section 4.1; "Incorporating Emerging and Voluntary Measures in a State Implementation Plan (SIP," September 2004 at pages 3-4' and "Diesel Retrofits: Quantifying and Using Their Emission Benefits in SIPs and Conformity," February 2014 at pages 27-29

December 27, 2021 (86 FR 73106)[31]. In the approval, U.S. EPA determined that these projects met the integrity elements, enforceable, quantifiable, surplus, and permanent. CARB staff anticipates that U.S. EPA will finalize approval of the remaining projects in the future.

For the Valley Incentive Measure, CARB staff collaborated with District staff to identify agricultural equipment that are captive in the Valley and which are funded by CARB's Carl Moyer and FARMER Programs, and by U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Environmental Quality Incentive Program (EQIP) to achieve the emissions reductions from this effort. In U.S. EPA's final action, they approved the portions of the Valley Incentive Measure that were attributed to projects funded through Carl Moyer and FARMER Programs. These reductions were credited against CARB's 2024 and 2025 aggregate emission reduction commitment for the 35 µg/m3 24-hour PM2.5 and 12 µg/m3 annual PM2.5 standards in the Valley. Since the Valley Incentive Measure included projects to achieve SIP credit in 2024, the projects through December 31, 2022, also are SIP-creditable for 2023 and meet the integrity elements, enforceable, quantifiable, surplus, and permanent.

As part of the U.S. EPA-approved Valley Incentive Measure enforceable commitment, CARB must submit annual demonstration reports. The *2022 Annual Demonstration Report San Joaquin Valley Agricultural Equipment Incentive Measure Covering Projects Completed Through 12/31/2022* (2022 Annual Demonstration Report)[32] includes the reporting of any changes to 2011 Moyer, 2017 Moyer, and FARMER Program Guidelines and their related impacts on program integrity, description of CARB's and District's actions in ensuring Moyer and FARMER Program integrity, respectively, and identification of projects implemented in the prior year for each program and their corresponding details, as listed in CARB Resolution 19-26 and Valley Incentive Measure Technical Clarifications dated November 23, 2020. The 2022 Annual Demonstration Report is appropriate to use to document the projects that provide credit for in 2023 since it includes all projects in place as of December 31, 2022, and the projects remain in place through December 31, 2023. The 2022 Annual Demonstration Report is included as Appendix B to this Staff Report.

Proposed Amendments

CARB is proposing a SIP revision to amend the Valley Incentive Measure to include a quantification of emission reductions for 2023 from existing Carl Moyer and FARMER agriculture equipment projects, and to amend the 15 µg/m3 SIP Revision to document that these reductions are being used as a substitute measure to meet the 2023 aggregate

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[31] Federal Register, U.S. EPA final rulemaking on Agricultural Incentive Measure (web link: *https://www.federalregister.gov/documents/2021/12/27/2021-27798/air-plan-approval-california-san-joaquin-valley-unified-air-pollution-control-district*)

[32] CARB. *https://ww2.arb.ca.gov/sites/default/files/2023-05/CARB-2022-Annual-Demonstration-Report-SJV-Ag-Incentive-Measure.pdf*

emission reduction commitment. As documented in the 2022 Annual Demonstration Report, the Carl Moyer and FARMER agricultural equipment projects completed by December 31, 2022, achieved reductions of 5.0 tpd of NOx and 0.27 tpd PM2.5 emission reductions, well in excess of the 3.0 tpd of NOx and 0.04 tpd aggregate commitment in the 15 µg/m3 SIP Revision. The source of these tons is documented in Table 15 below.

Table 15. Moyer and FARMER Projects in 2022 Annual Demonstration Report

Source of Emission Reductions	NOx (tpd)	PM2.5 (tpd)
2011 Moyer Program Projects in 2024 (2022 Annual Demonstration Report Table 3)	1.396	0.055
2017 Moyer Program Projects in 2024 (2022 Annual Demonstration Report Table 5)	1.193	0.069
FARMER Program Projects Completed Prior to Adoption of the Valley Incentive Measure, in 2024 and 2025 (2022 Annual Demonstration Report Table 7)	0.258	0.017
FARMER Program Projects Completed Since Adoption of the Valley Incentive Measure, in 2024 and 2025 (2022 Annual Demonstration Report Table 8)	2.16	0.13
Total	5.007	0.271

Environmental Impacts

Introduction

This section provides the basis for CARB's determination that no subsequent or supplemental environmental analysis is required for the proposed San Joaquin Valley 2024 PM2.5 Plan, which includes the CARB Staff Report, and the amendments to the Valley Incentive Measure and 15 µg/m3 SIP Revision contained in the Staff Report ("project"). A brief explanation of this determination is provided below.

CARB's regulatory program which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA) (see California Code of Regulations (CCR), title 14, section 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. CARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the Staff Report to comply with CEQA (see 17 CCR §§ 60000-60008). This EA serves as a substitute document equivalent to an addendum to the prior 2016 State SIP Strategy EA and 2022 State SIP Strategy EA to explain CARB's determination that no additional environmental analysis is required for this action.

Proposed Amendments

The 2024 PM2.5 Plan provides the strategy for how the State will meet the 2012 PM2.5 NAAQS in the San Joaquin Valley as expeditiously as practicable, but no later than December 31, 2030, as a result of emissions reductions from implementing the CARB and District control measures in the Plan. The control strategy includes an aggregate emissions reduction commitment from CARB of 7.3 tpd NOx and 0.2 tpd PM2.5 in 2030 to provide for attainment. The 2024 PM2.5 Plan relies on previously adopted control measures, quantifying reductions from measures from the 2016 State SIP Strategy, Valley State SIP Strategy, 2018 PM2.5 Plan, and 2022 State SIP Strategy to reduce emissions of NOx and directly emitted PM2.5.

CARB is proposing a SIP revision to amend the Valley Incentive Measure to include a quantification of emission reductions for 2023 from existing Carl Moyer and FARMER agriculture equipment projects, and to amend the 15 µg/m3 SIP Revision to document that these reductions are being used as a substitute measure to meet the 2023 aggregate emission reduction commitment. As documented in the 2022 Annual Demonstration Report, the agricultural equipment projects completed by December 31, 2022, achieved reductions of 5.0 tpd of NOx and 0.27 tpd PM2.5 emission reductions, well in excess of the 3.0 tpd of NOx and 0.04 tpd aggregate commitment in the 15 µg/m3 SIP Revision. The

amendments to the Valley Incentive Measure and 15 µg/m3 SIP Revision rely on previously adopted control measures from the 2016 State SIP Strategy and Valley State SIP Strategy.

Prior Environmental Analysis

District Analysis

The District prepared a Notice of Exemption (NOE) for the 2024 PM2.5 Plan, which included quantifying reductions from previously adopted control measures in the 2018 PM2.5 Plan. The District's NOE determined the 2024 PM2.5 Plan is exempt from CEQA according to Section 15061 (b)(3) of the CEQA Guidelines, which states, a project is exempt from CEQA if, "(t)he activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA." As such, the District's assessment of the 2024 PM2.5 Plan determined it will not have any significant adverse effects on the environment.

Furthermore, the District also determined that the 2024 PM2.5 Plan is an action taken by a regulatory agency, the District, as authorized by state law to assure the maintenance, restoration, enhancement, or protection of air quality in the San Joaquin Valley where the regulatory process involves procedures for protection of air quality. CEQA Guidelines §15308 (Actions by Regulatory Agencies for Protection of the Environment) provides a categorical exemption for "actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. Construction activities and relaxation of standards allowing environmental degradation are not included in this exemption." The District determined no construction activities or relaxation of standards are included in the 2024 PM2.5 Plan.

Therefore, for all the above reasons, the 2024 PM2.5 Plan is exempt from CEQA. Pursuant to Section 15062 of the CEQA Guidelines, District staff will file a Notice of Exemption upon Governing Board approval of the 2024 PM2.5 Plan.

CARB Analysis

When the 2016 State SIP Strategy, Valley State SIP Strategy, and 2022 State SIP Strategy were proposed, CARB prepared EAs under its certified regulatory program (17 CCR §§ 60000-60008) to comply with the requirements of CEQA (Public Resources Code section 21080.5).

- 2016 State SIP Strategy

When the 2016 State SIP Strategy was proposed for the Board's consideration in March 2017, it included as an appendix an Environmental Analysis (EA) prepared under

CARB's certified regulatory program (Final EA for the Revised Proposed 2016 State SIP Strategy, or Final EA)[33]. The 2016 State SIP Strategy is designed to reduce emissions of ozone-forming pollutants and fine particulate matter (PM2.5), and describes the programmatic and regulatory mechanisms of the federal Clean Air Act (the Act) requirements to meet federal air quality standards. The Final EA provided a programmatic analysis of the potentially significant environmental effects related to implementation of the 2016 State SIP Strategy measures, and their associated reasonably foreseeable compliance responses.

Reasonably foreseeable compliance responses associated with the 2016 State SIP Strategy include: increased infrastructure for natural gas and hydrogen refueling stations; increased demand for lithium battery manufacturing and associated increases in lithium mining and exports; increased recycling or refurbishment of lithium batteries; increased vehicle turnover related scrappage and recycling, or sales out of state; and increased emission testing of vehicles which may result in construction of new testing centers to monitor vehicle emissions throughout the State. As described in the 2016 State SIP Strategy, it is anticipated that the replacement rate of on-road light-duty and heavy-duty vehicles, as well as off-road equipment and engines, would be increased, requiring that older models are sold outside of California, scrapped, or recycled. Compliance responses could also include construction and operation of new manufacturing facilities to support near-zero and zero-emission technologies and increased manufacturing of low-NOx engines. Finally, increased Low-Emission Diesel demand stimulated by implementation of an Low-Emission Diesel standard is anticipated to increase cultivation or imports of Low-Emission Diesel fuels or feedstocks, including renewable hydrocarbon diesel (more commonly known as renewable diesel) from feedstocks such as oil seeds and tallow; compressed or liquefied renewable Low-Emission Diesel fuels from gas to liquid processing of biomethane or forest residues; biodiesel and/or other Low-Emission Diesel fuels. In addition, increased Low-Emission Diesel demand may increase processing of Low-Emission Diesel fuels, and shipment of finished Low-Emission Diesel fuels and/or their feedstocks. Infrastructure to support collection, processing, and distribution of Low-Emission Diesel fuels, including biomethane, and associated feedstocks may also increase.

The Final EA is based on the reasonably foreseeable compliance responses that appear most likely to occur based on currently available information, if the recommended actions identified in the 2016 State SIP Strategy are implemented. The Final EA concluded that implementation of the SIP measures could result in the following short-term and long-term beneficial impacts: beneficial long-term impacts to air quality, energy demand, and greenhouse gases. It further concluded that the proposed measures would result in less-than-significant impacts to: energy demand, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, and recreational

[33] Final EA for the Revised Proposed 2016 State Strategy for the State Implementation Plan *https://ww2.arb.ca.gov/sites/default/files/classic/planning/sip/2016sip/rev2016statesip_ceqa.pdf*

services. The Final EA also concluded that there could be potentially significant and unavoidable adverse impacts to: aesthetics, agriculture and forest resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, transportation/traffic, and utilities and service systems.

The potentially significant and unavoidable adverse impacts are primarily related to short-term, construction-related activities, which explains why some resource areas are identified above as having both potentially significant adverse impacts and beneficial or less-than-significant impacts. While many of the identified potentially significant adverse impacts could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, authority to do so is beyond the purview of CARB. The authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, causing inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. Consequently, the Final EA takes the conservative approach in its post-mitigation significance conclusion and disclosures of potentially significant and unavoidable adverse impacts, for CEQA compliance purposes. While the Final EA indicates that there may be potential adverse environmental impacts from the SIP measures, these impacts are speculative and cannot be precisely quantified until the scope of the measures is defined by actual proposed regulations.

Collectively, taking into account all components of the 2016 State SIP Strategy across all categories, the Final EA concluded that the potential adverse environmental impacts of the 2016 State SIP Strategy are outweighed by the substantial air quality benefits that will result from its adoption and implementation. At its hearing on March 23, 2017, the Board adopted Resolution 17-7 certifying the Final EA, approving the written responses to comments on the Final EA, and adopting the findings and statement of overriding considerations. A Notice of Decision was filed with the Office of the Secretary of the Natural Resources Agency for public inspection.

- Valley State SIP Strategy

When the Valley State SIP Strategy was proposed for the Board's consideration in October 2018, it included an EA equivalent to an addendum to the 2016 State SIP Strategy Final EA prepared under CARB's certified regulatory program.[34] This EA outlined that all of the measures included in the Valley State SIP Strategy were adequately analyzed in the 2016 State SIP Strategy Final EA. CARB determined that the actions in the Valley State SIP Strategy fall within the scope of actions that were proposed in the 2016 State SIP Strategy and analyzed in the Final EA. Additionally, CARB determined that the Valley State SIP

[34] Addendum EA for the San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan *https://ww2.arb.ca.gov/sites/default/files/classic/planning/sip/2016sip/valleystrategyappxa.pdf*

Strategy did not involve any changes that resulted in any new significant adverse environmental impacts or a substantial increase in the severity of the significant adverse impacts previously disclosed in the 2016 State SIP Strategy Final EA. Further, there were no changes in circumstances or new information that otherwise warranted any subsequent or supplemental environmental review. The Final EA, as supplemented by the addendum, adequately addressed the implementation of the project as modified by the Valley State SIP Strategy and no additional environmental analysis was required.

- 2022 State SIP Strategy

When the 2022 State SIP Strategy was proposed for the Board's consideration in September 2022, it included as an appendix an EA prepared under CARB's certified regulatory program (Final EA for the Proposed 2022 State SIP Strategy, or Final EA)[35]. The 2022 State SIP Strategy is designed to reduce emissions of ozone-forming pollutants and fine particulate matter (PM2.5), and describes the programmatic and regulatory mechanisms of the Act requirements to meet federal air quality standards. The Final EA provided a programmatic analysis of the potentially significant environmental effects related to implementation of the 2022 State SIP Strategy measures, and their associated reasonably foreseeable compliance responses.

Reasonably foreseeable compliance responses associated with the 2022 State SIP Strategy include: increased infrastructure for hydrogen refueling and electric recharging stations; increased demand for battery manufacturing and associated increases in mining and exports; increased recycling or refurbishment of batteries; reduced extraction, refinement, and distribution of oil and gas products; increased solid waste to be diverted to landfills from the scrapping of old equipment; the construction and operation of new manufacturing facilities to support zero-emission technologies; and the construction and operation of new power plants, solar fields, wind turbines, and other electricity generation facilities to accommodate increased electrical demand associated with the deployment of zero-emission technologies.

The Final EA is based on the reasonably foreseeable compliance responses that appear most likely to occur based on currently available information, if the recommended actions identified in the 2022 State SIP Strategy are implemented. The Final EA determined that implementation of the recommended actions included in the 2022 State SIP Strategy could result in the following short-term and long-term impacts: beneficial impacts to air quality (long-term operational-related) and greenhouse gases; less-than-significant impacts to energy demand, mineral resources, population and housing, public services, recreational services and wildfire; and potentially significant and unavoidable adverse impacts to aesthetics, agriculture and forest resources, air quality (short-term construction-related), biological resources, cultural resources, geology and soils, hazards and hazardous

[35] Final EA for the Proposed 2022 State Strategy for the State Implementation Plan *https://ww2.arb.ca.gov/sites/default/files/2022-09/Final%20EA%202022%20SIP.pdf*

materials, hydrology and water quality, land use, noise, transportation/traffic, tribal cultural resources, and utilities and service systems.

The potentially significant and unavoidable adverse impacts are primarily related to short-term, construction-related activities, which explains why some resource areas are identified above as having both potentially significant adverse impacts and beneficial or less-than-significant impacts. While many of the identified potentially significant adverse impacts could be reduced to a less-than-significant level by mitigation that can and should be implemented by local lead agencies, authority to do so is beyond the purview of CARB. The authority to determine project-level impacts and require project-level mitigation lies with land use and/or permitting agencies for individual projects, causing inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts. Consequently, the Final EA takes the conservative approach in its post-mitigation significance conclusion and disclosures of potentially significant and unavoidable adverse impacts, for CEQA compliance purposes. While the Final EA indicates that there may be potential adverse environmental impacts from the SIP measures, these impacts are speculative and cannot be precisely quantified until the scope of the measures is defined by actual proposed regulations.

Collectively, taking into account all components of the 2022 State SIP Strategy across all categories, the Final EA concluded that the potential adverse environmental impacts of the 2022 State SIP Strategy are outweighed by the substantial air quality benefits that will result from its adoption and implementation. At its hearing on September 22, 2022, the Board adopted Resolution 22-14 certifying the Final EA, including the written responses to comments on the Final EA, and adopting the findings and statement of overriding considerations. A Notice of Decision was filed with the Office of the Secretary of the Natural Resources Agency for public inspection.

Analysis

Legal Standards

When undertaking further planning actions for which an EIR or negative declaration (or equivalent substitute document) has previously been prepared, CARB looks to Public Resources Code section 21166 and CEQA Guidelines section 15162 for guidance on the requirements for subsequent or supplemental environmental review.

CEQA Guidelines section 15162 states:

(a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:
    (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of

new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

If a subsequent or supplemental EIR or negative declaration is not required, the lead agency may document its decision and supporting evidence in an addendum (14 CCR § 15164 (e)). The addendum and lead agency's findings should include a brief explanation, supported by substantial evidence, of the decision not to prepare a subsequent or supplemental EIR or negative declaration (14 CCR § 15164(e)). An addendum need not be circulated for public review, but must be considered by the lead agency prior to making a decision on the project (14 CCR § 15164(c), (d)).

Basis for Determination

As noted above, the District analyzed the potential environmental impacts from the measures in the 2024 PM2.5 Plan in its NOE for the 2024 PM2.5 Plan. Similarly, CARB analyzed the potential environmental impacts from the 2016 State SIP Strategy and 2022 State SIP Strategy in the EAs developed for those planning efforts. The proposed project here involves compiling these measures analyzed in the District's NOE for the 2024 PM2.5 Plan and CARB's 2016 State SIP Strategy and 2022 State SIP Strategy EAs, quantifying the emissions reductions associated with them, and submitting them to U.S. EPA for inclusion into the California SIP. This exercise does not involve any modifications to the District-specific measures included in the 2024 PM2.5 Plan or any of the CARB measures. There is no possibility that CARB's quantification of these emissions reductions resulting from measures to which CARB has already committed to pursue may result in a significant

adverse impact on the environment, nor any substantial evidence indicating this proposal could adversely affect air quality or any other environmental resource area.

CARB staff has determined that the proposed 2024 PM2.5 Plan with the Staff Report and the amendments to the Valley Incentive Measure and 15 µg/m3 SIP Revision contained in the Staff Report do not involve any changes that result in any new significant adverse environmental impacts or a substantial increase in the severity of the significant adverse impacts previously disclosed in the EAs for the 2016 State SIP Strategy or the 2022 State SIP Strategy, or the District's NOE for the 2024 PM2.5 Plan. Further, there are no changes in circumstances or new information that would otherwise warrant any subsequent or supplemental environmental review. The 2016 State SIP Strategy EA, 2022 State SIP Strategy EA, as supplemented by this Addendum, and District NOE for the 2024 PM2.5 Plan adequately address the implementation of the proposed project, and no additional environmental analysis is required.

The basis for CARB's determination that none of the conditions requiring further environmental review are triggered by the proposed modifications is based on the following analysis.

(1) There are no substantial changes to the components of the proposed project that were previously analyzed in the 2016 State SIP Strategy EA, 2022 SIP Strategy EA, and 2024 PM2.5 Plan NOE which require major revisions involving new significant environmental effects or a substantial increase in the severity of previously identified effects.

The Final EA for the 2016 State SIP Strategy, Final EA for the 2022 State SIP Strategy, and District NOE for the 2024 PM2.5 Plan fully address the implementation of the 2024 PM2.5 Plan and the proposed amendments to the 15 µg/m3 SIP Revision and Valley Incentive Measure, and no additional environmental analysis is required. CARB has determined that the proposed project does not involve any changes that result in any new significant adverse environmental impacts or a substantial increase in the severity of the significant adverse impacts previously disclosed in the Final EA for the 2016 State SIP Strategy, Final EA for the 2022 State SIP Strategy, or District NOE for the 2024 PM2.5 Plan. CARB does not propose to modify any of the commitments previously analyzed in those documents. The proposed project involves compiling these existing measures from the 2016 State SIP Strategy, 2022 State SIP Strategy, and 2024 PM2.5 Plan, quantifying the emissions reductions associated with them, and submitting them to U.S. EPA for inclusion into the California SIP. As noted above, this exercise does not involve any modifications to any of the previously approved measures.

(2) There are no substantial changes with respect to the circumstances under which the proposed project is being undertaken which require major revisions to the previous CEQA analyses involving new significant environmental effects or a substantial increase in the severity of previously identified effects.

There are no changes in circumstances that would otherwise warrant any subsequent or supplemental environmental review. CARB has determined that the proposed project does not involve any changes in circumstances that result in any new significant adverse environmental impacts or a substantial increase in the severity of the significant adverse impacts previously disclosed in the EAs for the 2016 State SIP Strategy and the 2022 State SIP Strategy, or the District's NOE for the 2024 PM2.5 Plan. As noted above, CARB does not propose to modify any of the commitments previously analyzed or modify any of the previously approved measures in the EAs for the 2016 State SIP Strategy and the 2022 State SIP Strategy, or the District's NOE for the 2024 PM2.5 Plan. The proposed project involves compiling these existing measures from the 2016 State SIP Strategy, 2022 State SIP Strategy, and 2024 PM2.5 Plan, quantifying the emissions reductions associated with them, and submitting them to U.S. EPA for inclusion into the California SIP. As noted above, this exercise does not involve any modifications to any of the previously approved measures.

(3) There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous CEQA analyses were completed, that changes the conclusions of the environmental analyses with regard to impacts, mitigation measures, or alternatives.

There is no new information that would otherwise warrant any subsequent or supplemental environmental review. CARB has determined that the proposed project does not involve any new information that changes the conclusions of the Final EA for the 2016 State SIP Strategy, Final EA for the 2022 State SIP Strategy, or the District's NOE for the 2024 PM2.5 Plan. As noted above, CARB does not propose to modify any of the commitments previously analyzed or modify any of the previously approved measures in the Final EA for the 2016 State SIP Strategy, Final EA for the 2022 State SIP Strategy, or the District's NOE for the 2024 PM2.5 Plan. The proposed project involves compiling these existing measures from the 2016 State SIP Strategy, 2022 State SIP Strategy, and 2024 PM2.5 Plan, quantifying the emissions reductions associated with them, and submitting them to U.S. EPA for inclusion into the California SIP. As noted above, this exercise does not involve any modifications to any of the previously approved measures.

CARB certified the EA for the 2016 State SIP Strategy on March 23, 2017, and the EA for the 2022 State SIP Strategy on September 22, 2022. The District will consider adopting the 2024 PM2.5 Plan on June 20, 2024, and will file a NOE upon Governing Board approval. No supplemental or subsequent environmental analysis is required for the proposed project because, as described above, the proposed project does not result in any new environmental impacts or in a substantial increase in the severity of the impacts previously disclosed for the 2016 State SIP Strategy, 2022 State SIP Strategy, or 2024 PM2.5 Plan. Further, there are no changes in circumstances or new information that would otherwise warrant any additional environmental review.

Finally, while in an abundance of caution CARB has prepared an addendum-equivalent analysis here, CARB notes that this SIP action also likely does not constitute a CEQA "project" in the first instance. As to the District-proposed measures, CARB lacks jurisdiction

to modify or remove these measures for any purpose other than compliance with Clean Air Act requirements. Therefore, CARB's review of those components is effectively ministerial. (See San Diego Navy Broadway Complex Coalition v. City of San Diego (2010) 185 Cal.App.4th 924, 934.) As to the CARB-derived measures, CARB has already committed to pursuing these measures as part of the 2016 State SIP Strategy and 2022 State SIP Strategy. CARB's actions here do not modify those previous commitments made at the time CARB approved the 2016 State SIP Strategy and the 2022 State SIP Strategy; rather, it amounts to quantifying the anticipated reductions from those commitments, and reaffirming CARB's commitment to those reductions.

Conclusion and Staff Recommendations

CARB staff has reviewed the 2024 PM2.5 Plan and has concluded that, together with the Staff Report, it meets the requirements of the Act for the 12 µg/m3 annual PM2.5 standard for a serious nonattainment area requesting an attainment deadline extension. CARB staff have also concluded that it is appropriate to amend the Valley Incentive Measure to include a quantification of emission reductions for 2023 from existing Carl Moyer and FARMER agriculture equipment projects, and to amend the 15 µg/m3 SIP Revision to document that these reductions are being used as a substitute measure to meet the 2023 aggregate emission reduction commitment. CARB staff recommends that the Board:

1. Adopt the San Joaquin Valley 2024 PM2.5 Plan and CARB Staff Report, including the CARB aggregate emissions reduction commitment of 7.3 tpd NOx and 0.2 tpd PM2.5 in 2030, attainment demonstration, emission inventory, Best Available Control Measure/Best Available Control Technology demonstration, Most Stringent Measure demonstration, RFP demonstration, quantitative milestones, contingency measures, and transportation conformity emission budgets;
2. Adopt the amendment to the Valley Incentive Measure to include quantification of emission reductions in 2023 from Carl Moyer and FARMER agricultural equipment projects as included in the CARB Staff Report;
3. Adopt the amendment to the 15 µg/m3 SIP Revision to allow the use of 5.0 tpd NOx and 0.27 tpd PM2.5 in 2023 from the Valley Incentive Measure as a substitute measure to meet the 2023 aggregate emission reduction commitment as included in the CARB Staff Report;
4. Direct the Executive Officer to submit the 2024 PM2.5 Plan and CARB Staff Report including the amendments to the Valley Incentive Measure and 15 µg/m3 SIP Revision contained in the CARB Staff Report to U.S. EPA as a revision to the California SIP;
5. Direct the Executive Officer to work with the District and U.S. EPA and take appropriate action to resolve any completeness or approvability issues that may arise regarding the SIP submissions; and
6. Authorize the Executive Officer to include in the SIP submittal any technical corrections, clarifications, or additions that may be necessary to secure U.S. EPA approval.

Appendix A: Weight of Evidence

Appendix B: 2022 Annual Demonstration Report: San Joaquin Valley Agricultural Equipment Incentive Measure Covering Projects Completed Through 12/31/2022