

California Air Resources Board

Staff Report
Proposed SIP Revision for the
12 $\mu\text{g}/\text{m}^3$ Annual PM_{2.5} Standard for the
San Joaquin Valley

Release Date: September 16, 2022

Board Hearing Date: October 27, 2022



For More Information

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Background

The California Air Resources Board (CARB or Board) adopted the 2016 State Strategy for the State Implementation Plan (2016 State SIP Strategy)¹ in March 2017. The 2016 State SIP Strategy describes the measures needed to achieve reductions in emissions of oxides of nitrogen (NO_x) and directly emitted fine particulate matter (PM_{2.5}) needed to attain federal ozone and PM_{2.5} ambient air quality standards across California. In the 2016 State SIP Strategy, CARB committed to bring to the Board or take action on a list of proposed State Implementation Plan (SIP) measures. CARB later developed the San Joaquin Valley Supplement to the 2016 State Strategy for the State Implementation Plan (Valley State SIP Strategy)² which identified additional measures and emission reductions needed to attain PM_{2.5} standards in the San Joaquin Valley (Valley). As in the 2016 State SIP Strategy, the Valley State SIP Strategy included a commitment to bring to the Board or take action on the proposed additional measures. The Valley State SIP Strategy was adopted by the Board in October 2018.

The 2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards (2018 PM_{2.5} Plan)³ was developed jointly by CARB and the San Joaquin Valley Air Pollution Control District (District) to address four PM_{2.5} federal ambient air quality standards: the 65 microgram per cubic meter (µg/m³) 24-hour, 15 µg/m³ annual, 35 µg/m³ 24-hour, and 12 µg/m³ annual standards. The 2018 PM_{2.5} Plan incorporates the commitments adopted by the Board in the Valley State SIP Strategy to pursue the measures and demonstrates how the Valley will attain the four PM_{2.5} standards, including the 12 µg/m³ standard by its attainment date of 2025. The 2018 PM_{2.5} Plan was adopted by CARB in January 2019 and submitted to the U.S. Environmental Protection Agency (U.S. EPA) as a revision to the California SIP in May 2019. Together, the Valley State SIP Strategy and 2018 PM_{2.5} Plan comprise a comprehensive State Implementation Plan (SIP) for the Valley.

As part of its approval of the 2018 PM_{2.5} Plan, the Board directed staff to provide an annual update on SIP implementation. In September 2021, the Board received an informational update on CARB and the District's implementation of the SIP and progress toward achieving the aggregate emission reductions specified in the SIP needed to meet the 12 µg/m³ annual standard in 2025. In October 2021, CARB staff also prepared a written report summarizing this progress, the Progress Report and Technical Submittal for the 2012 PM_{2.5} Standard (October 2021 Progress Report)⁴. The October 2021 Progress Report was posted to the CARB website and provided to U.S. EPA. The focus and purpose of the October 2021 Progress Report was to provide U.S. EPA an update on implementing the attainment

¹ *CARB Staff Report - Revised Proposed 2016 State Strategy for the State Implementation Plan, March 2017.* CARB. March 7, 2017.

² *CARB Staff Report - SJV Supplement to the 2016 State Strategy for the State Implementation Plan.* CARB. October 25, 2018.

³ *2018 Plan for the 1997, 2006, and 2012 PM_{2.5} Standards.* SJVAPCD. November 15, 2018.

⁴ *Progress Report and Technical Submittal for the 2012 PM_{2.5} Standard San Joaquin Valley.* CARB and SJVAPCD. October 19, 2021.

strategy found within the 2018 PM2.5 Plan, and to show that the emission reductions identified in the SIP, between CARB and the District, are anticipated to be fulfilled, and even exceeded, by the 2025 attainment year. The document supported U.S. EPA in its evaluation of the SIP for the 12 µg/m³ PM2.5 standard. In December 2021, U.S. EPA proposed to approve the Valley's Serious area plan for the 12 µg/m³ annual PM2.5 standard except for contingency measures (86 FR 74310).

CARB is proposing this revision to the SIP for the 12 µg/m³ annual PM2.5 standard (12 µg/m³ SIP Revision) to update the State's commitment to pursue certain incentive-based and regulatory mobile source SIP measures that are no longer viable for achieving SIP creditable reductions for the 12 µg/m³ annual PM2.5 standard. CARB and the District worked together to develop the proposed 12 µg/m³ SIP Revision. While this proposal is consistent with the update provided to the Board in September 2021 and the October 2021 Progress Report and our overall commitment in the 2016 State SIP Strategy and the Valley State SIP Strategy, CARB staff have updated the emission estimates based on the latest information.

SIP Revision

The SIP included CARB's commitment to bring to the CARB Board and take action on the proposed SIP measures for the Valley. The 12 µg/m³ SIP Revision proposes to strike from the SIP the State's commitment to pursue four measures which are no longer expected to achieve the anticipated emission reductions, based on U.S. EPA's requirements for SIP creditability. These measures are: the Accelerated Turnover of Trucks and Buses incentive measure, the Accelerated Turnover of Off-Road Equipment incentive measure, the Zero-Emission Airport Ground Support Equipment regulation, and the Low-Emission Diesel Fuel requirement. As described below, the incentive measures did achieve emission reductions, but the reductions were smaller than estimated and did not meet U.S. EPA SIP credit criteria. The two regulations are not at this time being pursued as measures that would contribute reductions in a timeline to support attainment of the 12 µg/m³ annual PM2.5 standard since the emission sources are being controlled via other CARB regulations. Although U.S. EPA's requirements to take prospective SIP credit for incentive measures can make it challenging to credit these measures in an attainment demonstration, incentive programs that introduce cleaner, and zero-emission, vehicles into the fleet provide real and significant emission reductions that can be accounted for retrospectively and are important for advancing technologies.

The commitment to pursue these four measures, which CARB is now striking, is summarized in Table 7 (State Measures and Schedule for the San Joaquin Valley) in the Valley State SIP Strategy. A strikeout revision to this table is provided below in Table 1.

Separately, CARB also committed in the SIP to achieve aggregate emission reductions needed for attainment, namely 32 tons per day (tpd) of NO_x emissions and 0.9 tpd of direct PM2.5 emissions⁵. Only the commitment to pursue the specified measures is being revised;

⁵ CARB Resolution 18-49. October 25, 2018

the State’s commitment to achieve the total aggregate emission reductions necessary for attainment remains the same, as described in further detail later in this document.

This 12 µg/m³ SIP Revision is consistent with the structure of CARB’s commitment in the Proposed 2022 State Strategy for the State Implementation Plan (2022 State SIP Strategy)⁶ which the Board will consider in September 2022 that was developed to provide emission reductions statewide for the 70 parts per billion 8-hour ozone standard. The 2022 State SIP Strategy specifies that for new measures, CARB staff need to bring a publicly noticed item to the Board whether there is a recommendation to pursue the measure or not. This proposed 12 µg/m³ SIP Revision is consistent with this proposed modified commitment structure by letting the public know why it is no longer appropriate to pursue these four measures for the Valley 12 µg/m³ annual PM2.5 standard.

Table 1. State Measures and Schedule for the San Joaquin Valley

Measures	Agency	Public Process Begins	Action	Implementation Begins
2016 State SIP Strategy Measures				
Advanced Clean Cars 2 Reduced ZEV Brake and Tire Wear	CARB	2017	2020-2021	2026
Lower In-Use Emission Performance Level:	CARB	2016	2017-20	2018+
Lower Opacity Limits for Heavy-Duty (HD) Vehicles	CARB	2016	2018	2018-2024
Amended Warranty Requirements for HD Vehicles	CARB	2016	2018	2022
Heavy-Duty Inspection and Maintenance Program	CARB	2019	2020	2022+
Low-NOx Engine Standard – California Action	CARB	2016	2019	2023
Low-NOx Engine Standard – Federal Action	U.S. EPA	2016	2019	2024
Innovative Clean Transit	CARB	2015	2018-2019	2020
Advanced Clean Local Trucks (Last Mile Delivery)	CARB	2016	2019	2020
Zero-Emission Airport Shuttle Buses	CARB	2017	2018	2023

⁶ [Proposed 2022 State Strategy for the State Implementation Plan August 12, 2022 \(ca.gov\)](#). CARB. August 12, 2022.

Measures	Agency	Public Process Begins	Action	Implementation Begins
More Stringent National Locomotive Emission Standards	U.S. EPA	2017	2017	2023+
Zero-Emission Off-Road Forklift Regulation Phase 1	CARB	2020	2020	2023
Zero-Emission Airport Ground Support Equipment	CARB	2018	2019	2023
Small Off-Road Engines	CARB	2016	2018-2020	2022
Transport Refrigeration Units Used for Cold Storage	CARB	2016	2018-2019	2020+
Low-Emission Diesel Fuel Requirement	CARB	2019	2021	2023
Proposed State Measures for the Valley				
Accelerated Turnover of Trucks and Buses Incentive Projects SIP-Creditable Measure*	CARB/SJVAPCD	-- 2018	-- by 2021	Ongoing
Accelerated Turnover of Agricultural Equipment Incentive Projects SIP-Creditable Measure*	CARB/SJVAPCD	-- 2018	-- by 2020	Ongoing
Cleaner In-Use Agricultural Equipment	CARB	2019	2025	2030
Accelerated Turnover of Off Road Equipment Incentive Projects SIP-Creditable Measure*	CARB/SJVAPCD	-- 2020	-- by 2021	Ongoing

* A SIP-creditable measure will be developed to demonstrate that the emission reductions from incentive projects can be credited towards the aggregate commitment

Incentive Measures

While regulations form the basis of the attainment strategy for the Valley and are critical to drive technology development and deployment of the cleanest technologies into the on- and off-road fleets, incentive efforts are needed to accelerate deployment of these cleaner

technologies in time to meet the air quality standards. The 2018 PM2.5 Plan included two incentive-based measures which would use incentive funds to accelerate turnover of older trucks, buses, and off-road equipment to achieve faster emission reductions.

The Valley State SIP Strategy included a commitment to pursue an Accelerated Turnover of Trucks and Buses incentive measure. This measure had a Board action target date of 2021, a 2025 NOx emission reduction target of 8 tpd, and did not quantify a 2025 PM2.5 emission reduction target. As described in the SIP, the Accelerated Turnover of Trucks and Buses measure was designed to provide incentive funding to accelerate the penetration of near-zero and zero-emission engines beyond the rate of natural turnover achieved through implementation of other measures identified for on-road heavy-duty trucks and buses. Using existing and new funding mechanisms, the measure would target large fleets with significant activity in the Valley for turnover to technologies that meet or exceed CARB's previous optional low-NOx standard of 0.02 grams per brake horsepower hour, and the emission standard requirements set through CARB's Heavy-Duty Engine and Vehicle Omnibus Regulation in 2021. Reductions could also be quantified for SIP credit from projects already funded and executed to date.

The Valley State SIP Strategy also included a commitment to pursue an Accelerated Turnover of Off-Road Equipment incentive measure. This measure had a Board action target date of 2021, a 2025 NOx emission reduction target of 1.5 tpd, and did not quantify a 2025 PM2.5 emission reduction target. The measure was designed to provide incentive funding to accelerate the penetration of near-zero and zero-emission off-road engines beyond the rate of natural turnover achieved through implementation of the other measures identified for off-road equipment. Categories of equipment could include oil drilling workover rigs, construction equipment, transport refrigeration units, and forklifts. CARB staff would use existing and innovative incentive funding programs to help increase the penetration of cleaner engine technology, achieving additional NOx reductions through accelerating the turnover of off-road engines.

U.S. EPA guidelines outline the requirements⁷ which a State must satisfy to demonstrate that incentive-funded projects achieve emission reductions which are eligible for SIP credit. Even if a project achieves real-world emission reductions, if it does not meet U.S. EPA SIP creditability requirements, those reductions cannot be credited against the State's emission reduction commitments. Among U.S. EPA's criteria, a project must be under contract during the entire year the State is requesting for SIP credit to be enforceable, in this case, through

⁷ U.S. EPA guidelines state that an incentive measure must demonstrate an established funding source and legal authority to implement incentive programs. The resulting emission reductions must also meet four "integrity elements" (surplus, permanent, quantifiable, and enforceable) including provisions that allow the public to measure and track programmatic results. See U.S. EPA documents "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 31, 2025, the 12 µg/m³ standard attainment year. While new, cleaner trucks and other equipment will provide emission reduction benefits for many years, contract lives are relatively short and the vast majority of projects funded to date through relevant CARB and District programs do not extend through 2025. Various CARB and District incentive programs have paid for the turnover of a substantial number of heavy-duty trucks and off-road equipment, including off-road equipment funded through CARB's Carl Moyer Memorial Air Quality Standards Attainment Program and around a hundred projects through the District's Truck Replacement Program, providing cost-effective emission reductions. However, no truck or off-road equipment projects have been funded that would meet the U.S. EPA requirements to be eligible for SIP credit in 2025. Thus, the emission reductions achieved cannot be credited toward the State's aggregate commitment to achieve the necessary emission reductions for the Valley.

Incentives continue to be a critical component of the state's clean air strategy. Moving forward, the incentivized turnover of trucks, buses, and off-road equipment to cleaner equipment will be accounted for as part of CARB's regular updates to the mobile source emissions inventories. Incentives will continue to be a vital component to improving air quality in the State and CARB continues to pursue regulations targeting trucks, buses, and off-road equipment. For example, in the 2022 State SIP Strategy, CARB is targeting turnover of the truck fleet with the Advanced Clean Fleets and Zero Emission Truck measures. Future CARB measures for off-road equipment include setting a new Tier 5 Off-Road Vehicle and Equipment engine standard, Amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation, and the Off-Road Zero-Emission Targeted Manufacturer Rule, which collectively target replacing high-emitting pieces of off-road equipment with the cleanest available technology. Incentives will play an important role in ensuring the success of these programs.

Regulations

Zero-Emission Airport Ground Support Equipment

The Valley State SIP Strategy included a commitment to pursue a Zero-Emission Airport Ground Support Equipment measure. The measure had a Board action target date of 2019, a 2025 NO_x emission reduction target of <0.1 tpd, and a 2025 PM_{2.5} emission reduction target of <0.1 tpd. As described in the SIP, the measure was designed to increase the penetration of the first wave of zero-emission heavy-duty technology in applications that are well suited to its use, and to facilitate further technology development and infrastructure expansion. A conservative strategy would rely on incentives and natural turnover, along with current in-use requirements, to replace equipment where electric replacements are readily available. A more aggressive turnover and implementation strategy could utilize a memorandum of understanding, regulation, or a combination thereof, along with incentives for demonstration, to ensure an accelerated transition to zero-emission equipment. Under this measure, CARB staff would develop and propose a regulation to accelerate the transition of diesel and large spark ignition airport ground support equipment to zero-emission technology.

CARB staff held two public workshops on this measure, in June and August 2018, to discuss data needs for fleet transition to zero-emission technology, costs, infrastructure, and possible regulatory concepts to accelerate the deployment of zero-emission ground support equipment at airports. Ultimately, CARB staff determined not to pursue this measure because of the considerable amount of turnover to zero-emission equipment that was already happening in the sector naturally and due to local and regional efforts to turn over this equipment. In addition, zero-emission replacements of airport ground support equipment continue to be eligible for funding under California's incentive programs. If staff determine at a later time that the sector requires additional policy support to maintain its transition to zero-emission technology, airport ground support equipment could potentially be included in a future measure, such as the Off-Road Zero-Emission Targeted Manufacturer Rule.

Low-Emission Diesel Fuel Requirement

The Valley State SIP Strategy included a commitment to pursue a Low-Emission Diesel Fuel Requirement (LED) measure. The measure had a Board action target date of 2021, a 2025 NOx emission reduction target of 1 tpd, and a 2025 PM2.5 emission reduction target of 0.1 tpd. As described in the SIP, the LED measure would be designed to reduce emissions from the portion of the heavy-duty fleet that will continue to operate on internal combustion engines. CARB staff would bring to the Board a proposed low-emission diesel standard that would require diesel fuel providers to steadily decrease criteria pollutant emissions from their diesel products until 2031. The standard would complement existing CARB programs that incentivize increased use of renewable fuels as substitutes for conventional fuels, and would focus on more completely transitioning the fuel mix to a cleaner mix of diesel substitute fuels.

Staff has determined that pursuing a statewide LED measure would ultimately be less effective than targeting specific sectors such as commercial harborcraft and off-road diesel. Renewable diesel, the main fuel that would be considered in an LED measure, is capable of reducing NOx, PM, and greenhouse gases (GHGs), and has grown significantly in use since the adoption of the 2016 State SIP Strategy, as a result of incentives from programs such as the Low Carbon Fuel Standard (from about 300 million gallons per year to over a billion gallons per year). However, NOx and PM benefits are more pronounced in older engines that are primarily used off-road. Therefore, targeting the renewable diesel in sectors such as harborcraft and off-road will result in more NOx and PM emission reductions than general efforts to increase its usage statewide. Recent amendments to the Commercial Harbor Craft Regulation and proposed amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation require use of renewable diesel. As such, staff is no longer planning to propose a statewide LED measure, but will continue to evaluate sectors where targeted use of renewable diesel would result in improved NOx and PM benefits. Statewide, the Low Carbon Fuel Standard continues to encourage increased use of fuels, such as renewable diesel, that reduce carbon on a lifecycle basis, regardless of the transportation sector in which those fuels are used.

Aggregate Commitment

While the SIP includes an estimate of the emission reductions expected from each individual measure⁸, final measures as proposed by CARB staff to the Board or adopted by the Board may provide more or less than the initial emission reduction estimates. CARB and the District's overall commitment is to achieve the total reductions necessary to attain the federal air quality standards. If a particular measure does not get its expected emission reductions, the State is still committed to achieving the total aggregate emission reductions needed.

While CARB staff are proposing to strike the commitment to pursue the four measures described above, the State's commitment to achieve the total aggregate emission reductions necessary for attainment remains the same. Other key CARB and District measures are achieving more emission reductions than originally estimated, providing sufficient reductions to make up for the four measures which are not achieving SIP-creditable reductions, as described below. CARB and the District are working together to ensure the emission reduction aggregate commitment in the SIP is achieved.

CARB Measures

In total, CARB measures are expected to meet and exceed the direct PM_{2.5} emission reductions target but have yet to achieve the NO_x emission reductions committed to in the SIP. Against the SIP commitment of 32 tpd NO_x and 0.9 tpd PM_{2.5} in 2025, CARB is expecting to achieve 27.2 tpd NO_x and 1.06 tpd PM_{2.5} from measures defined to date, as shown in Table 2. This amounts to a need for an additional 4.8 tpd of NO_x emission reductions but a PM_{2.5} emission reduction surplus of 0.16 tpd. CARB continues to identify new potential measures to achieve the remaining needed NO_x emissions.

Although the anticipated emission reductions from the four measures identified above account for some of this NO_x gap, other CARB measures are achieving significant emission reductions which shrink the deficit. Four key CARB measures providing significant emission reductions in 2025, as shown in Table 2, are the Accelerated Turnover of Agricultural Equipment incentive measure⁹, the Heavy-Duty Inspection and Maintenance program, the Locomotive Measure, and the Construction and Mining Equipment measure.

⁸ See 2018 PM_{2.5} Plan, Chapter 4, Table 8: San Joaquin Valley Expected Emission Reductions from State Measures. <https://www.valleyair.org/pmplans/documents/2018/pm-plan-adopted/04.pdf>.

⁹ Additional funding in the 2022-2023 State Budget for agricultural equipment turnover, including \$150 million statewide for the FARMER program, will provide further emission reductions from this incentive measure not reflected in the estimates shown in Table 2.

Table 2. CARB Measures

CARB Measures	Status	SIP Commitment (tpd), 2025		Updated Estimate (tpd), 2025 *	
		NOx	PM2.5	NOx	PM2.5
Accelerated Turnover of Agricultural Equipment Incentive Measure (1 of 2)	Adopted Dec. 2019	10	0.8	5.1	0.3
Accelerated Turnover of Agricultural Equipment Incentive Measure (2 of 2)	Anticipated 2025			4.9	0.5
Heavy-Duty Inspection and Maintenance Program	Adopted Dec. 2021	6.8	<0.1	14.4	0.03
Locomotive Measure	Anticipated 2022	0	0	0.6	0.01
Construction and Mining Equipment	TBD	0	0	1.55	0.16
Lower Opacity Limits for Heavy-Duty Vehicles	Adopted May 2018	x	x	0	0.02
Amended Warranty Requirements for Heavy-Duty Vehicles	Adopted June 2018	x	x	0.34	<<0.01
Innovative Clean Transit	Adopted Dec. 2018	<0.1	<0.1	0.017	<<0.01
Zero-Emission Airport Shuttle Bus	Adopted June 2019	x	x	<<0.01	<<0.01
Advanced Clean Local Trucks Last Mile Delivery (adopted as Advanced Clean Trucks)	Adopted June 2020	<0.1	<0.1	0.08	<<0.01
Low-NOx Engine Standard – California Action (adopted as Heavy-Duty Low-NOx Omnibus)	Adopted Aug. 2020	2	x	0	0
Transport Refrigeration Units Used for Cold Storage	Adopted Sept. 2021	x	x	0.07	0.02
Small Off-Road Engines	Adopted Dec. 2021	0.2	<0.1	0.139	0.007

CARB Measures	Status	SIP Commitment (tpd), 2025		Updated Estimate (tpd), 2025 *	
		NOx	PM2.5	NOx	PM2.5
Advanced Clean Cars 2 (Reduced ZEV Brake and Tire Wear)	Adopted Aug. 2022	x	NYQ	0	0
Zero-Emission Off-Road Forklift Regulation Phase 1	Anticipated Summer 2023	x	x	0	0
Low-NOx Engine Standard – Federal Action	Petition sent	2	x	0	0
More Stringent National Locomotive Emission Standards	Petition sent	0.3	<0.1	0	0
CARB Total		32	0.9	27.2	1.06
Reduction Shortfall/Surplus				-4.8	0.16

* Updated expected emission reductions are calculated using EMFAC 2014, the version of EMFAC (EMission FACtor model which estimates emissions inventories of on-road mobile sources in California) used in the 2018 PM2.5 Plan as the most current version available at the time. Emission reductions shown here may therefore differ from reductions as presented in regulatory documents pertaining to more recently developed measures which used a more current version of EMFAC, e.g., EMFAC 2017 or EMFAC 2021.

As shown in Table 2, the Heavy-Duty Inspection and Maintenance Program (Heavy-Duty I/M Program) has achieved significantly more emission reductions than originally anticipated. The Heavy-Duty I/M Program ensures that in-use emission control components and systems on heavy-duty trucks (those above 14,000 pounds gross vehicle weight rating) are properly functioning, so that these vehicles continue to operate at their cleanest possible levels for the duration of their on-road operation. Since the initial concept in the Valley State SIP Strategy, California Senate Bill (SB) 210 (Leyva; Statutes of 2019) was passed by the Legislature and signed into law by Governor Newsom on September 20, 2019, to expand on the emission reduction opportunities. SB 210 enhanced the relevant regulatory authority by requiring that on-road heavy-duty diesel vehicles comply with the Heavy-Duty I/M Program in order to register annually with the California Department of Motor Vehicles (DMV). This direct tie-in to vehicle registration ensures that the program will achieve maximum emissions reductions.

The Heavy-Duty I/M Program applies to all on-road non-gasoline heavy-duty vehicles with a gross vehicle weight rating over 14,000 pounds that operate in California, including vehicles registered out of state and out of country. This robust program is the first of its kind to rely on remote telematics to periodically download and transmit engines' on-board diagnostic (OBD) data to CARB for use in identifying malfunctioning emissions-related components and requiring timely repairs. The periodic testing component is complemented by a new

component, roadside emissions monitoring (remote sensing devices and/or CARB's Portable Emissions AcQuisition System, known as PEAQS) to detect high emitting vehicles between periodic test cycles and require additional testing and repair to ensure emissions control components are operating properly. Vehicle owners are required to demonstrate that their vehicles' emissions control systems are properly functioning, thereby reducing excess NOx and PM emissions resulting from mal-maintenance and tampering. Key program elements include: 1) streamlined testing processes that nearly eliminate vehicle downtime for inspections; 2) requirements for all heavy-duty vehicles to possess a valid compliance certificate accessible upon request by CARB or California Highway Patrol (CHP) inspectors; and 3) the ability for the DMV to withhold vehicle registration on non-compliant California vehicles. The program begins implementation starting January 1, 2023. The additions to the Heavy-Duty I/M Program since the initial concept in the Valley State SIP Strategy, e.g., CARB's enhanced regulatory authority under SB 210 and the PEAQS system, mean the program will achieve greater emission reductions than the original estimate at the time the SIP was submitted.

The gap in NOx emission reductions from the CARB measures is filled by surplus NOx and PM2.5 reductions achieved from District measures, as described below. Furthermore, CARB continues to consider additional measures to achieve further emission reductions as part of the continual measure development process.

District Measures

In total, District measures are expected to achieve a surplus of both NOx and PM2.5 emission reductions compared to the commitment in the 2018 PM2.5 Plan. Against the SIP commitment of 1.88 tpd NOx and 1.3 tpd PM2.5 reductions in 2025, the District is expecting to reduce 3.17 tpd NOx and 2.52 tpd PM2.5. This amounts to a surplus of 1.29 tpd NOx reductions and 1.22 tpd PM2.5 reductions. As described below and as shown in Table 3, this surplus is due to greater reductions from enhanced stringency of the District's suite of stationary source measures and the phase-out of open agricultural burning.

Recently Adopted Stationary Source Rule Amendments

After publication of the October 2021 Progress Report, the District Governing Board adopted in December 2021 two further stationary source rule amendments committed to in the 2018 PM2.5 Plan. These were for Rule 4354: Glass Melting Furnaces and Rule 4352: Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters. A suite of five stationary source rules, including these two, was anticipated in the 2018 PM2.5 SIP to achieve an aggregate 1.83 tpd NOx and 0.03 tpd PM2.5 reduction in 2025. After adoption of the final two rule

amendments, the updated estimate now anticipates greater reductions: 2.15 tpd NO_x and 0.41 tpd PM_{2.5}.¹⁰

Agricultural Burning Phase-Out

The 2018 PM_{2.5} Plan attainment strategy did not include a phase-out of open burning of agricultural material as a control measure. Approved by the District Governing Board in June 2021 and concurred upon by CARB, this measure represents CARB and the District's ongoing efforts to identify and develop new measures that will achieve emission reductions in the Valley, even after the SIP was adopted. The near-complete phase-out of open agricultural burning by 2025 achieves emission reductions not accounted for in the 2018 PM_{2.5} Plan as early as January 1, 2021, and will continue achieving reductions through the 12 µg/m³ standard attainment year of 2025 and beyond.

On November 18, 2021, the District Governing Board adopted a quantification of the emission reductions expected from the adopted phase-out strategy, the Proposed District Rule 4103 (Open Burning) Technical Submittal for Receiving SIP Credit for Reductions in Agricultural Burning (Agricultural Burning Technical Submittal). CARB submitted the Agricultural Burning Technical Submittal to U.S. EPA, and on June 16, 2022, U.S. EPA finalized approval of the document (87 FR 36222). The adopted phase-out strategy will provide 0.83 tpd NO_x reductions and 1.23 tpd PM_{2.5} reductions in 2025.

The District and the agricultural industry have made significant progress transitioning from open burning of agricultural materials to less polluting alternatives in response to SB 705 (Florez; Statutes of 2003), and have eliminated burning of many crop categories. The agricultural burning phase-out strategy establishes a schedule for the near-complete phase-out of remaining agricultural open burning. To facilitate this transition, the strategy relies on implementation of the District's Alternatives to Agricultural Open Burning Incentive Program (Grant Program). This program provides financial incentives to commercial agricultural operations located within the District boundaries to chip agricultural material. The chipped material is then used for soil incorporation or land application on agricultural land as an alternative to the open burning of the agricultural materials. The program also provides incentives for the purchase of new agricultural wood chipping equipment to chip orchard and vineyard removals.

The Grant Program launched as a pilot in late 2018 and rapidly grew into a successful and oversubscribed program. The program has been the driver of significant progress reducing agricultural burning and has borne out the feasibility of alternatives to open burning and highlighted the important role incentives play in making alternatives accessible to Valley agricultural operators. Since 2018, the District Governing Board has allocated over

¹⁰ Detailed documentation on how the emission reductions are achieved from each of the District stationary source rules is provided in the rule amendment packages adopted by the District Governing Board (available at: [Governing Board Scheduled Meetings \(valleyair.org\)](http://valleyair.org)) and subsequently submitted to U.S. EPA for inclusion in the California SIP.

\$25 million to the Grant Program. Additionally, in 2021, CARB granted \$178.2 million to the District to support the program.

Since the relaunch of the enhanced Grant Program in September 2021, the District has seen significant demand for grant funds. Between September 1, 2021, and June 30, 2022, the District executed \$42.8 million in grants for orchard and vineyard removal projects. When carried out, the 1,176 projects will prevent the open burning of over 1,625,000 tons of agricultural material across 60,000 acres. In addition, the District executed \$29.7 million in contracts for 55 chipping equipment projects. The equipment to be purchased using these grant funds (including horizontal grinders, masticators, and other equipment) will be deployed in the Valley to increase agricultural operators’ access to alternative methods of agricultural material disposal.

The agricultural burning phase-out strategy, supported by the success of the Grant Program, has achieved substantial reductions in the amount of agricultural material burned. In 2021, the amount of agricultural material open burned was approximately 480,000 tons, significantly less than the approximately 600,000 ton per year average over the prior 5-year period. These significant reductions put the District on the path to meeting the near-complete phase-out target by 2025.

Table 3. District Measures

District Measure	Status	SIP Commitment (tpd), 2025		Updated Estimate (tpd), 2025	
		NOx	PM2.5	NOx	PM2.5
Rule 4311: Flares	Adopted Dec. 2020	0.05	0	0.19	0.03
Rule 4306: Boilers, Steam Generators, and Process Heaters – Phase 3; and Rule 4320: Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr	Adopted Dec. 2020	1.83	0.03	0.19	0
Rule 4702: Internal Combustion Engines	Adopted Aug. 2021			0.61	0
Rule 4354: Glass Melting Furnaces	Adopted Dec. 2021			0.64	0.13
Rule 4352: Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters	Adopted Dec. 2021			0.711	0.282
Rule 4550: Conservation Management Practices	Anticipated 2023	0	0.32	0	0.32

District Measure	Status	SIP Commitment (tpd), 2025		Updated Estimate (tpd), 2025	
		NOx	PM2.5	NOx	PM2.5
Rule 4692: Commercial Underfired Charbroiling (Hot-Spot Strategy)	TBD	0	0.53	0	TBD
Rule 4901: Wood Burning Fireplaces and Wood Burning Heaters (Hot-Spot Strategy)	Adopted June 2019	0	0.42	0	0.2
Replacement of Residential Wood Burning Devices (Valleywide and Hot-Spot Strategy) (Burn Cleaner Incentive Program)	Adopted Nov. 2021			0	0.33
Agricultural Burning Phase-Out Strategy	Adopted June 2021	N/A	N/A	0.832	1.232
District Total		1.88	1.3	3.17	2.52
Reduction Surplus				1.29	1.22

Combined Commitment

Combined, CARB and District measures will achieve more emission reductions than needed to attain the 12 µg/m³ PM2.5 standard in 2025, without the four measures described above. This overall surplus is shown in Table 4.

Table 4. Aggregate Commitment

	SIP Commitment (tpd), 2025		Updated Estimate (tpd), 2025		Shortfall/Surplus (Updated minus Commitment) (tpd), 2025	
	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5
CARB Measures (see Table 2)	32	0.9	27.2	1.06	-4.8	0.16
District Measures (see Table 3)	1.88	1.3	3.17	2.52	1.29	1.22
Total	33.88	2.2	30.37	3.58	-3.51	1.38
Conversion of Surplus PM2.5 to NOx (1:6) *			8.29			

	SIP Commitment (tpd), 2025		Updated Estimate (tpd), 2025		Shortfall/Surplus (Updated minus Commitment) (tpd), 2025	
	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5
Total Updated Estimate			38.66	2.2		
Total Aggregate Commitment Shortfall/Surplus			4.78	0		

* For discussion of the 1:6 ratio used to mathematically convert PM2.5 reductions into NOx reductions, see the October 2021 Progress Report.

While CARB is not changing our aggregate commitment, as shown here, through the implementation of adopted and upcoming CARB and District measures, the total aggregate commitment for the 12 µg/m³ PM2.5 standard will be exceeded if the State were to pursue trading surplus PM2.5 reductions for NOx reductions. CARB continues to pursue the 3.51 tpd of NOx reductions needed to achieve the aggregate commitment without relying on interpollutant trading. The total aggregate surplus is 4.78 tpd NOx, a greater total aggregate surplus than we estimated in the October 2021 Progress Report (2.55 tpd), driven by the inclusion of a Construction and Mining Equipment measure and surplus reductions from District stationary source measures.

Environmental Analysis

CARB has determined that the proposed 12 µg/m³ SIP Revision is not a project subject to, or is otherwise exempt from, the requirements of the California Environmental Quality Act (CEQA). CARB’s certified regulatory program, which applies to 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 CEQA (14 California Code of Regulations (CCR) § 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. For activities that constitute project approvals, as those terms are used in CEQA, CARB, as a lead agency, prepares a substitute environmental document (referred to as an “Environmental Analysis” or “EA”) as part of the Staff Report prepared for a proposed action to comply with CEQA (17 CCR §§ 60000-60008).

In the 12 µg/m³ SIP Revision, CARB is proposing to strike its commitment to pursue four measures no longer expected to achieve emission reductions that U.S. EPA would consider creditable while also providing updated information on ongoing measures that are providing more emission reductions than originally estimated. These greater emission reductions are more than enough to make up for those previously anticipated from the four measures CARB

now proposes to strike. The State's commitment to achieve total aggregate emission reductions necessary for attaining the standard remains unchanged. The 12 µg/m³ SIP Revision therefore does not create new measures or establish an obligation for CARB to create new measures, and thus would not cause a substantial change to the environment requiring additional environmental review (see *Sherwin-Williams Co. v SCAQMD* (2001) 86 Cal.App.4th 1258, 1286).

Even if the proposed 12 µg/m³ SIP Revision were considered a project under CEQA, it would be exempt from CEQA under the "common sense" exemption (14 CCR § 15061(b)(3)). The CEQA Guidelines state "[t]he activity is covered by the common sense exemption 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." CARB is proposing to strike four measures previously committed to because they are no longer expected to achieve creditable emission reductions, while also recognizing that ongoing measures are achieving greater emission reductions than originally estimated to cover the emission reductions originally anticipated from the four measures. As such, CARB is not proposing new measures or obligating itself to create new measures. There is no possibility that CARB's Revision may result in a significant adverse impact on the environment, nor any substantial evidence indicating the proposal could adversely affect air quality or any other environmental resource area. Therefore, it can be seen with certainty that there is no possibility that the proposed Plan may result in significant adverse impact on the environment and this activity is exempt from CEQA.

Conclusion and Staff Recommendation

CARB and the District are on track to meet our 2025 aggregate emission reduction commitment for the 12 µg/m³ PM_{2.5} standard. Together, CARB and District measures provide a surplus of emission reductions, even without the four measures described above, due to the performance of other measures. Both agencies continue to explore measures which could provide additional emission reduction benefits.

CARB staff have reviewed the 12 µg/m³ SIP Revision. The 12 µg/m³ SIP Revision satisfies the Clean Air Act requirements for a SIP submission. Staff therefore recommend that the Board adopt the 12 µg/m³ SIP Revision and direct staff to submit it to U.S. EPA as a revision to the California SIP.