

EXECUTIVE SUMMARY



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This *2024 Plan for the 2012 Annual PM_{2.5} Standard* (Plan) uses extensive science and research, state-of-the-art air quality modeling, and the best available information in developing a strategy to attain the federal health-based 2012 national ambient air quality standard (standard, or NAAQS) for fine particulate matter (PM_{2.5}) as expeditiously as practicable. The San Joaquin Valley Air Pollution Control District (District) and the California Air Resources Board's (CARB) attainment strategy builds upon comprehensive strategies already in place from previously adopted attainment plans and measures. The District and CARB's multi-faceted approach to reducing emissions in the San Joaquin Valley (Valley) for this Plan consists of a combination of innovative regulatory and non-regulatory measures that achieve the massive emissions reductions needed to bring the Valley into attainment.

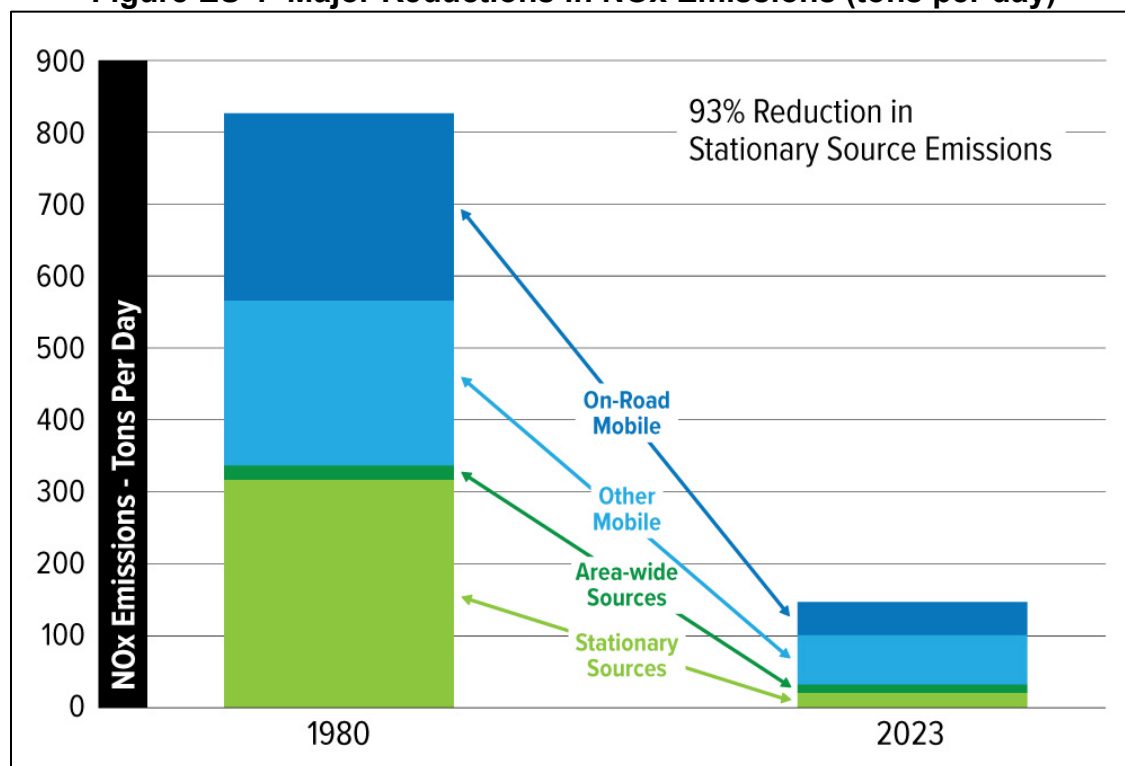
Key elements of the San Joaquin Valley's journey in meeting the 2012 PM_{2.5} Standard and the updated strategy in the *2024 Plan for the 2012 Annual PM_{2.5} Standard* include:

- **Significant Progress Made and Need for Additional Emissions Reductions:** The San Joaquin Valley has achieved significant emissions reductions over the last several decades through a comprehensive control strategy; however, additional emissions reductions are needed to meet the 2012 annual PM_{2.5} standard.
- **Plan Includes Updated PM_{2.5} Strategy Based on Latest Science and Research:** The District and California Air Resources Board (CARB) submitted a plan to the U.S. Environmental Protection Agency (EPA) in 2018 to address Serious nonattainment area requirements. In response to EPA action, an updated Plan has been developed to meet the 2012 PM_{2.5} Standard using the latest science and analysis of potential control measures. This new *2024 PM_{2.5} Plan* demonstrates attainment of the 2012 annual PM_{2.5} standard and is seeking a 5-year extension to 2030 to ensure that even the most challenged areas of the Valley successfully meet the standard.
- **Plan Achieves Significant Emissions Reductions in Coming Years:** Overall, the aggressive control strategy included in the *2024 PM_{2.5} Plan* will reduce emissions of PM_{2.5} by 10.8 tons per day (tpd) (16%) and NO_x by 148.7 tpd (66%) between 2017 and 2030, through the implementation of adopted District and CARB regulations, in addition to reductions to be achieved through new regulatory and incentive-based commitments for stationary, area, and mobile sources.
- **Plan Brings Entire Valley into Attainment of Standard as Expeditiously as Possible:** Through the comprehensive attainment strategy, the District estimates that the majority of the Valley population is currently in attainment of the 2012 standard, 90% will be in attainment by 2027, and 100% will be in attainment by 2030.

- Plan Strategies Improve Public Health:** Through this Plan, the District continues to carry out its mission to improve health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality management strategies. The strategies included in this Plan will result in direct public health benefits to Valley residents as they are implemented in the coming years.
- Plan Developed Through Strong Public Engagement:** This 2024 PM2.5 Plan was developed through a robust public process, with multiple opportunities for the public to provide input, comments, and suggestions.

Despite substantial progress made to improve the air quality in the Valley through the implementation of existing plans and clean air investments by Valley businesses and residents (Figure ES-1), the Valley continues to face significant challenges in attaining the federal PM2.5 standards. Significant additional emissions reductions are needed, particularly with respect to mobile sources under California Air Resources Board (CARB) and U.S. Environmental Protection Agency (EPA) jurisdiction, as these sources make up over 80% of remaining oxides of nitrogen (NOx) emissions in the Valley. In addition to mobile source measures, this Plan includes a comprehensive suite of fiscally responsible local measures for stationary and area sources, including new measures to further reduce emissions from residential wood combustion and agricultural operations.

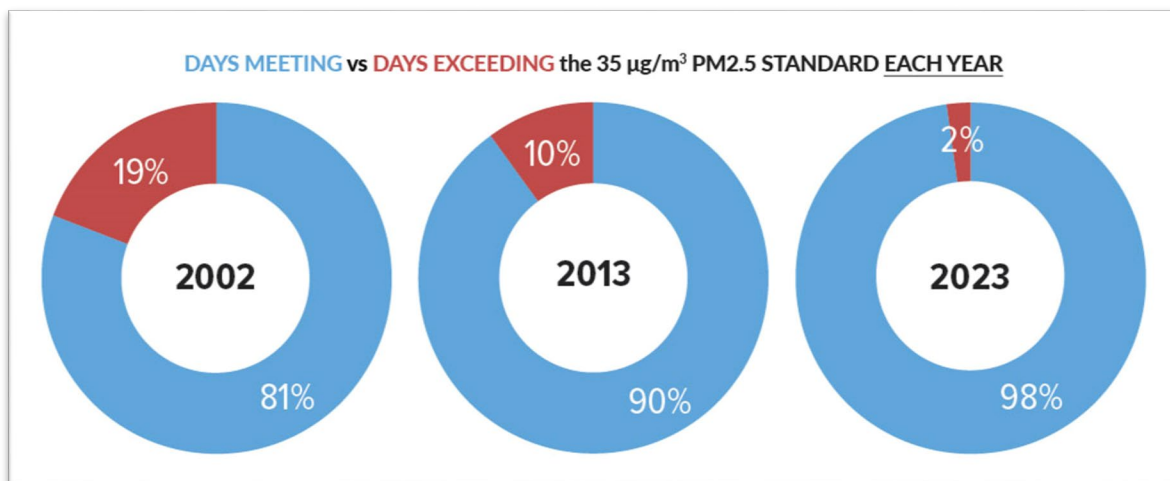
Figure ES-1 Major Reductions in NOx Emissions (tons per day)



Under previous District attainment plans, the District has implemented generations of emissions control measures for stationary and area sources under its jurisdiction. Similarly, CARB has adopted stringent regulations for mobile sources. Together, these efforts represent the nation's toughest air pollution emissions controls. In addition to the stringent regulatory program, the District also operates amongst the most effective and efficient incentive grants program, investing over \$6.2 billion in public/private funding towards clean air projects to date that have achieved over 268,000 tons of emissions reductions.

Due to significant investments from the District to implement strategies from past attainment plans, the Valley's ozone and PM_{2.5} precursor emissions are at historically low levels, and air quality has improved significantly, providing Valley residents with associated health benefits. Notably, the Valley has already attained the 1987 standard for particulate matter 10 microns or less in diameter (PM₁₀) and the 1979 1-hour ozone standard. Additionally, on January 28, 2022, EPA determined that the Valley attained the 1997 24-hour PM_{2.5} standard of 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) by the attainment date of December 31, 2020.¹ 2023 marked a record-breaking year with the highest number of days meeting health standards, signaling continued positive progress in air quality improvement.

Figure ES-2 Progress in Improving Valley PM_{2.5}



Plan Addresses Federal 2012 Annual PM_{2.5} Standard

This Plan addresses the 2012 annual PM_{2.5} standard of 12 $\mu\text{g}/\text{m}^3$. The District addressed the Serious Plan requirements for the 2012 annual standard, along with other PM_{2.5} standards, as part of the integrated 2018 *Plan for the 1997, 2006, and*

¹ EPA. *Partial Approval and Partial Disapproval of Air Quality Implementation Plans and Determination of Attainment by the Attainment Date; California; San Joaquin Valley Serious Area and Section 189(d) Plan for Attainment of the 1997 24-hour PM_{2.5} NAAQS; Final Rule*. 87 Fed. Reg. 19, pp. 4503-4508. (January 28, 2022). Retrieved from: <https://www.federalregister.gov/documents/2022/01/28/2022-01728/partial-approval-and-partial-disapproval-of-air-quality-implementation-plans-and-determination-of>

2012 PM_{2.5} Standards (2018 PM_{2.5} Plan), years earlier than required in order to achieve early emissions reductions. In December 2021, EPA proposed approval of the Serious Plan for the 2012 PM_{2.5} standard,² then reversed the decision and proposed disapproval in October 2022, citing additional interest in information for the ammonia precursor demonstration and building heating emissions.³ In response to EPA's reversal, CARB withdrew the Plan for the 2012 standard with District concurrence.

The District and CARB, in close coordination with EPA to address questions and feedback, developed an updated Plan for the 2012 standard through a robust public process. Initial elements, including an updated emissions inventory, precursor demonstration, Best Available Control Measure (BACM), and New Source Review (NSR) requirements, were addressed through the District and CARB's *Initial SIP Requirements for the 2012 Annual PM_{2.5} Standard*, as adopted by the District Governing Board on October 19, 2023, and subsequently submitted to EPA through CARB. This Plan addresses the remaining nonattainment area SIP requirements pursuant to the Clean Air Act (CAA), including additional information to address EPA's comments in their proposed October 2022 disapproval.

Comprehensive Attainment Strategy

Despite the significant progress to date, more emissions reductions are needed to meet the 2012 annual PM_{2.5} standard. This Plan builds upon comprehensive strategies already in place from adopted District plans and CARB state-wide strategies. The District's current rules and regulations reflect technologies and methods that are beyond control levels established under the CAA. Overall, the aggressive control strategy included in the *2024 PM_{2.5} Plan* will reduce emissions of PM_{2.5} by 10.8 tons per day (tpd) (16%) and NO_x by 148.7 tpd (66%) between 2017 and 2030, contributing to the Valley's progress toward attainment of the 2012 annual PM_{2.5} standard. In addition to the regulatory strategy contained in the Plan, the District and state's incentive programs will also reduce emissions from mobile sources in the coming years. This comprehensive strategy that will bring the Valley into attainment includes the following:

District Regulatory measures achieving new emission reductions during this Plan period, in addition to new stationary and area source measures to further strengthen requirements to achieve greater emissions reductions from residential wood combustion and agricultural operations.

Incentive-based measures that accelerate the deployment of cleaner vehicles and technologies in a variety of sectors, including agricultural equipment and residential wood combustion.

² EPA. *Clean Air Plans; 2012 Fine Particulate Matter Serious Nonattainment Area Requirements; San Joaquin Valley, California; Proposed Rule*. 86 Fed. Reg. 247, pp. 74310-74352. (December 29, 2021). Retrieved from: <https://www.govinfo.gov/content/pkg/FR-2021-12-29/pdf/2021-27796.pdf>

³ EPA. *Clean Air Plans; 2012 Fine Particulate Matter Serious Nonattainment Area Requirements; San Joaquin Valley, California; Proposed Rule*. 87 Fed. Reg. 192, pp. 60494-60531. (October 5, 2022). Retrieved from: <https://www.govinfo.gov/content/pkg/FR-2022-10-05/pdf/2022-21492.pdf>

State mobile source strategy that reduces emissions from mobile sources under state and federal jurisdiction, including heavy-duty trucks, agricultural equipment, locomotives, and off-road equipment.

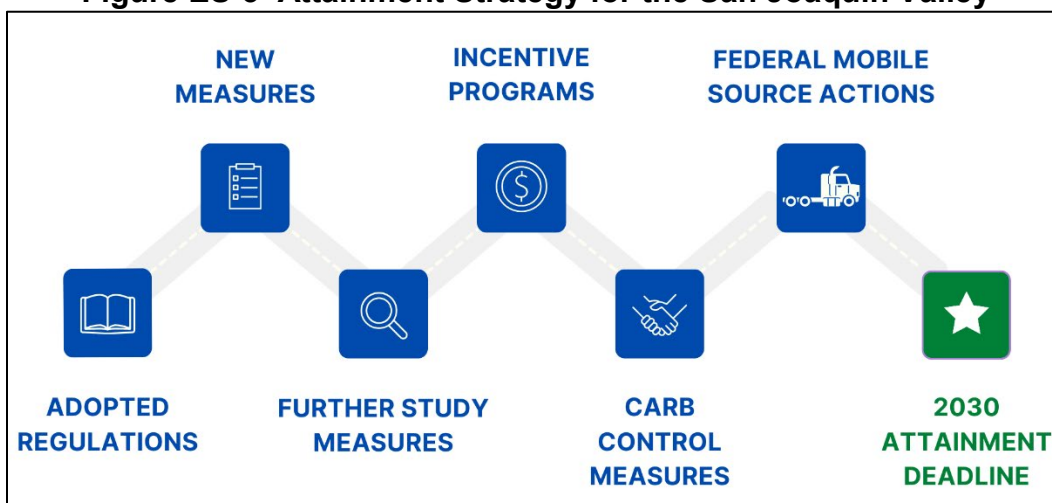
Public outreach and education that encourages and empowers the public to understand air quality issues, take advantage of District tools to stay informed regarding local air quality, take actions to protect themselves when necessary, understand the Valley’s unique air quality challenges, and take actions to reduce emissions and improve the Valley’s air quality.

Technology advancement and demonstration efforts to advance technology and accelerate the deployment of innovative clean air technologies that can bring about emission reductions as rapidly as practicable.

Transition to zero-emission technologies across all sectors where feasible, through close collaboration with federal, state, and local governments, industry, and the public to support the development and rapid deployment of new technologies and needed infrastructure, ensuring equitable transition.

Call for action by the state and federal governments to do their part in taking responsibility for regulating, and taking actions, to reduce emissions in the Valley. This includes working together to advocate for and secure the significant new funding required to achieve the enormous emissions reductions necessary for attainment under this Plan through incentive-based measures.

Figure ES-3 Attainment Strategy for the San Joaquin Valley



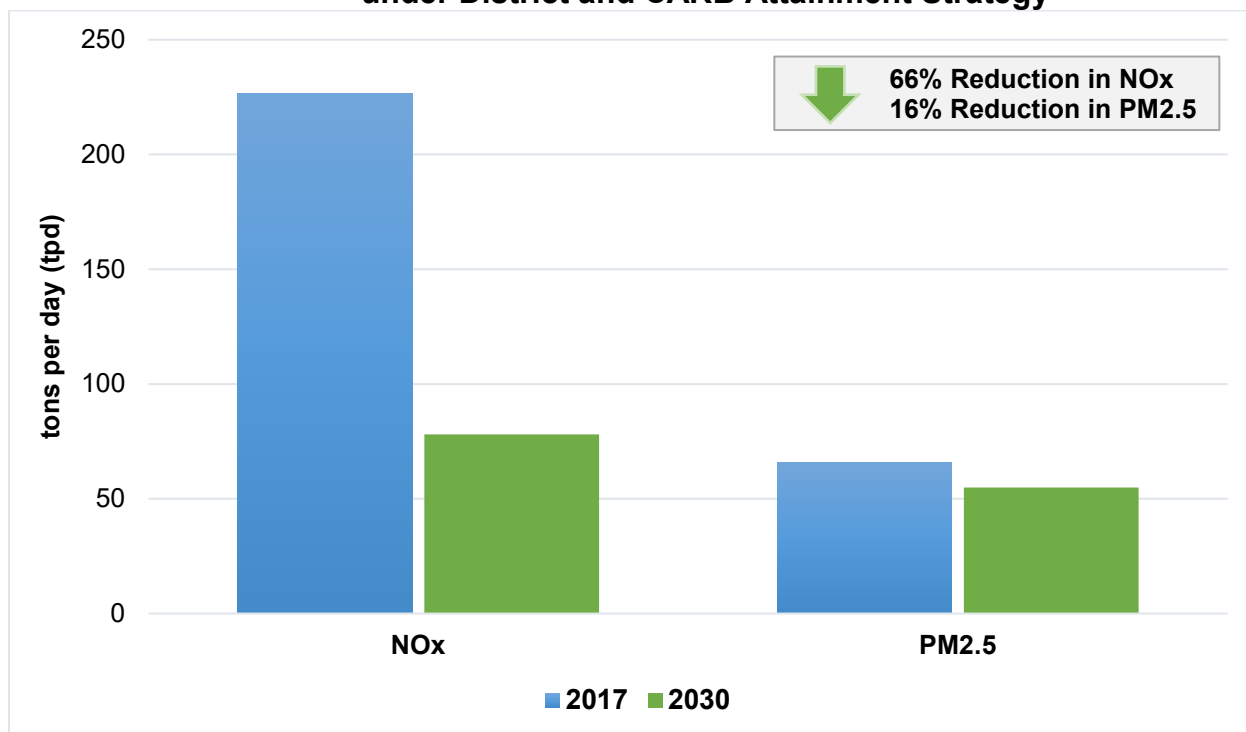
This Plan builds on numerous existing plans and measures adopted by the District and CARB to address multiple federal air quality standards. In fact, over 128 tpd of NOx and 10 tpd of directly emitted PM2.5 emissions will be reduced by the 2030 attainment date through adopted measures. In developing this Plan, the District and CARB conducted an extensive evaluation of sources of emissions for potential strategies to further reduce emissions in the Valley. Along with comprehensive efforts at the local

level to reduce emissions, reducing mobile source emissions that are not under the direct authority of the District are critical to attaining the standard. This Plan includes additional mobile source measures that will provide significant new emissions reductions in the coming years. In addition to reducing direct emissions of PM_{2.5}, this Plan focuses on reducing NO_x emissions, which is a predominant pollutant not only in the formation of PM_{2.5} in the Valley, but is also the focus of the District's ozone reduction strategies. This overlapping significance and emphasis on reducing NO_x emissions helps to address both of the Valley's biggest air quality challenges, PM_{2.5} and ozone.

The District has a history of success in reducing particulate and ozone-forming emissions through a variety of ground-breaking rules and strategies. This success provides assurance that similar strategies employed in the future will provide the desired results in helping to improve the Valley's air quality. These innovative strategies, such as the first-of-their-kind Indirect Source Review and Employer Trip Reduction regulations that reduce the growth in NO_x and PM emissions from mobile and area sources associated with construction and operation of new development projects and reduce passenger vehicle miles traveled (and associated emissions) from workers employed by large employers in the Valley, have proven to be highly effective, as evidenced by the steady rate of improvement in the Valley's air quality. The District's highly successful and acclaimed incentive program has become an increasingly important and effective strategy for reducing mobile source emissions with a public and private combined investment of \$6.2 billion reducing over 268,000 tons of emissions since 1992. The District's landmark Conservation Management Practice (CMP) rule proved critical in assisting the Valley to eliminate exceedances of the federal PM₁₀ standard and attain the standard in 2005. In addition to reducing emissions from Valley businesses, significant emissions have been reduced by the general public, such as through the residential wood burning curtailment efforts that have been critical in helping to reduce PM_{2.5} concentrations.

In addition to the significant ongoing reductions achieved and maintained through the District's current adopted air quality regulations, the *2024 PM_{2.5} Plan* includes a number of measures committing the District to explore and implement a variety of stationary and area source emission reduction opportunities. The District is committing in this Plan to achieve additional emissions reductions from new prohibitory and incentive-based measures for agricultural sources and residential wood combustion, as necessary for expeditious attainment demonstrated through modeling conducted by CARB. Notably, the incentive-based measures are based on already received funding. In addition, while the District's and CARB's programs are the most aggressive and innovative in the nation, the District is committing to evaluate the next generation of innovative control technologies and seek additional emission reduction opportunities across a number of stationary and area source sectors, including residential and commercial heating, stationary NO_x and PM_{2.5} sources, energy and climate change programs, clean landscaping equipment and practices, and other innovative measures to pursue additional emission reduction opportunities as technologies, practices, and policies evolve in the future.

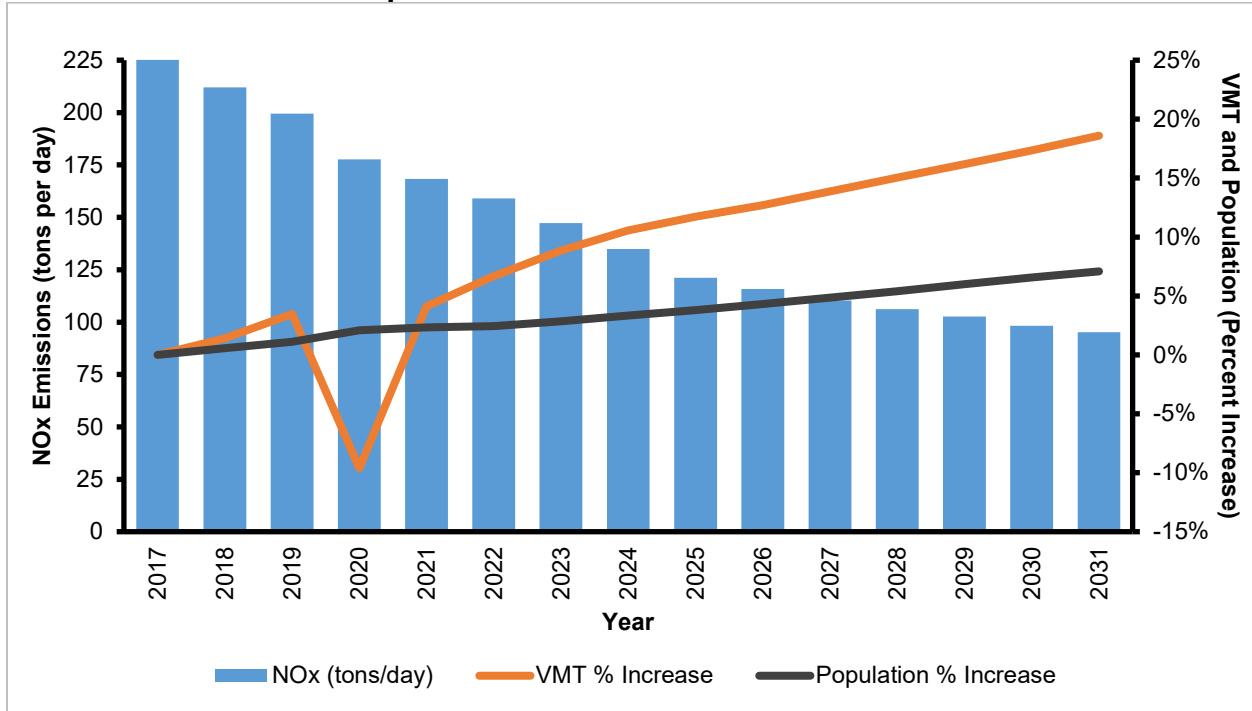
Figure ES-4 Reduction in NOx (PM2.5 precursor) and Direct PM2.5 Emissions under District and CARB Attainment Strategy



Notably, the Valley continues to be one of California's fastest growing regions in terms of population and vehicle miles traveled. While such growth is generally associated with increased precursor emissions, Figure ES-5 shows the significant emissions reductions that are being achieved under the District and CARB's currently adopted control strategy, despite this concurrent growth. Photochemical modeling for this Plan demonstrates the significant emissions reductions achieved under the District's current regulatory control strategy (including several recently adopted regulations for industrial sources), coupled with CARB's 2022 State SIP Strategy, are expected to bring the Valley into attainment of the 2012 annual PM2.5 standard by 2030.

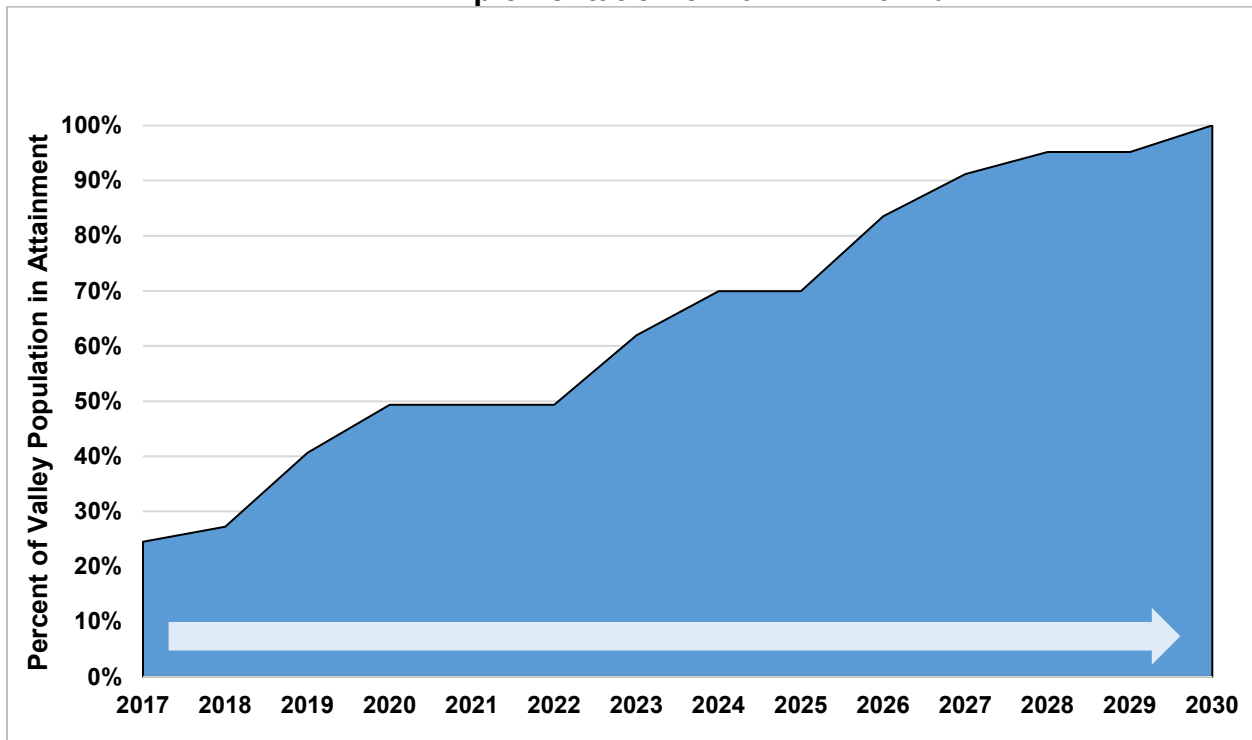
Attaining federal health-based standards is an important milestone for improving public health. Through the strategy outlined in this plan, the Valley as a whole is projected to attain the federal 2012 annual PM2.5 standard by 2030. Under federal regulation, while every area of the Valley must achieve attainment of the standard in order for the entire Valley to be considered in attainment, the majority of Valley residents are in areas currently in attainment or will see attainment much sooner than the projected date of 2030. Figure ES-6 illustrates the Valley's journey to attainment under this Plan.

Figure ES-5 Plan Emissions Reductions as Compared to San Joaquin Valley Population and Vehicle Miles Traveled Growth*



*Does not include new measures identified in this Plan

Figure ES-6 Estimated Percent of Valley Population in Attainment through Implementation of 2024 PM2.5 Plan



As the Valley's population progresses towards experiencing air quality that meets the 2012 PM_{2.5} standard, by the attainment target year of 2030, a number of health benefits are also projected to be achieved. In CARB's health benefits analysis, in the year 2030, the implementation of the strategy for this Plan is expected to reduce 111 cases of premature death (cardiopulmonary related). In addition, a number of other health outcomes are also projected to be reduced, including heart attacks, emergency room visits, onset of asthma and related symptoms, lost work days, hospital admissions for Alzheimer's and Parkinson's disease, and others. These projected health benefits provide compelling justification for the implementation of this attainment plan for the 2012 PM_{2.5} standard.

Importance of Federal Mobile Source Reductions

As the San Joaquin Valley and other regions continue facing challenges in meeting federal ambient air quality standards, it is essential that EPA cooperate in this effort to improve air quality and public health in the San Joaquin Valley by reducing emissions from sources under its control that comprise an increasingly significant portion of air pollution, air toxics impacts, and greenhouse gas emissions in the San Joaquin Valley, South Coast, and other areas of the state. CARB and the San Joaquin Valley have long advocated for new heavy-duty mobile source standards, and recent federal funding actions have created unprecedented opportunities for the San Joaquin Valley to receive much needed investments to reduce emissions from mobile sources. Given the Valley's air quality challenges and significant number of disadvantaged communities, it will be imperative that EPA and other federal agencies prioritize and integrate these new opportunities in this Plan, as well as other SIPs for Extreme ozone nonattainment and Serious PM_{2.5} nonattainment areas.

Plan Prepared with Extensive Public Input

In developing attainment plans and regulations, the District conducts a robust public process to ensure meaningful public engagement. Throughout the public process for the development of this Plan, the District provided opportunities for the public and interested stakeholders to offer comments and suggestions to help guide strategy development. The District and CARB hosted 5 public workshops throughout the development of this Plan. The public was notified in advance of public workshops via the District's email lists and website. To promote an equitable public process, workshop materials were made available in English and Spanish, and the District provided simultaneous Spanish interpretation during all plan development workshops. Simultaneous interpretation in other languages was made available upon request. In addition, the District conducted the workshops through a hybrid approach, where members of the public are welcome to attend either in person, or join virtually through a real-time webinar environment. This allows for access and engagement opportunities for members of the public who may not be able to attend in person. Finally, through the public process, the District provided regular updates at District Governing Board meetings, Citizens Advisory Committee (CAC) meetings, and Environmental Justice

Advisory Group (EJAG) meetings. Notably, the CAC provided their support of the proposed Plan at the June 2024 CAC meeting.

The District provided 30 days for public review of plan documents, and invited public comment throughout the entire process. The comments received as a result of this robust engagement effort were integrated into the Plan as feasible.

Plan Demonstrates Attainment of the 2012 Annual PM2.5 Standard

This Plan satisfies applicable CAA requirements and demonstrates attainment for the 2012 annual PM2.5 standard as expeditiously as practicable. The Valley will attain the 2012 PM2.5 standard by December 31, 2030.