

**Public Workshop for the
*Plan for the 2012 Annual PM2.5
Standard***

February 15, 2024

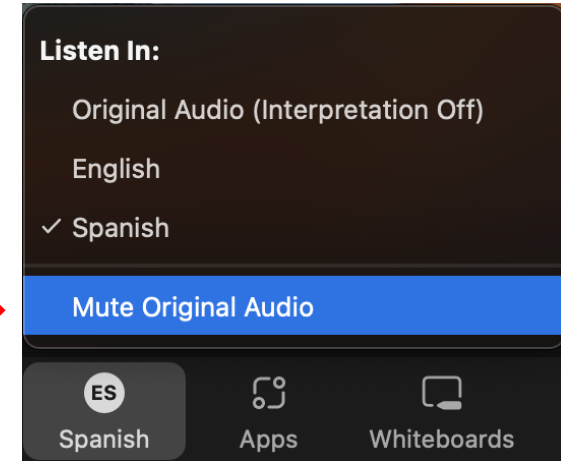
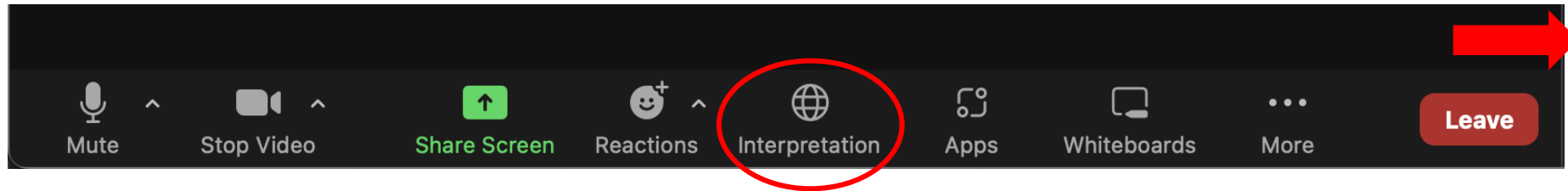
webcast@valleyair.org

How to Listen to the Webinar in Spanish

Cómo Escuchar la Interpretación Español

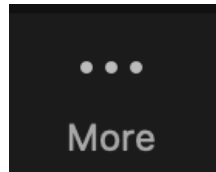
En Una Computadora

1. En los controles de la reunión o el seminario web, seleccione el **icono de interpretación**, que parece a un mundo en la parte debajo de la pantalla.
2. Seleccione español y silencie el audio original.



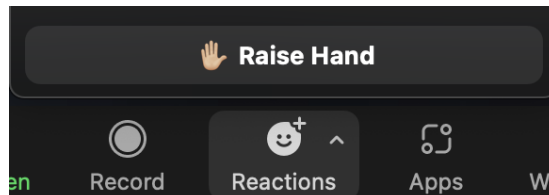
En Un Teléfono o Tableta

1. Seleccione los tres puntos para ver más opciones, seleccione interpretación y siga las mismas instrucciones de arriba.



Para Hacer una Pregunta o un Comentario

1. Seleccione el icono de reacciones para levantar su mano



2012 PM2.5 Standard

2012 PM2.5 Standard

- EPA established 2012 PM2.5 standard January 15, 2013 (12 µg/m³)
- District designated Moderate nonattainment in 2015
- District submitted *2016 PM2.5 Plan* with request for reclassification to Serious
- EPA approved Moderate Plan and reclassified District to Serious effective Dec. 2021
- Serious Plan due to EPA

2018 PM2.5 Plan

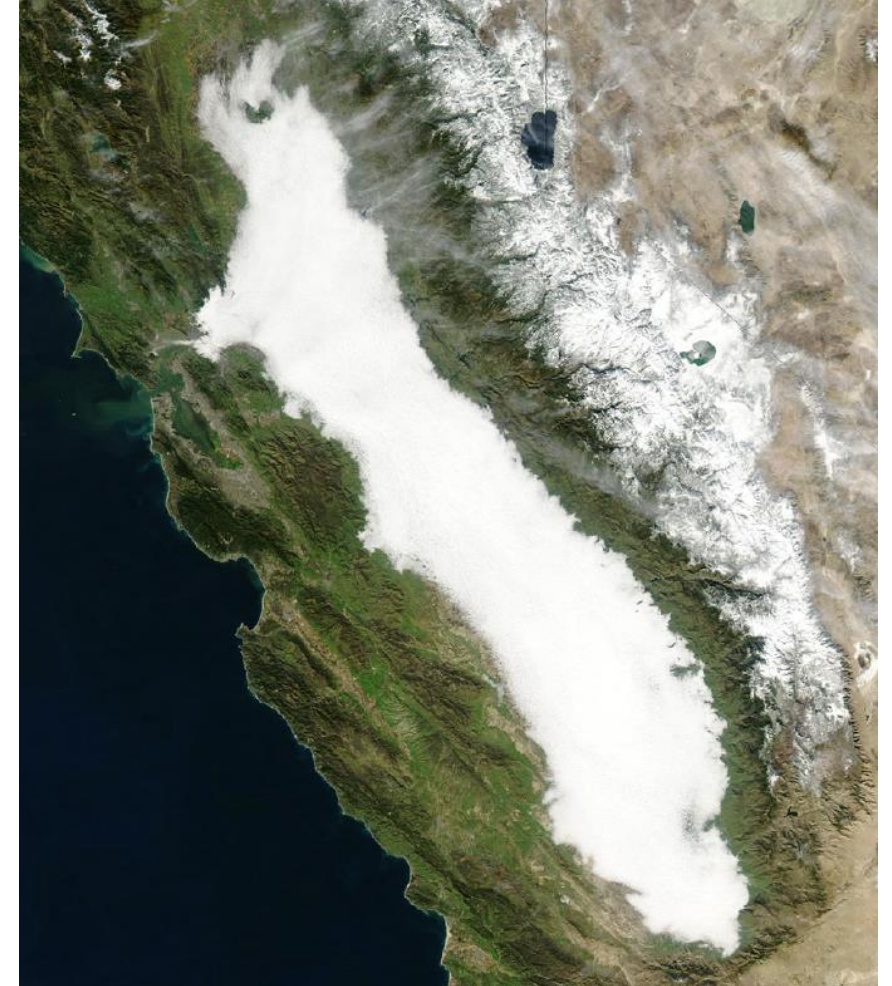
- Plan addressed 1997, 2006, and 2012 PM2.5 standards, earlier than required for 2012 standard
- EPA proposed full approval of Serious Plan for 2012 PM2.5 standard in Dec. 2021
- EPA reversed decision and proposed disapproval in Oct. 2022
- In response to EPA reversal, CARB withdrew Plan with District concurrence in Oct. 2022

Updated Serious Plan

- Will rely on *2018 PM2.5 Plan*, and include revisions incorporating latest guidance, feedback from EPA in latest proposals, public comments, and to meet federal Clean Air Act requirements
- Initial Plan elements adopted Oct. 19, 2023 and submitted to EPA Nov. 17, 2023

Valley's Air Quality Challenges

- Valley's challenges in meeting federal air quality standards unmatched due to unique combination of topography and meteorology
- Valley faced with variety of challenges including role as major goods movement corridor, high population growth, pollution transport from other areas, wildfires, drought
- Conditions require substantially greater emissions reductions in Valley to meet clean air targets than other regions



What is PM2.5?

Particles with a diameter of 2.5 microns and smaller

A mixture of solid particles and liquid droplets in the air

Emitted directly or formed indirectly through chemical reactions between gases

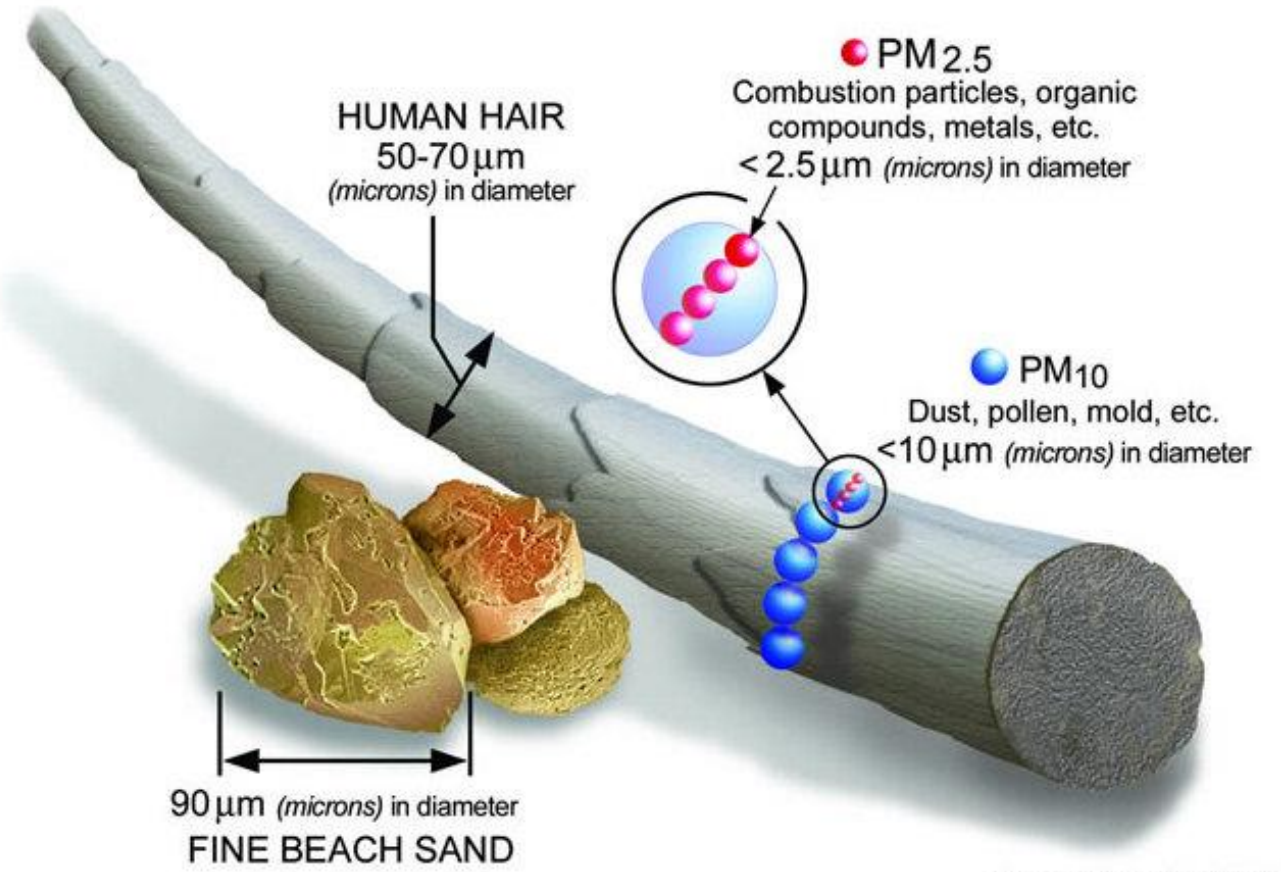
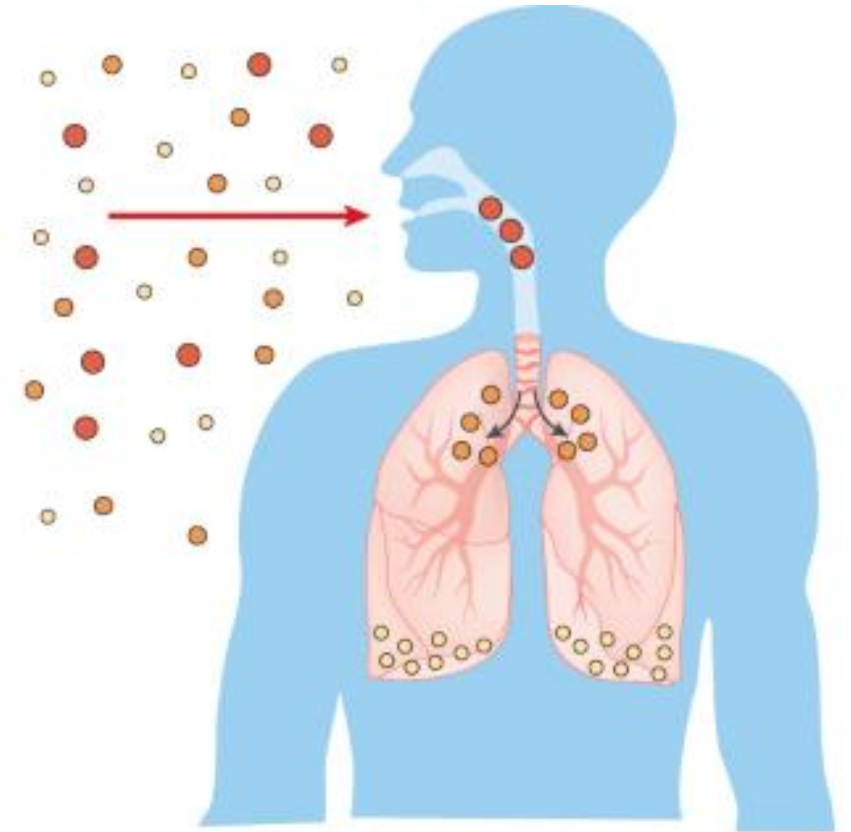


Image courtesy of the U.S. EPA

Protecting Public Health

The District's mission is to improve health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality management strategies

- The District strives to protect health of Valley residents through efforts to meet health-based state and federal ambient air-quality standards, based on science and prioritized where possible using health-risk reduction strategies
- Plan will demonstrate District/CARB's ongoing efforts to improve air quality in Valley through a comprehensive strategy
- Through this public process, District and CARB will evaluate health benefits of Plan strategy

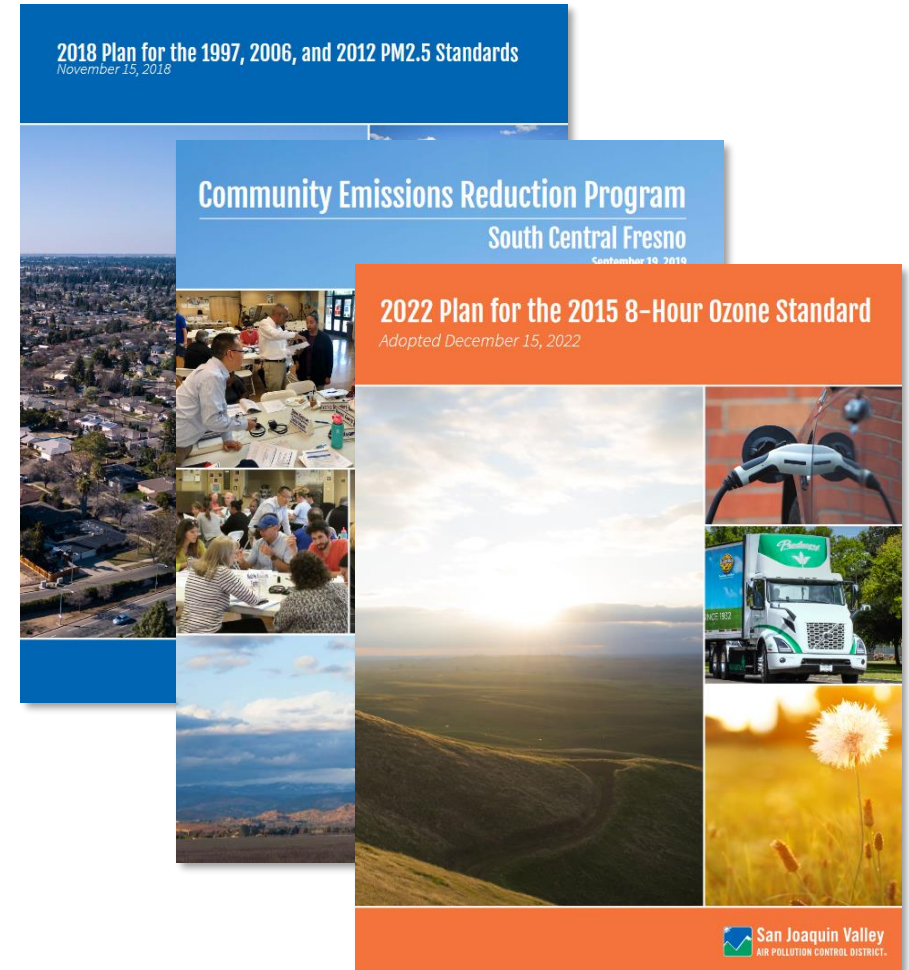


Scientific Research Foundation for District Emissions Reduction Strategies

- District continues to serve as administrator of San Joaquin Valleywide Air Pollution Study Agency (Study Agency)
 - Cooperative research collaboration between District, U.S. EPA, CARB, other air districts, and stakeholders that has been propelled by major research campaigns
 - California Regional Particulate Air Quality Study (CRPAQS) and Central California Ozone Study (CCOS)
 - Study Agency has spent approximately \$60 million of private and public funds towards cutting-edge Valley-based research
- Through these efforts, resulting research has enhanced understanding of contributing factors to Valley air quality, developed technical tools to formulate equitable and effective regional emission control plans

Scientific Research Foundation for District Emissions Reduction Strategies (cont'd)

- District/CARB in process of implementing number of clean air strategies included in *2018 PM2.5 Plan* and *2022 Ozone Plan*
- District implementing community-level emission and exposure reduction strategies within AB 617 CARB-selected communities of South Central Fresno, Shafter, Stockton, and Arvin/Lamont
- District/CARB must continue to rely on sound, Valley-based research and science to help guide development and implementation of these efforts, as well as the revised *Plan for the 2012 PM2.5 Standard*

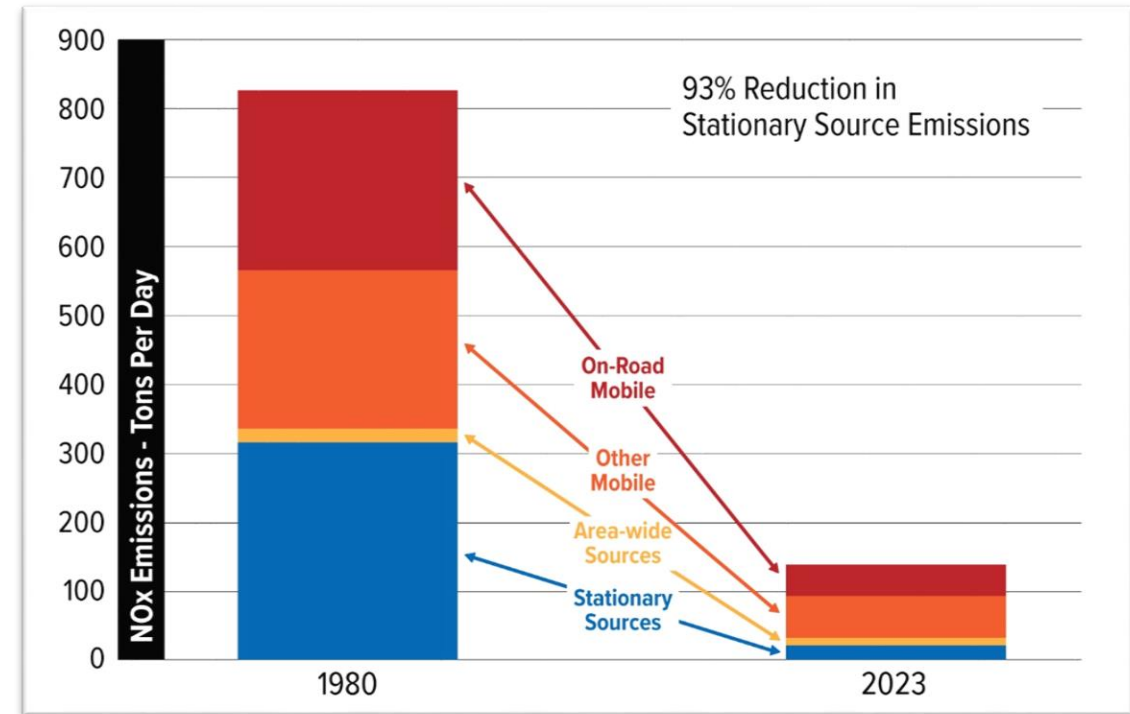


Foundation for Plan to Build On Strategies Already in Place



Adopted Controls Are Improving Air Quality

- District has adopted numerous attainment plans and air quality control strategies to address federal standards
 - Stationary source ozone and PM-forming NOx emissions reduced by over 90% through hundreds of regulatory actions
- CARB has adopted numerous mobile source emissions controls
- District/CARB combined efforts represent nation's toughest emissions control program
- Strong incentive programs (\$6.2 billion in public/private investment)
- Through significant clean air investments, Valley continues to make major improvements with respect to air quality
- While significant improvements have been made, more reductions needed

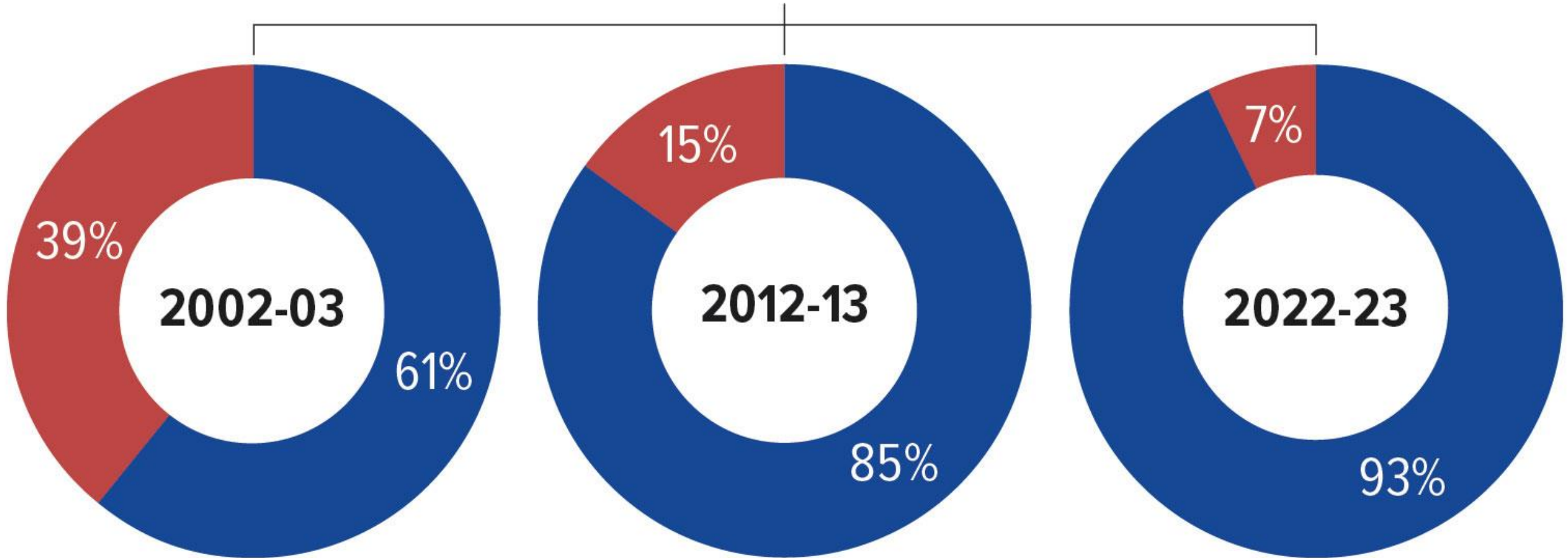


Recent Regulatory Actions Under Plan Commitments

Measure	Status
Rule 4311 (Flares)	Adopted Dec. 2020
Rules 4306/4320 (Boilers, Steam Generators, Process Heaters)	Adopted Dec. 2020
Rule 4692 (Commercial Underfired Charbroiling)	Strategy Adopted Dec. 2020
Rule 4103 (Ag Burn Phase-out)	Adopted Jun. 2021
Rule 4702 (Internal Combustion Engines)	Adopted Aug. 2021
Burn Cleaner Incentive SIP Measure	Adopted Nov. 2021
Rule 4354 (Glass Melting Furnaces)	Adopted Dec. 2021
Rule 4352 (Solid Fuel Boilers, Steam Generators, Process Heaters)	Adopted Dec. 2021
Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters)	Adopted May 2023
Rule 4401 (Steam-Enhanced Crude Oil Production Wells)	Adopted Jun. 2023
Rule 4409 (Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities)	Adopted Jun. 2023
Rule 4455 (Components at Petroleum Refineries, Gas Liquids, Processing Facilities, and Chemical Plants)	Adopted Jun. 2023
Rule 4623 (Storage of Organic Liquids)	Adopted Jun. 2023
Rule 4624 (Transfer of Organic Liquid)	Adopted Jun. 2023
Rule 4402 (Crude Oil Production Sumps)	Adopted Dec. 2023
Rule 4550 (Conservation Management Practices)	Rule development ongoing

Progress in Improving Valley PM2.5

DAYS MEETING vs **DAYS EXCEEDING** the PM2.5 STANDARD DURING WINTER MONTHS



Federal Clean Air Act Requirements

Precursor
Demonstration



Requirements for
Major Sources



Emissions Inventory



Best Available Control
Measures (BACM)



Attainment
Demonstration

Contingency
Measures

Quantitative
Milestones

Reasonable Further
Progress (RFP)

Most Stringent
Measures (MSM)

Initial SIP Requirements Submitted to EPA

Emissions Inventory	District and CARB developed a comprehensive, accurate, and current inventory of actual emissions of relevant pollutants in the Valley
Precursor Demonstration	CARB modeling and District analysis demonstrates SO _x , VOC, ammonia do not contribute significantly to PM _{2.5} formation in the Valley
BACM	District, CARB, and Metropolitan Planning Organizations (MPOs) implementing BACM for the control of direct PM _{2.5} and NO _x , no later than 2025
Requirements for Major Sources	District adopted revisions to District Rule 2201 (Modified Stationary Source Review Rule) in April 2023, which fulfills these requirements

Ongoing plan development continuing to address remaining CAA requirements for Serious nonattainment areas

SIP Requirements Under Development

Attainment Demonstration	District and CARB working on modeling that will demonstrate attainment of the 2012 annual PM2.5 standard by 2030
Reasonable Further Progress (RFP)/ Quantitative Milestones	Plan will demonstrate incremental emission reductions leading to the attainment date
Contingency Measures	District and CARB evaluating additional control measures to be implemented in the event that EPA issues final rulemaking that the Valley failed to meet a regulatory requirement necessitating implementation of a contingency measure
Most Stringent Measures (MSM)	The District and CARB will ensure implementation of MSM as required for Serious nonattainment areas requesting an attainment date extension

Reasonable Further Progress (RFP) and Quantitative Milestones (QM)

Requirements:

RFP: Demonstrate annual incremental reductions in emissions of PM_{2.5} and PM_{2.5} precursors to ensure attainment of the 2012 PM_{2.5} standard as expeditiously as practicable

QM: To be achieved every 3 years until the area is redesignated attainment and which demonstrate reasonable further progress toward attainment by the applicable date

- District/CARB developing analysis demonstrating linear progress in PM_{2.5} and NO_x emissions reductions through 2031
- RFP/QM years of 2019, 2022, 2025, 2028, 2030, 2031
- Analysis will present schedule of control measures and estimated emissions reductions to be achieved by each milestone year

Contingency Measures

Requirement:

Provide for implementation of specific measures if area fails to attain or meet a milestone for RFP or attainment

- EPA published draft guidance March 2023
 - Identifies solutions and flexibility related to scarcity of measures, implementation timelines following a contingency trigger, and amount of reductions needed
- District/CARB recently addressed contingency measures for 1997, 2006, 2012 (moderate) PM_{2.5} standards based on draft guidance
 - EPA proposed approval 12/20/23
- Plan to include contingency measures, based on feasibility analysis:
 - Rule 4901 (Residential Wood Burning)
 - Rule 8051 (Open Areas)
 - Statewide Smog Check Contingency Measure

Attainment Demonstration

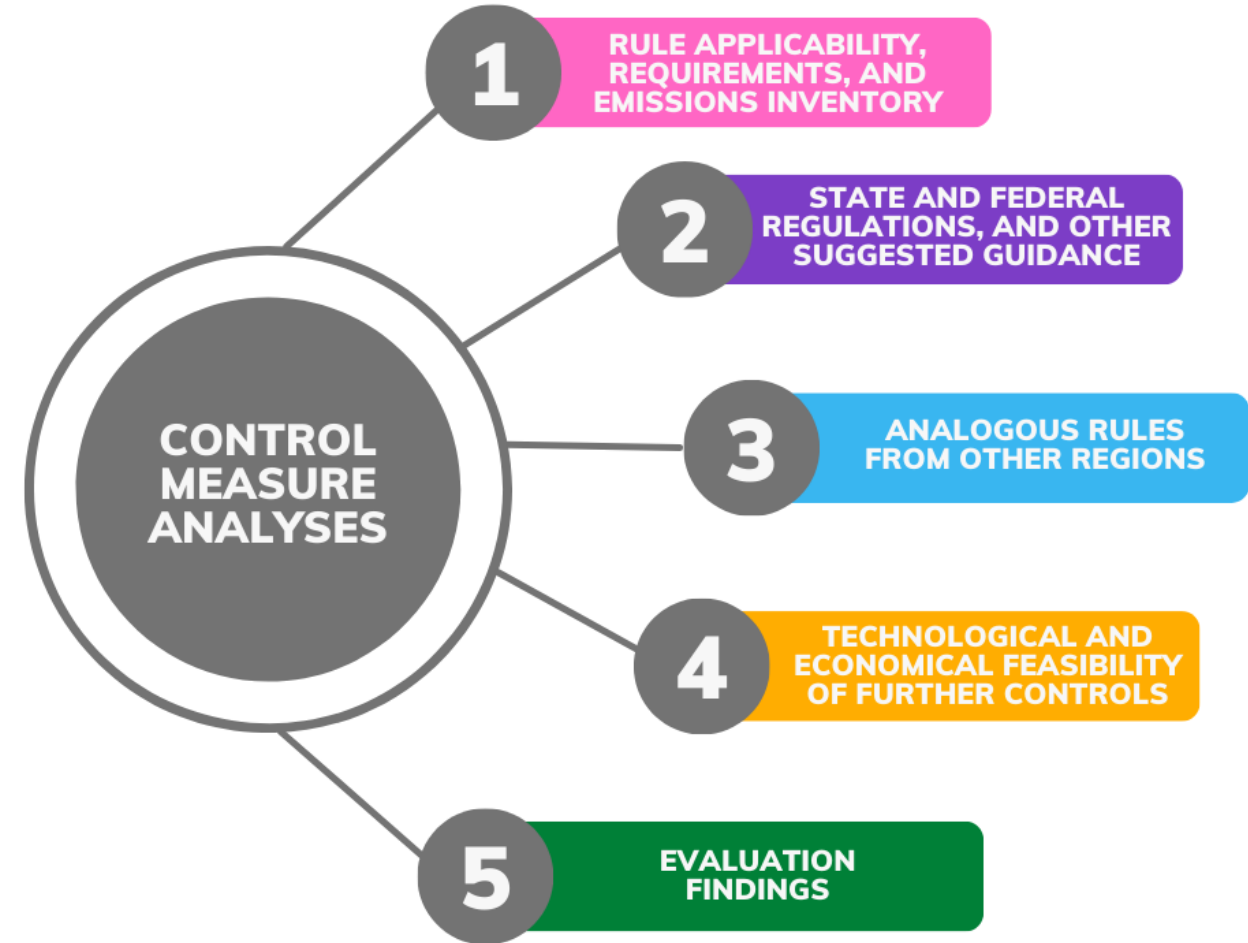
Requirement:

Demonstrate that the specific annual emissions reductions included in a SIP are sufficient to attain the primary NAAQS by the date applicable to the area

- District/CARB conducting extensive modeling analysis consistent with EPA guidance to estimate future PM_{2.5} design values
- Initial modeling demonstrates that even with implementation of the best available control measures (BACM), attainment by 2025 is impracticable
- District/CARB developing control strategy in order to achieve emissions reductions that will provide for attainment as expeditiously as practicable, no later than 2030
 - Final modeling results and attainment strategy will be provided at future workshop

District Control Measure Analyses

- As part of *Initial SIP Requirements*, District and CARB demonstrated BACM requirements continue to be satisfied in Valley for NOx and PM2.5 sources
 - No additional measures found that are feasible to implement by 2025 as required
- Plan must also provide for implementation of MSM as part of attainment date extension
 - Measures must be implemented no later than 1 year prior to attainment date (2029)
- District and CARB evaluating additional control measure opportunities beyond BACM



District Rules Evaluated

District Rule	PM	NOx	Adopted/ Last Amended	Potential Opportunities for Control Strategy
4103 Open Burning	x	x	6/17/2021	✗
4104 Reduction of Animal Matter	x		12/17/1992	✗
4106 Prescribed Burning and Hazard Reduction Burning	x	x	6/21/2001	✗
4203 PM Emissions from Incineration of Combustible Refuse	x		12/17/1992	✗
4204 Cotton Gins	x		2/17/2005	✗
4301 Fuel Burning Equipment	x	x	12/17/1992	✗
4306 Boilers, Steam Generators, and Process Heaters – Phase 3	x	x	12/17/2020	✗
4307 Boilers, Steam Generators, and Process Heaters 2.0 to 5.0 MMBtu/hr	x	x	4/21/2016	✗
4308 Boilers, Steam Generators, and Process Heaters 0.075 to <2.0 MMBtu/hr	x	x	11/14/2013	✓
4309 Dryers, Dehydrators, and Ovens	x	x	12/15/2005	✗
4311 Flares	x	x	12/17/2020	✗

District Rules Evaluated (cont'd)

District Rule		PM	NOx	Adopted/ Last Amended	Potential Opportunities for Control Strategy
4313	Lime Kilns		x	3/27/2003	✗
4320	Boilers, Steam Generators, and Process Heaters >5.0 MMBtu/hr	x	x	12/17/2020	✗
4352	Solid Fuel Fired Boilers, Steam Generators, and Process Heaters	x	x	12/16/2021	✗
4354	Glass Melting Furnaces	x	x	12/16/2021	✗
4550	Conservation Management Practices	x		8/19/2004	✓
4692	Commercial Charbroiling	x		6/21/2018	✗
4702	Internal Combustion Engines	x	x	8/19/2021	✗
4703	Stationary Gas Turbines	x	x	9/20/2007	✓
4901	Wood Burning Fireplaces and Wood Burning Heaters	x	x	5/18/2023	✓
4902	Residential Water Heaters	x	x	3/19/2009	✓
4905	Natural Gas-Fired, Fan-Type Central Furnaces	x	x	12/16/2021	✓

District Rules Evaluated (cont'd)

District Rule	PM	NOx	Adopted/ Last Amended	Potential Opportunities for Control Strategy
8011 General Requirements	x		8/19/2004	X
8021 Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities	x		8/19/2004	X
8031 Bulk Materials	x		8/19/2004	X
8041 Carryout and Trackout	x		8/19/2004	X
8051 Open Areas	x		9/21/2023	X
8061 Paved and Unpaved Roads	x		8/19/2004	X
8071 Unpaved Vehicle/Equipment Traffic Areas	x		9/16/2004	X
8081 Agricultural Sources	x		9/16/2004	X

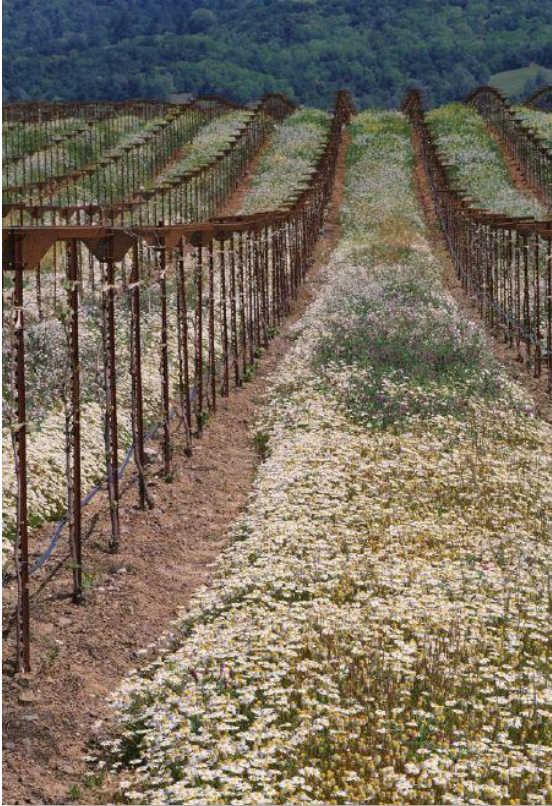
District Control Measure Analyses

- District conducting additional analyses to determine technological and economic feasibility of potential measures to achieve additional emission reductions
 - Continuing to evaluate opportunities throughout plan development process

District Rule Identified	Pollutant
4550 Conservation Management Practices	PM
4703 Stationary Gas Turbines	NOx
4901 Wood Burning Fireplaces and Wood Burning Heaters	PM
Building Electrification	NOx
4308 Boilers, Steam Generators, and Process Heaters - 0.075 - <2.0 MMBtu/hr	
4902 Residential Water Heaters	
4905 Natural Gas-Fired, Fan-Type Central Furnaces	

Conservation Management Practices

Rule 4550



- Adopted May 20, 2004; Re-adopted August 19, 2004
- Limits fugitive dust emissions (PM10)
- Applies to on-field farming and agricultural operation sites
- Has resulted in reduction of PM2.5 emissions through the reduction of passes of agricultural equipment and implementation of other conservation practices
- Rule has reduced PM10 emissions by 35.3 tons per day
- District will continue robust rule development process to evaluate opportunities to reduce emissions from fallowed land, collaborating with industry stakeholders, USDA-NRCS, and other agencies

Stationary Gas Turbines



Rule 4703

- Adopted August 18, 1994; Amended March 16, 1995, February 15, 1996, October 16, 1997, April 25, 2002, August 17, 2006, and September 20, 2007
- Limits NO_x and CO emissions
- Units used in oil and gas production, utilities, manufacturing, and government
- 2007 amendments lowered NO_x limits, achieving 2.2 tpd reduction in NO_x emissions
- District is evaluating potential to lower NO_x limits, taking into consideration technological and economic feasibility

Wood Burning Fireplaces and Wood Burning Heaters



Rule 4901

- Adopted July 15, 1993; Amended July 17, 2003, October 16, 2008, September 18, 2014, June 20, 2019, May 18, 2023
- Implements wood burning curtailments, reducing PM and other related emissions
- Commitments in *2018 PM2.5 Plan* included rulemaking to lower wood burning curtailment levels, and enhancements to the District's incentive grant funding levels, public outreach and education, enforcement, and air quality forecasting programs
- District is evaluating potential to further reduce wood burning in the Valley through regulatory or incentive-based approaches

Building Electrification

Rules 4308, 4902, 4905

- Generations of rules adopted to limit NO_x emissions from:
 - Boilers, steam generators, and process heaters
0.075 - <2.0 MMBtu/hr
 - Residential water heaters
 - Natural gas-fired, fan-type central furnaces
- Point-of-sale: Applies to any person who supplies, sells, offers for sale, installs, or solicits installation of applicable units
 - Units used in variety of commercial/residential settings
- District is conducting a further study of zero-NO_x requirements, taking into consideration technological and economic feasibility, closely tracking efforts in other regions



2022 State SIP Strategy

- Adopted on September 22, 2022
- Includes new State measures to reduce emissions using all mechanisms available
- Identifies the level of action needed to meet air quality standards and protect public health
- Drives pace and scale of CARB rulemakings
- Includes measures applicable for annual PM2.5 standard attainment

2022 State Strategy for the State Implementation Plan

Adopted
September 22, 2022



2022 State SIP Strategy - PM2.5 SIP Measures

On-Road

Advanced Clean Fleets Regulation*

Zero-Emissions Trucks Measure

Clean Miles Standard*

Off-Road

Tier 5 Off-Road Engine Standard

Amendments to In-Use Off-Road Diesel-Fueled Fleets Regulation*

Zero-Emission Transport Refrigeration Units (Part II)

Commercial Harbor Craft Amendments*

Cargo Handling Equipment Amendments

Primarily Federally-Regulated

In-Use Locomotive Regulation*

Other

Zero-Emission Standard for Space and Water Heaters

Measure Schedule

Measures	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Clean Miles Standard	★									
Commercial Harbor Craft Amendments		★								
Amendments to the In-Use Off-Road Diesel Fueled Fleets		★								
Advanced Clean Fleets			★							
In-Use Locomotive Regulation			★							
Tier 5 Off-Road Vehicles and Equipment					★					
Zero-Emission Standard for Space and Water Heaters					★					
Transport Refrigeration Unit Regulation Part 2						★				
Cargo Handling Equipment Amendments							★			
Zero-Emissions Trucks Measure								★		

★	Adoption Year
★	Planned Adoption Year
	Implementation Year

Recently Adopted State SIP Strategy Measures

Expected Emissions Reductions

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 I	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 Reductions	9.2	0.2
Emissions Reductions	12.9	0.5

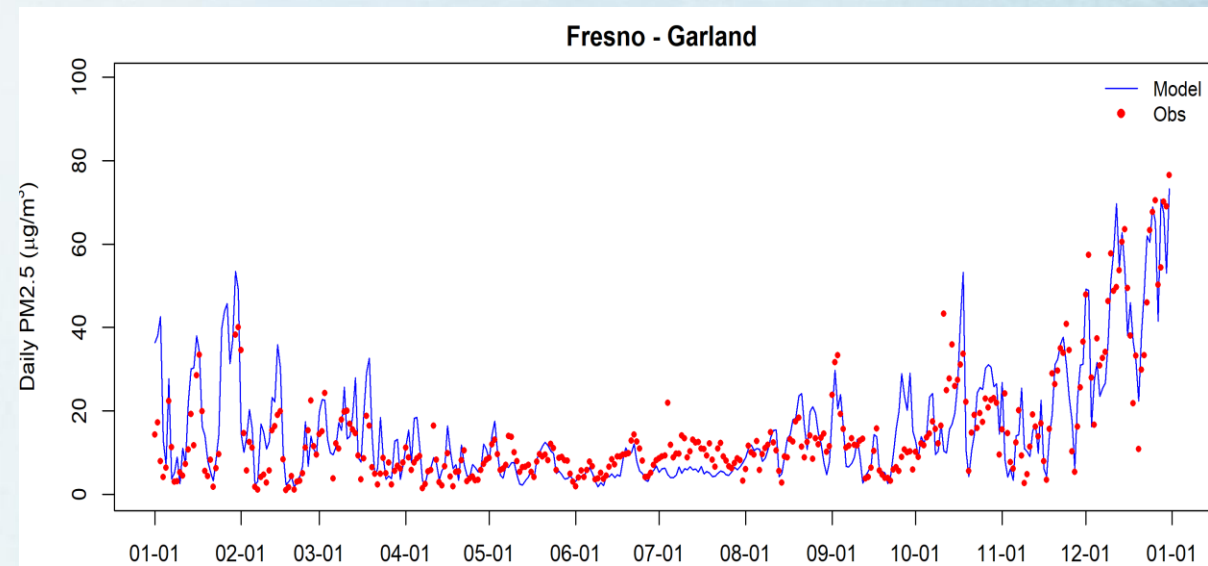
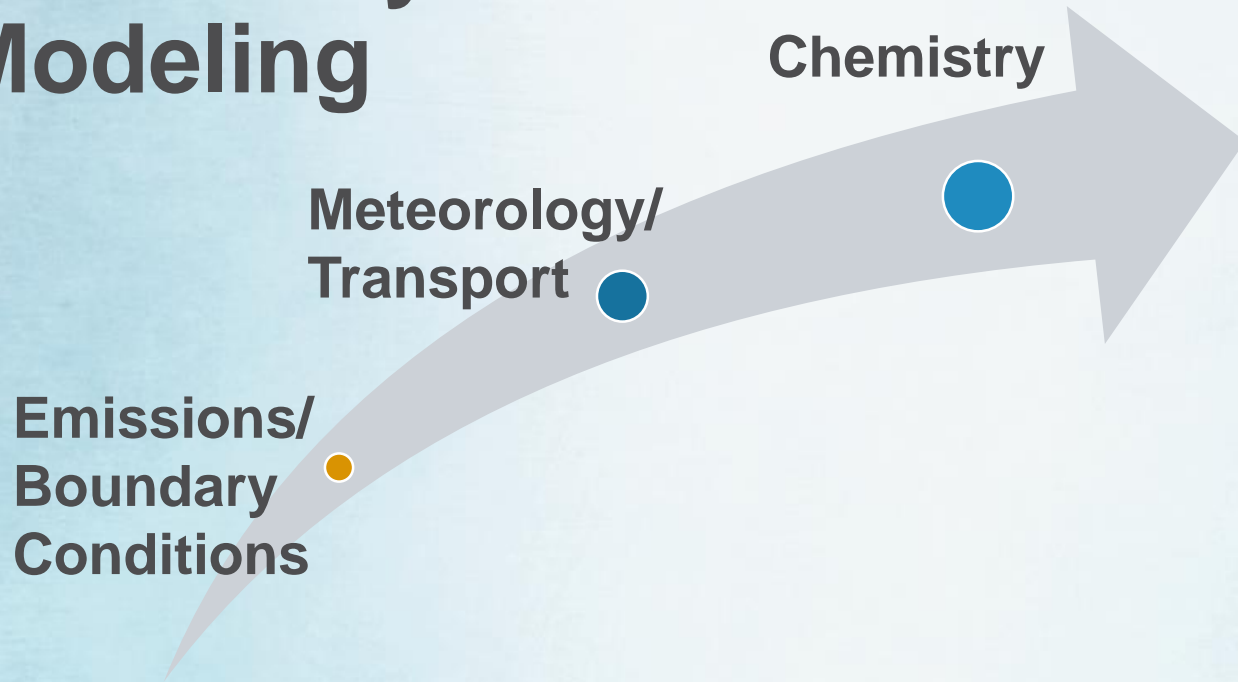
Remaining 2016 and 2022 State SIP Strategy Measures

Measures
Zero-Emission Forklift
Zero-Emission Trucks Measure
Tier 5 Off-Road Vehicles and Equipment
Transport Refrigeration Unit Part 2
Cargo Handling Equipment Amendments
Zero-Emission Standard for Space and Water Heaters

Potential New CARB Measures

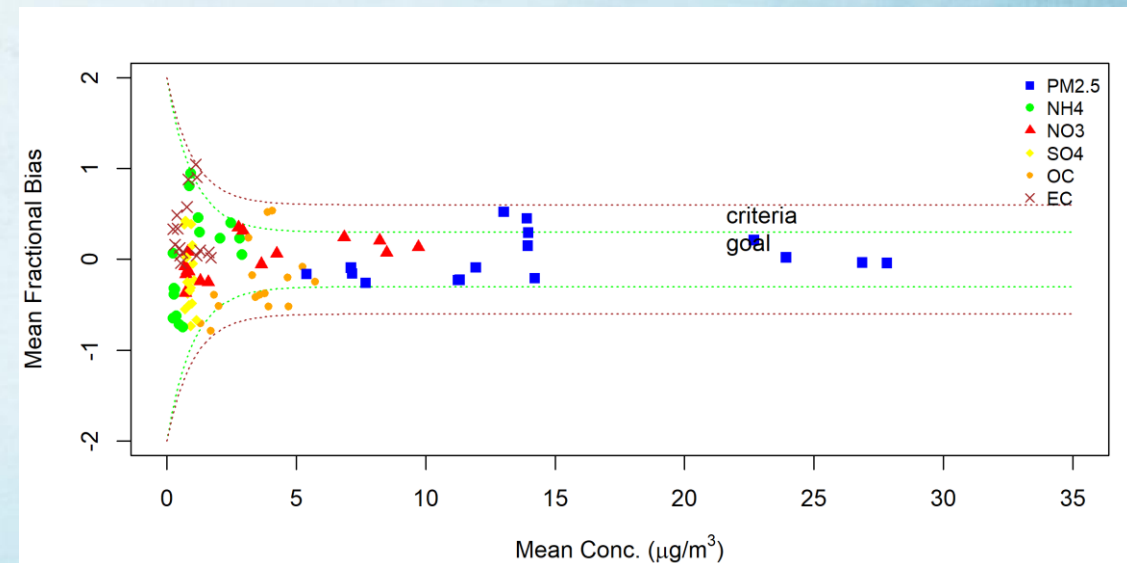
- Quantification of accelerated turnover of agricultural equipment in place in 2024
 - Attribute those 2024 emissions reductions in 2030
- Targeted Kern County Incentives – State is working on funding to reduce emissions in Kern County such as heavy-duty trucks, locomotives, off-road equipment, and zero-emissions infrastructure
- New public suggestions

Air Quality Modeling



Modeling Update:

- Baseline (2017) modeling is complete
- Modeling is within EPA defined criteria for satisfactory model performance

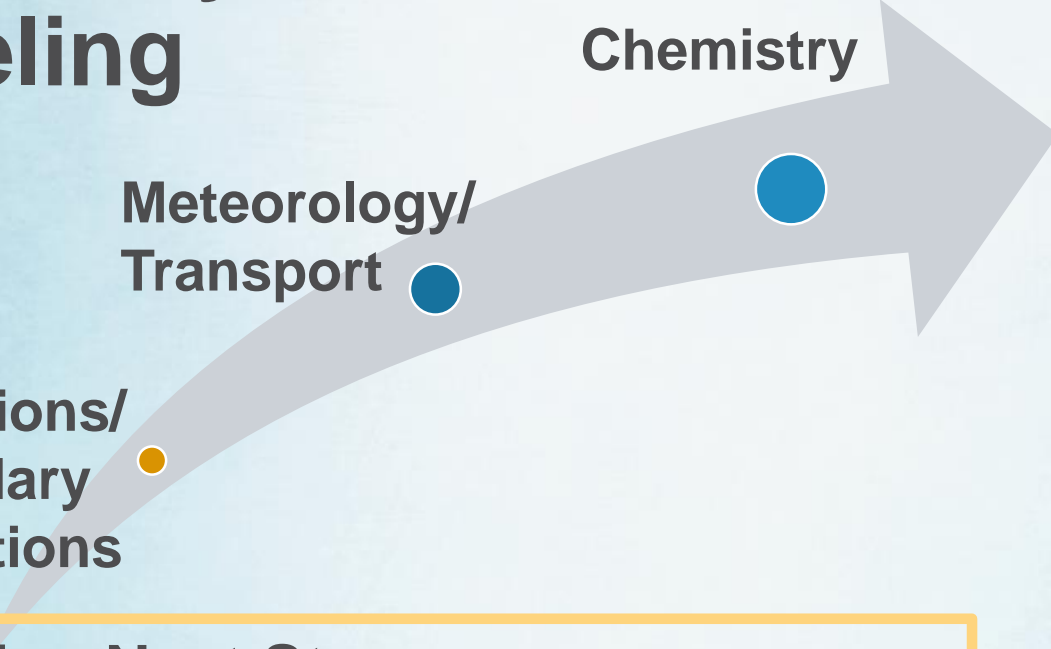


Air Quality Modeling

Chemistry

Meteorology/
Transport

Emissions/
Boundary
Conditions



Modeling Next Steps:

- Focus on 2030 future year emission inventory and modeling
 - Assess CARB commitments
 - Assess District commitments
- Working with District to develop potential attainment strategies

Need for Federal Mobile Source Reductions

- Attainment of federal standards will require significant reductions in emissions from mobile sources primarily under state and federal jurisdiction
- Imperative that emissions are reduced from mobile sources that fall exclusively under federal jurisdiction (interstate heavy-duty trucks, locomotives, other mobile sources)
- District continues to advocate for state and federal action, as well as pursue additional funding opportunities in order to achieve emission reductions from mobile sources



Next Steps



TODAY

Today's workshop is to present, discuss, and **receive feedback on potential control measures**



ONGOING PLAN DEVELOPMENT

District and CARB continuing to develop Plan addressing remaining CAA requirements

(Modeling, attainment demonstration, RFP, quantitative milestones, contingency measures, MSM demonstration)



CONTINUED PUBLIC PROCESS

Additional public workshops, and updates to Citizens Advisory Committee, Environmental Justice Advisory Group, and Governing Board



DEVELOPMENT OF ATTAINMENT STRATEGY

District will continue to work with CARB to evaluate additional emission reduction opportunities within respective jurisdictions



PUBLIC HEARING

Proposed Plan to be taken to Governing Board for consideration in 2nd Quarter 2024

Contact and Resources



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Comments/Questions

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