

**Public Workshop for the
*2023 Plan for the 2012 Annual PM2.5
Standard***

September 7, 2023

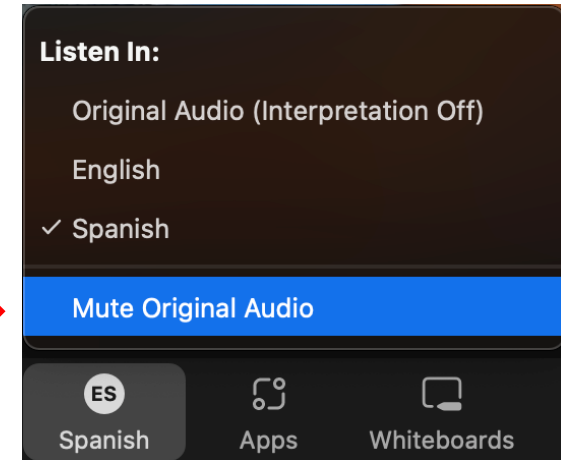
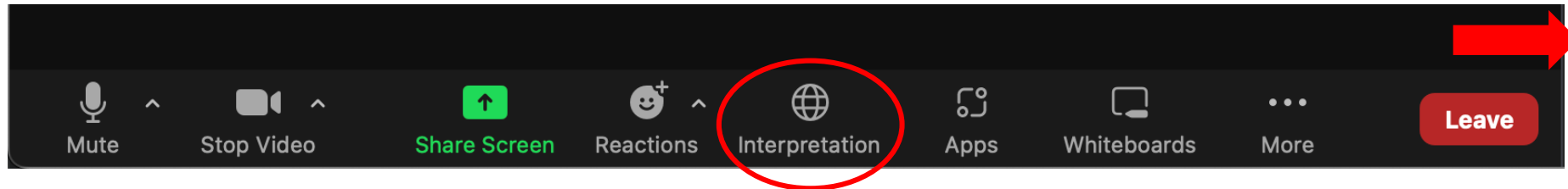
webcast@valleyair.org

How to Listen to the Webinar in Spanish

Cómo Escuchar la Interpretación Español

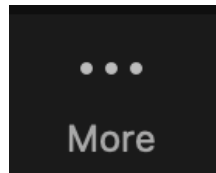
En Una Computadora

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.



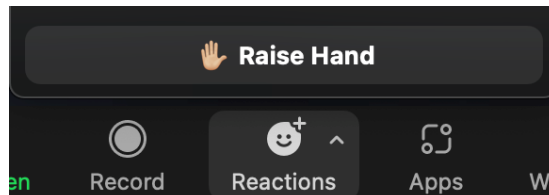
En Un Teléfono o Tableta

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



Purpose of Workshop

Base Year
Emissions
Inventory

Precursor
Demonstration

Best Available
Control Measure
Analysis

2012 PM2.5 Standard

EPA established
2012 PM2.5
standard January 15,
2013 (12 $\mu\text{g}/\text{m}^3$)

- 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 Dec. 31, 2023

2018 PM2.5 Plan
addressed 1997,
2006 and 2012
PM2.5 standards,
earlier than required
for 2012 standard

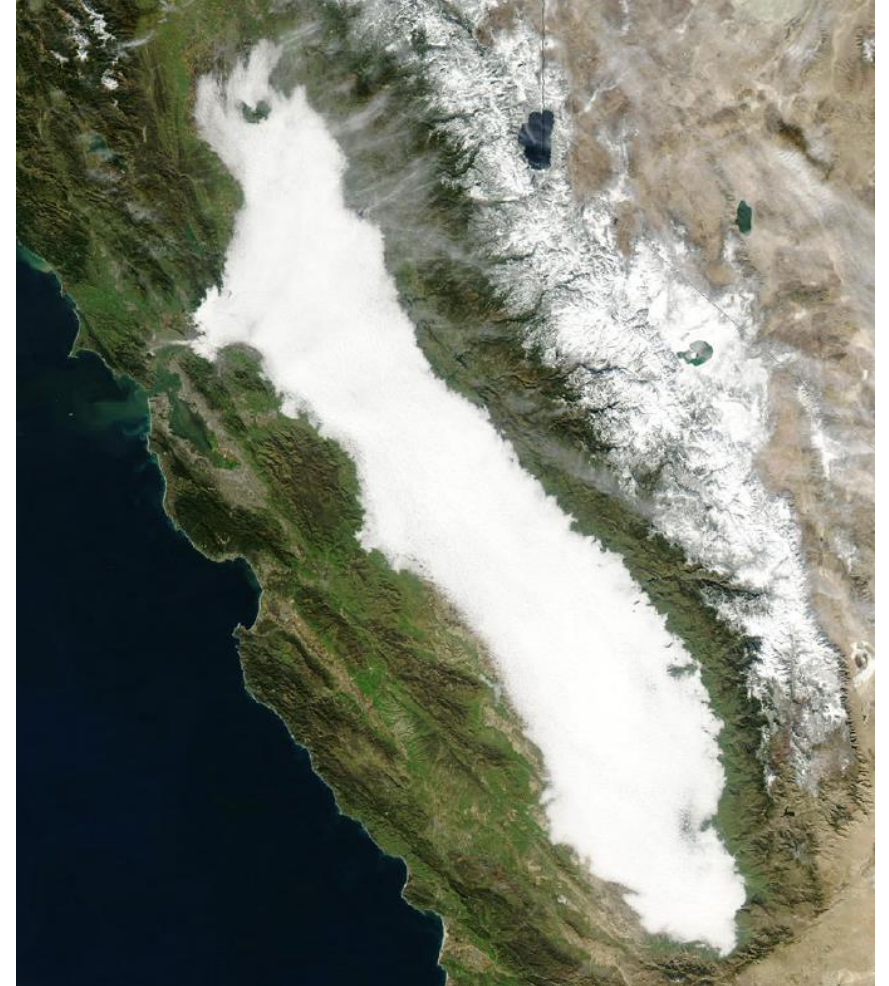
- EPA proposed full approval of Serious Plan for 2012 PM2.5 standard in Dec. 2021
- EPA reversed decision and proposed disapproval in Oct. 2022
- In response to EPA reversal, CARB withdrew Plan with District concurrence in Oct. 2022

District/CARB
updating Plan for
2012 standard

- Updated Plan will rely on *2018 PM2.5 Plan*, and include revisions as necessary incorporating latest guidance, feedback from EPA in latest proposals, and meet federal Clean Air Act requirements

Valley's Air Quality Challenges

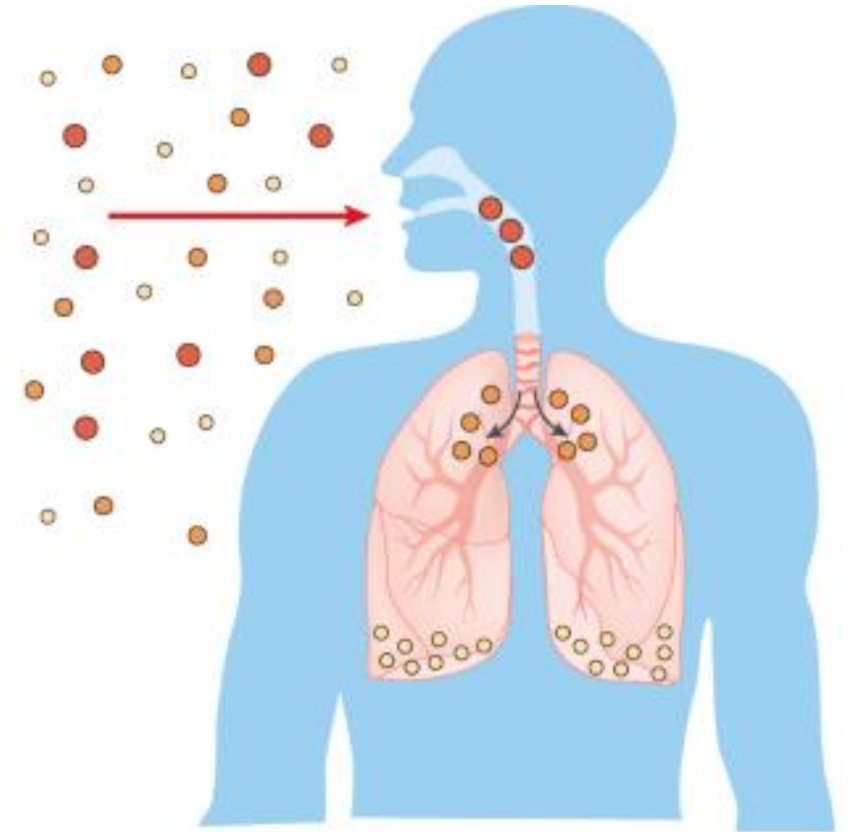
- Valley's challenges in meeting federal air quality standards unmatched due to unique combination of topography and meteorology
- Valley faced with variety of challenges including role as major goods movement corridor, high population growth, pollution transport from other areas, wildfires, drought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



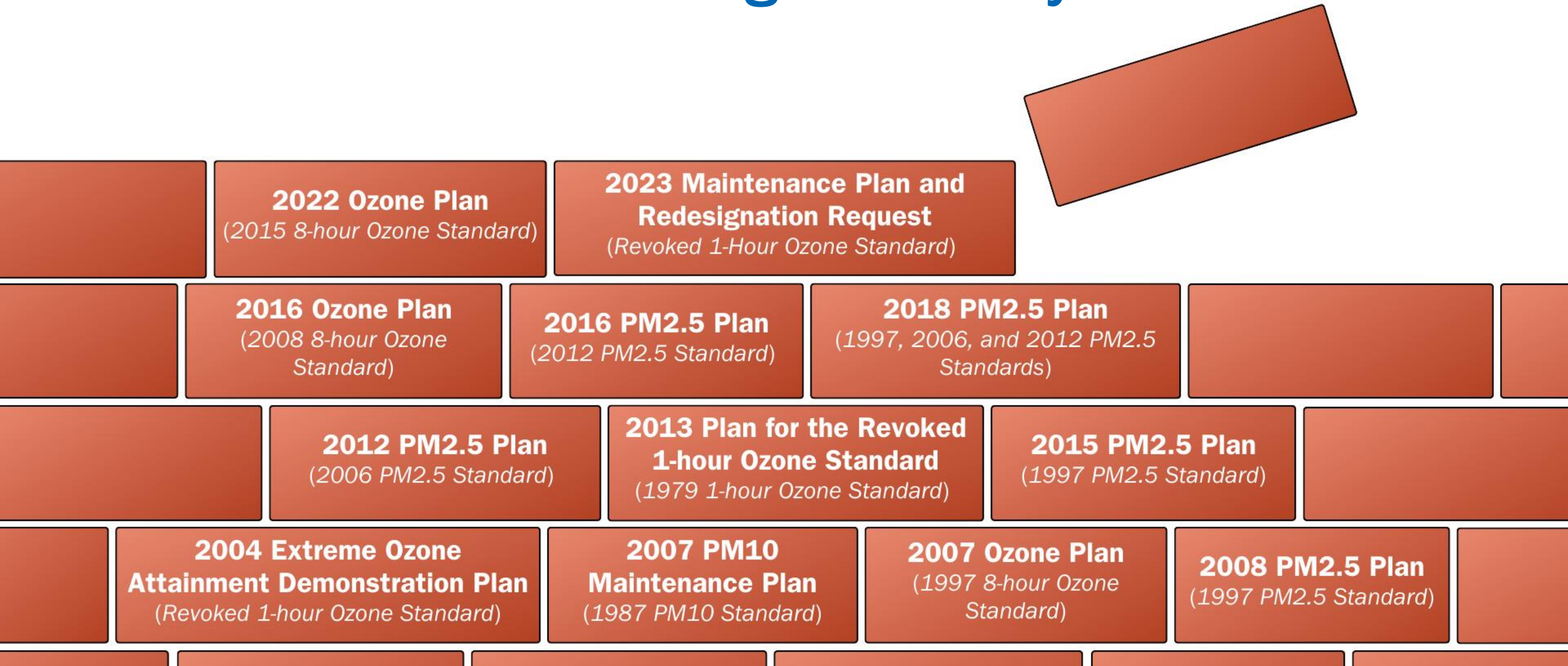
Protecting Public Health

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
- *2023 PM2.5 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

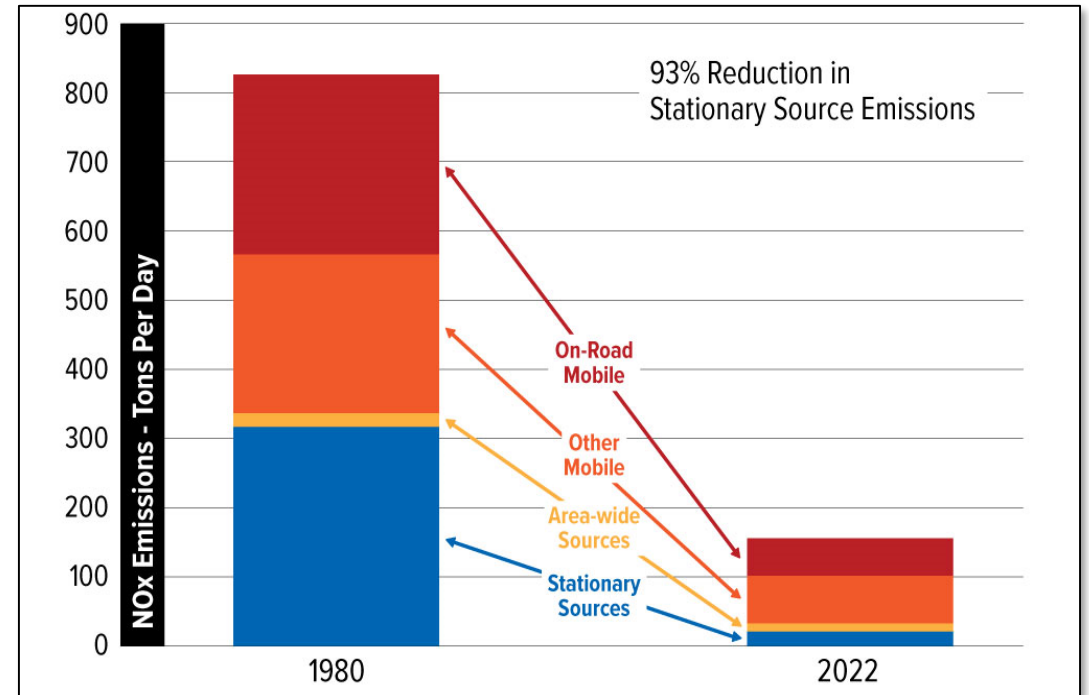


Foundation for 2023 PM2.5 Plan to Build On Strategies Already in Place



Adopted Controls Are Improving Air Quality

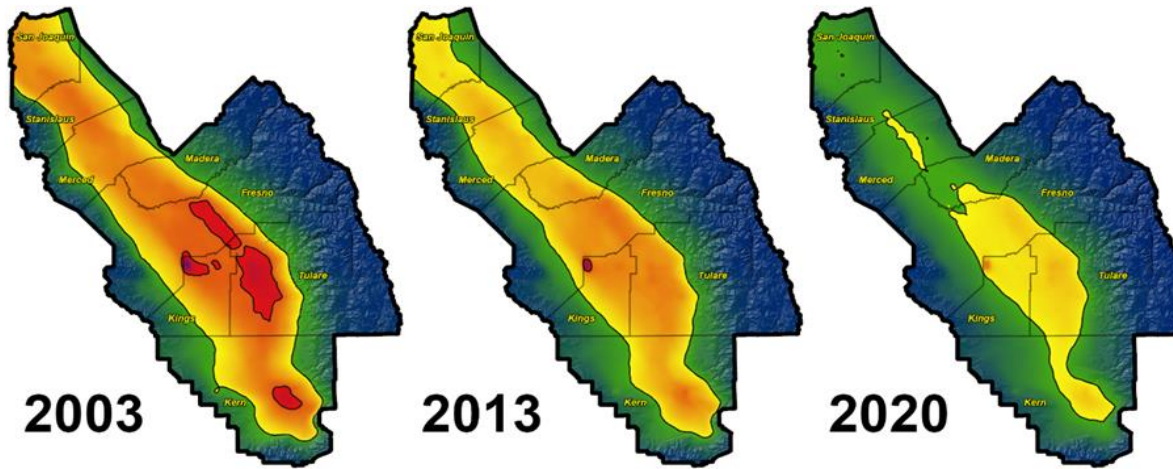
- District has adopted numerous attainment plans and air quality control strategies to address federal standards
 - Stationary source ozone and PM-forming NO_x emissions reduced by over 90% through hundreds of regulatory actions
- California Air Resources Board (CARB) has adopted numerous mobile source emissions controls
- District/CARB combined efforts represent nation's toughest emissions control program
- Strong incentive programs (\$5.7 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)	Rule development ongoing
Rule 4550 (Conservation Management Practices)	Rule development ongoing

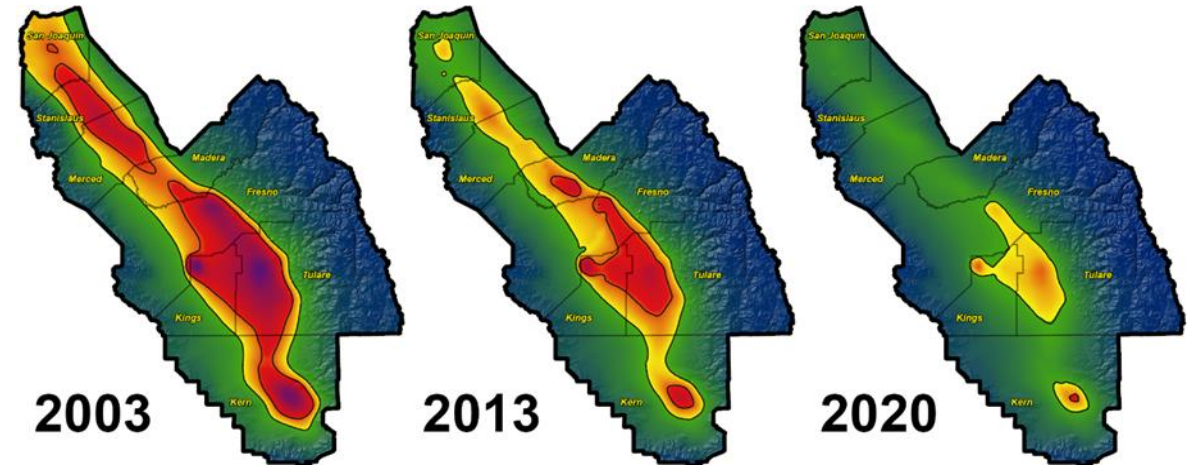
Progress in Improving Valley PM2.5



24-hour Average Design Value ($\mu\text{g}/\text{m}^3$)



Attainment of 2006 and 1997 Standards Attainment of 1997 Standard Only Not in Attainment of Either Standard



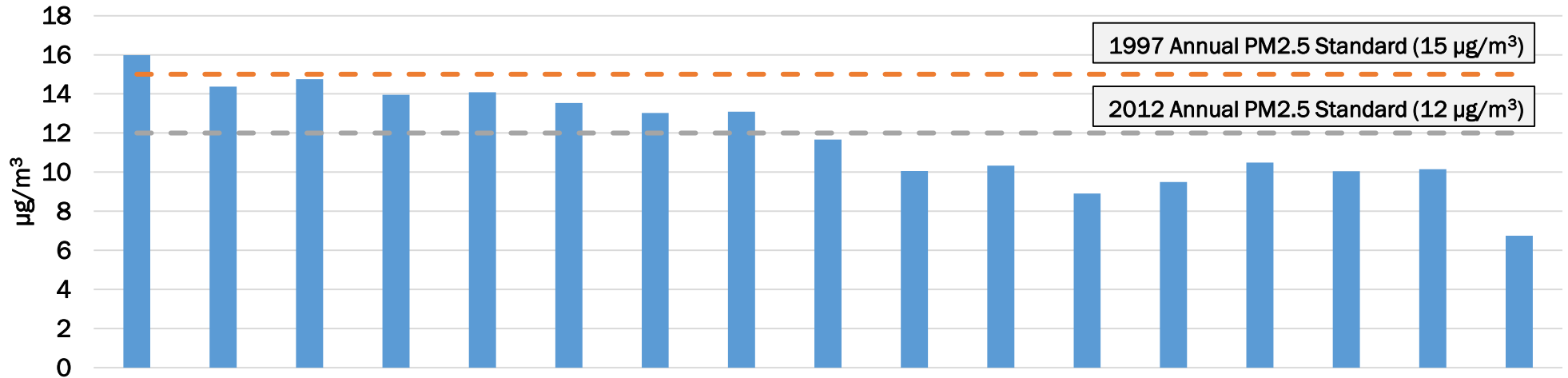
Annual Average Design Value ($\mu\text{g}/\text{m}^3$)



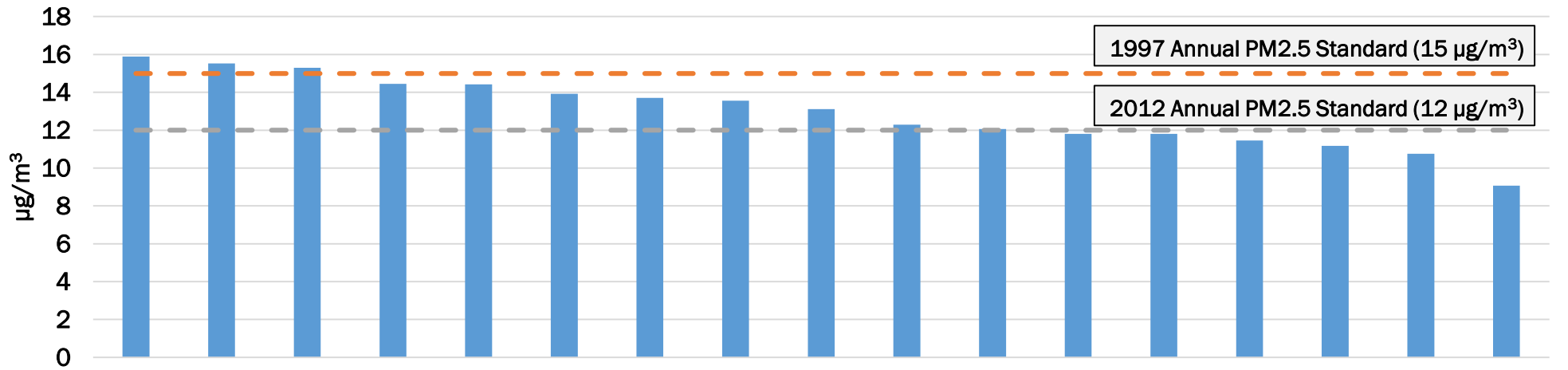
Attainment of 2012 and 1997 Standards Attainment of 1997 Standard Only Not in Attainment of Either Standard

Progress Toward Attainment of 2012 Standard

2022 PM2.5 Annual Average by Site (est.)



2020-22 PM2.5 Design Value by Site (est.)



Removes estimated impacts from 2020-2022 wildfires

Federal Clean Air Act Requirements

Attainment
Demonstration

Reasonable Further
Progress (RFP)

Quantitative
milestones

Contingency
Measures

Precursor
Demonstration

Requirements for
Major Sources

Emissions Inventory

Best Available Control
Measures (BACM)

Base Year Emissions Inventory

Stationary Source Emission Inventories

- Point Sources

- Refineries
- Manufacturing
- Electric Utilities
- Oil and Gas Production
- Food Processing
- Chemical Production

✓ Estimates submitted by Districts



- Area-Wide Sources

- Farming
- Paved and Unpaved Road Dust
- Solvents
- Consumer Products
- Open Burning

✓ Area-Wide estimate methodologies are shared by CARB and Districts



Mobile Source Emission Inventories

Off-Road

Categories represent many different industries, each with unique operations:

Cargo Handling Equipment



Commercial Harbor Craft



Construction



Ocean Going Vessels



Agriculture



Transport Refrigeration Unit



Rail



Lawn and Garden Equipment



Pleasure Craft



Recreational Vehicle



Portable Fuel Tank



Portable Equipment



On-Board Marine Tank



Large Spark Ignited



On-Road

Passenger Vehicles



Motorcycles



Pickups / Vans



Heavy-Heavy Duty Trucks



Medium Heavy Duty Trucks



School Buses

Transit Buses

Motorhomes



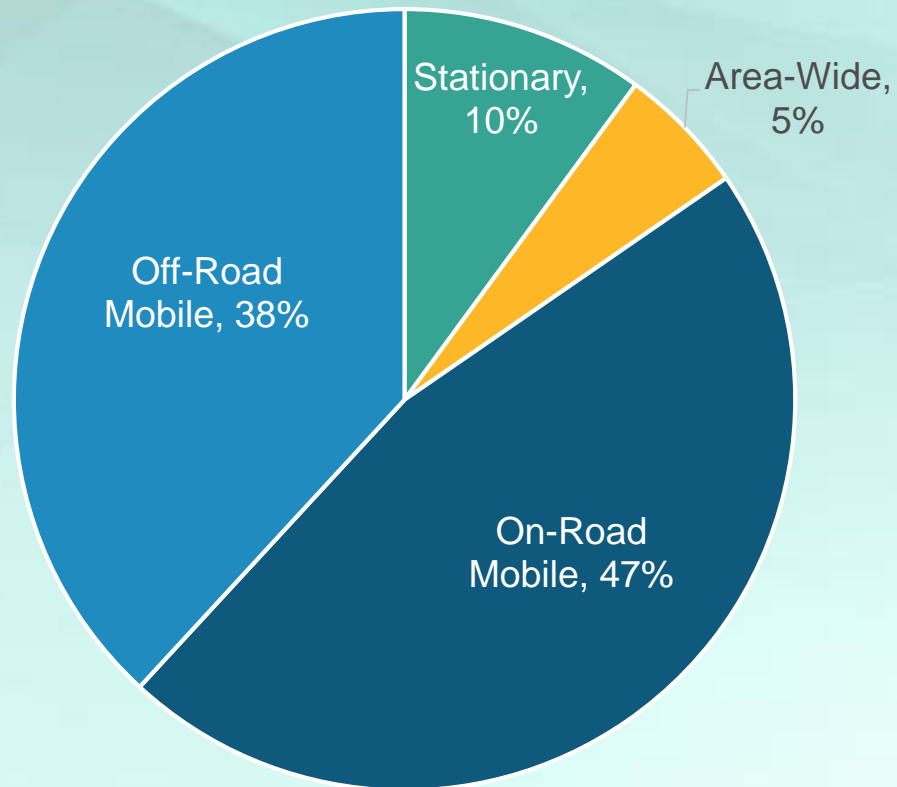
Passenger Vehicles

Heavy Duty Trucks
(Above 8,500 lbs.)

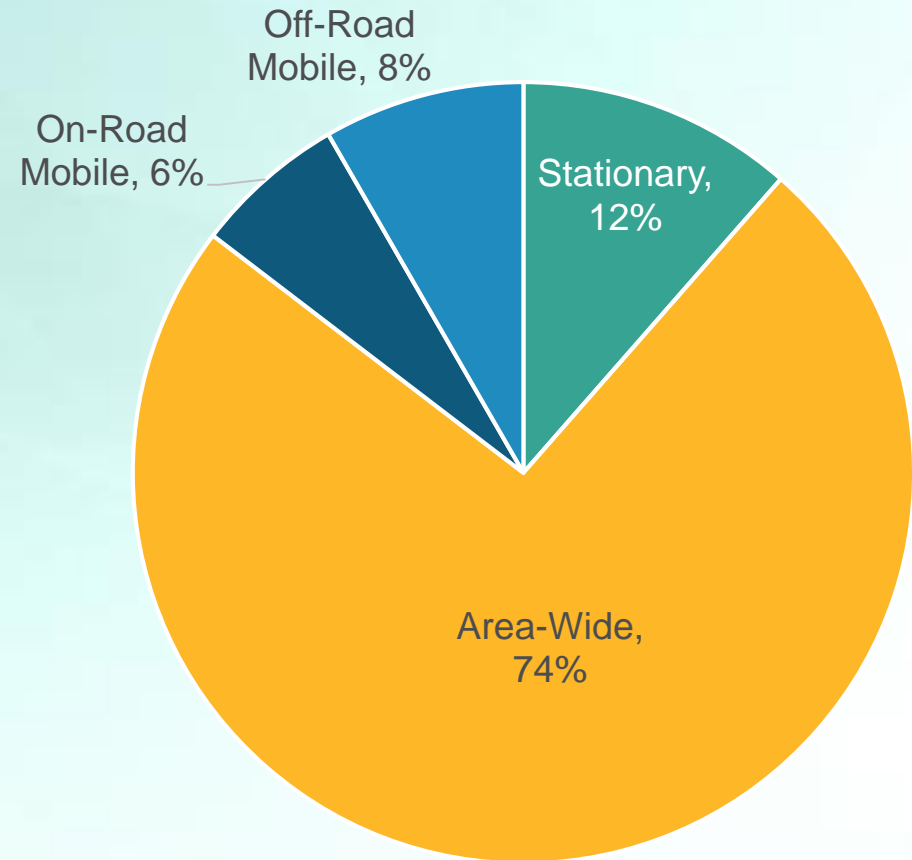
Buses

2017 Anthropogenic Emission Inventory San Joaquin Valley Annual Average (Tons/Day)

NOx
228 tons/day



PM2.5
69 tons/day



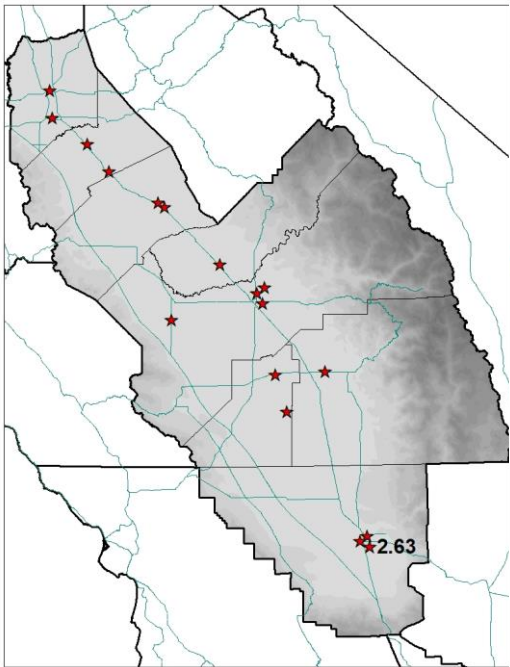
Precursor Demonstration

Precursor Analysis

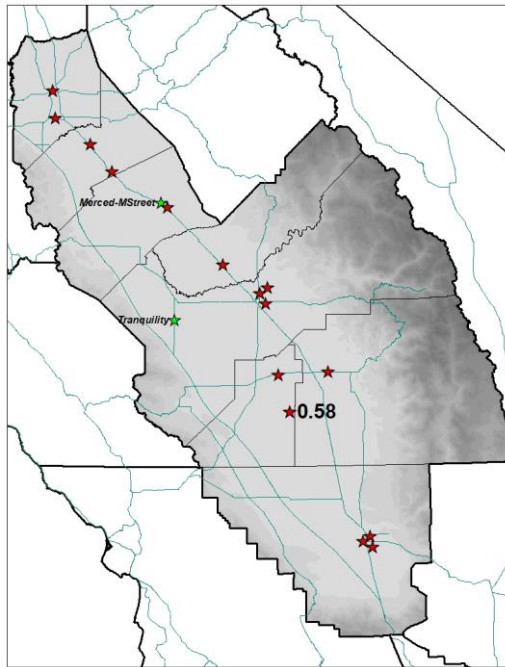
- PM2.5 precursors: directly emitted PM2.5, NOx, ammonia, SOx, VOCs
- EPA provides guidance on precursor analysis
- Model changes in precursor emissions (30% and 70% reduction) to assess the impact on PM2.5 air quality
- Precursor analysis documents that 30% reduction is the upper bound
 - Only 2% reduction feasible from potential ammonia control measures
- Only NOx and PM2.5 found to be significant precursors

Preliminary Sensitivity Analysis Results Based on 30% Anthropogenic Emission Reductions in SJV

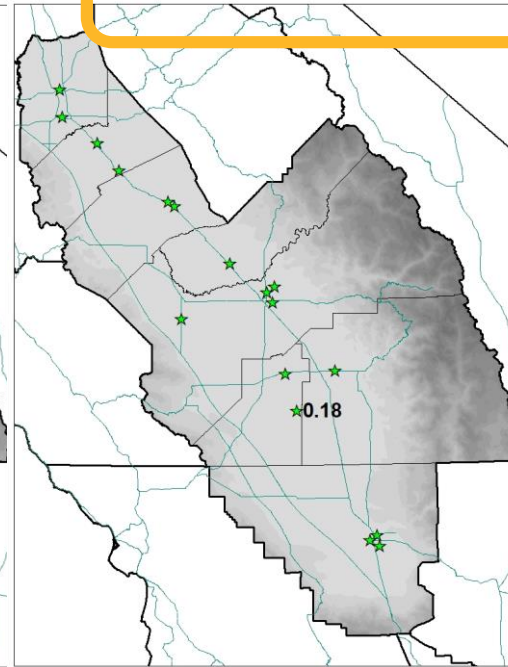
PM_{2.5}



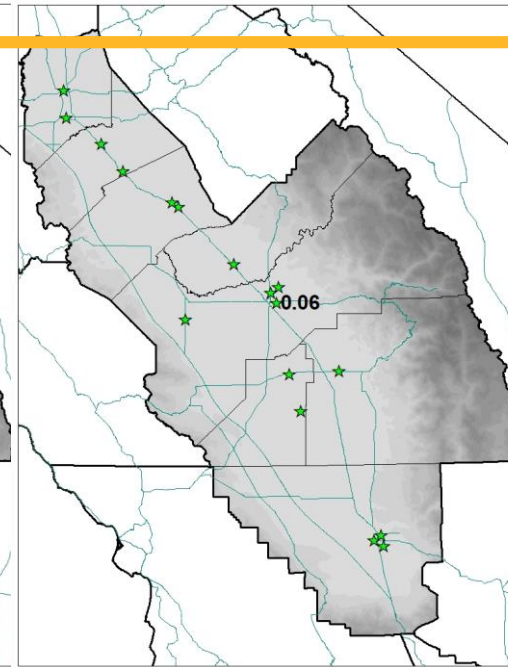
NO_x



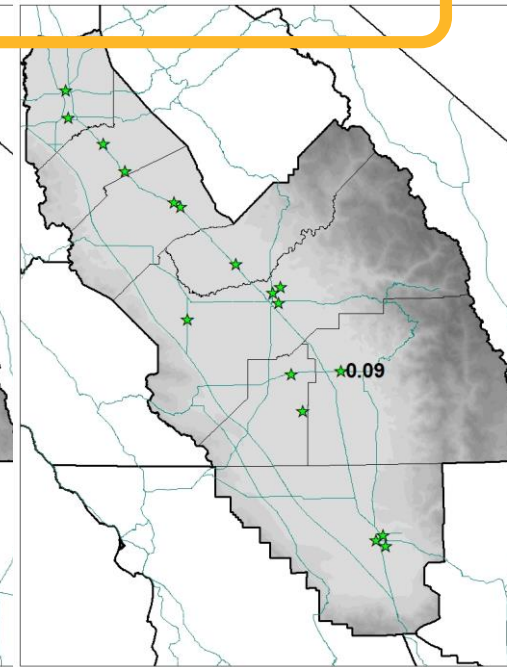
NH₃



ROG



SO_x



★ Sites with change of Design Value $\geq 0.2 \text{ ug/m}^3$

★ Sites with change of Design Value $< 0.2 \text{ ug/m}^3$

The biggest change of Design Value in each case is labeled next to the site

CARB Most Stringent Measures / Best Available Control Measures Analysis

State Control Measure Analysis

- Analysis of CARB's measures for the Most Stringent Measure (MSM) requirements
 - MSM is inclusive of Best Available Control Measure (BACM) requirements
 - Measures currently being implemented in other States
 - Includes measure suggestions during public process
 - Assesses stringency and feasibility of control measures
- CARB has previously demonstrated BACM and MSM
- Complements District Analysis

California's Unique Authority

- The Clean Air Act gives CARB unique authority to regulate mobile sources beyond EPA
- Other states can elect to adopt California standards
- CARB continues to adopt more stringent rules
- California's mobile emissions standards and overall mobile source program are MSM

Conclusions

CARB control program meets BACM and MSM requirements for the Valley

Category	Type of Controls	Conclusion
On-road Light-Duty	New Vehicle/Engine Standard	BACM & MSM
	In-use Emissions Control (fleet/testing/idling)	BACM & MSM
	Fuels	BACM & MSM
On-road Medium & Heavy-Duty	New Vehicle/Engine Standard	BACM & MSM
	In-use Emissions Control (fleet/testing/idling)	BACM & MSM
	Fuels	BACM & MSM
Off-Road	New Vehicle/Engine Standard	BACM & MSM
	In-use Emissions Control (fleet/testing/idling)	BACM & MSM
	Fuels	BACM & MSM
Space/Water Heaters	Emissions Standard	BACM & MSM

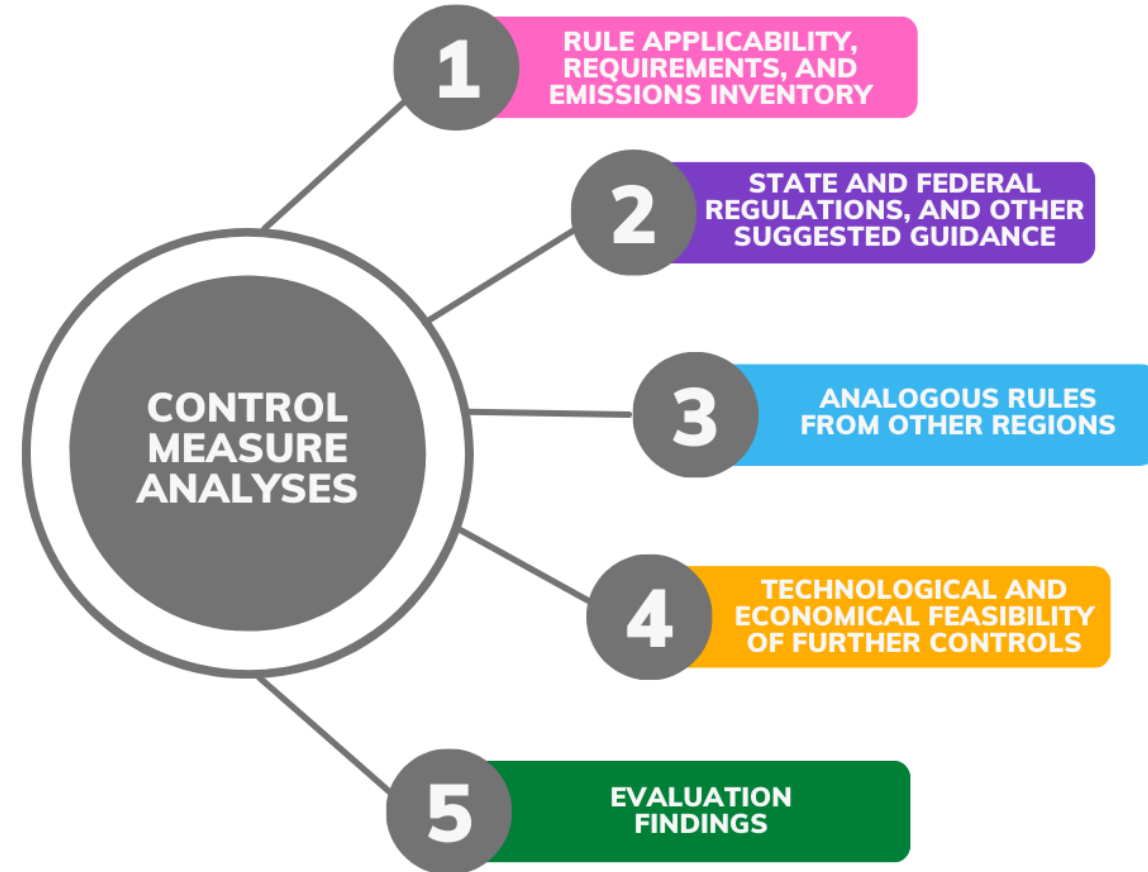
CARB Contact

Please provide your comments on the State's control measure analysis or other issues to: SIPPlanning@arb.ca.gov

CARB looks forward to your feedback

District BACM Control Measure Analyses

- Plan must provide for implementation of all BACM, including best available control technologies (BACT) for control of PM2.5
 - Must be implemented no later than 4 years after reclassification to Serious (2025)
- District conducted robust analyses for all PM2.5 and NOx rules
 - Ensures implementation of maximum degree of emissions reductions achievable by 2025, considering technological and economic feasibility
 - EPA has previously approved that District measures meet BACM and Most Stringent Measures



Step 1: District Rules Evaluated for BACM

District Rule	PM	NOx	Adopted/ Last Amended
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

Step 1: District Rules Evaluated for BACM (cont'd)

District Rule	PM	NOx	Adopted/ Last Amended
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	6/20/2019
4902 Residential Water Heaters	x	x	3/19/2009
4905 Natural Gas-Fired, Fan-Type Central Furnaces	x	x	12/16/2021

Step 1: District Rules Evaluated for BACM (cont'd)

District Rule	PM	NOx	Adopted/ Last Amended
8011 General Requirements	x		8/19/2004
8021 Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities	x		8/19/2004
8031 Bulk Materials	x		8/19/2004
8041 Carryout and Trackout	x		8/19/2004
8051 Open Areas	x		8/19/2004
8061 Paved and Unpaved Roads	x		8/19/2004
8071 Unpaved Vehicle/Equipment Traffic Areas	x		9/16/2004
8081 Agricultural Sources	x		9/16/2004
9510 Indirect Source Review	x	x	12/21/2017

Step 2: Review State and Federal Regulations

- As part of the BACM Analysis, District rules and source categories were compared to federal and state air quality regulations and standards

Federal Regulations

- Control Techniques Guidelines (CTG)
- Alternative Control Techniques (ACT)
- New Source Performance Standards (NSPS)

State Regulations

- California Health and Safety Code (CH&SC) requirements
- CARB Airborne Toxic Control Measures (ATCM)

Step 3: Review Rules from Other Regions

- District compares control measures to analogous regulations adopted by agencies across nation/in California, including, but not limited to:
 - Bay Area Air Quality Management District (BAAQMD)
 - South Coast Air Quality Management District (SCAQMD)
 - Sacramento Metropolitan Air Quality Management District (SMAQMD)
 - Ventura County Air Pollution Control District (VCAPCD)
- District carefully reviews differences between rules with focus on requirements as a whole, acknowledging differences in regional situations
- All potential BACM identified thoroughly evaluated using key factors identified in EPA's 2016 PM_{2.5} Implementation Rule, to determine if potential opportunities qualify as BACM for the Valley

Step 4: Technological and Economic Feasibility of Further BACM Controls

Technological Feasibility

Analysis determines if a potential opportunity to reduce emissions as BACM is viable for existing facilities and operators in the Valley, given operating needs and restrictions

Review of District permits; environmental and technological studies; EPA and CARB guideline documents; and other air districts' rules, regulations, and guidelines



Economic Feasibility

Cost effectiveness analysis conducted to evaluate the economic reasonableness of an air pollution control measure or technology as it applies to affected entities/residents in the Valley

Examines added cost, in dollars per year, of control technology or technique, divided by the emissions reductions achieved, in tons per year

Step 5: Evaluation Findings

- District considered all potential measures:
 - Emission reduction opportunities identified/considered in previously adopted District plans determined to be infeasible at that time
 - New emission reduction opportunities adopted in other areas
- Evaluation concludes that District and CARB rules implement BACM (supported by EPA's recent determination that District regulations are MSM)
- District will continue to work with CARB to evaluate additional emission reduction opportunities for attainment strategy (including updated MSM evaluation)

Summary: Initial SIP Requirements Addressed

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 demonstrates SO _x , ROG, Ammonia do not contribute significantly to PM _{2.5} exceedances in the Valley
BACM	District and CARB implementing BACM for the control of direct PM _{2.5} and NO _x , no later than 2025
Requirements for Major Sources	District recently adopted revisions to District Rule 2201 (Modified Stationary Source Review Rule) in April 2023, which fulfills these requirements

Draft Initial SIP Requirements

- District published initial draft chapters for public review:
 - *Chapter 4: Precursor Demonstration*
 - *Chapter 5: Emissions Inventory*
 - Requesting public comment by September 28, 2023
- Ongoing public engagement to continue plan development through 2023, including:
 - Additional public workshops on plan elements and strategy
 - Ongoing updates to District Governing Board, Citizens Advisory Committee, and Environmental Justice Advisory Group
 - Draft plan chapters to be published for public review in coming months

Contact

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Visit <https://ww2.valleyair.org/about/sign-up/>
to sign up for the District's PM Plans Listserv