

Proposed Attainment Plan Revision for the 1997 Annual PM_{2.5} Standard

August 2, 2021

San Joaquin Valley Air Pollution Control District

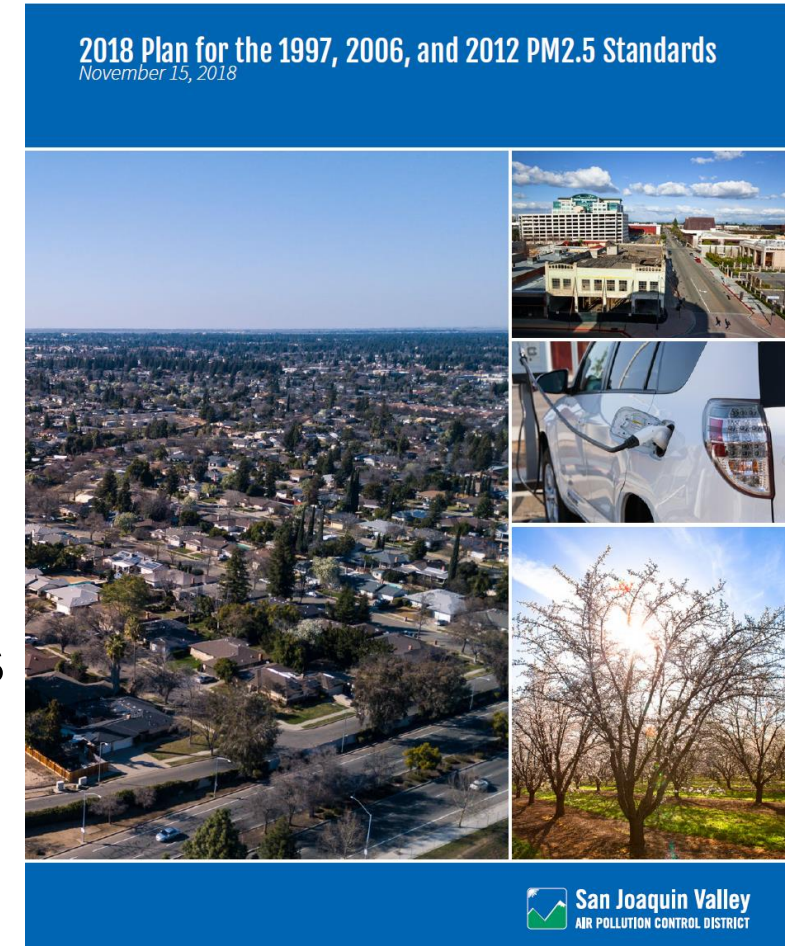
webcast@valleyair.org

Ongoing Valley Clean Air Efforts

- District Governing Board has adopted numerous attainment plans and air quality control strategies to address federal standards
 - Adopted nearly 650 stringent rules and regulations
 - Stationary source emissions reduced by over 90%
- CARB has adopted numerous mobile source emissions control regulations and strategies
- District/CARB combined efforts represent nation's toughest emissions control program
- Strong incentive programs (over \$3.5 billion in public/private investment)
- Through significant clean air investments, Valley continues to make major improvements with respect to air quality

San Joaquin Valley PM2.5 Attainment Strategy

- *2018 PM2.5 Plan* adopted in November 2018 to address latest PM2.5 standards:
 - Regulatory measures
 - Incentive-based measures
 - State mobile source strategy
 - Targeted “hot-spot” strategy
 - Public outreach and education
 - Technology advancement and demonstration efforts
 - Call for action by state and federal governments to do their part in reducing emissions in Valley
- Developed through extensive public process



2018 PM2.5 Plan: Adopted District Measures

- District has taken recent action on the following measures to address *Plan* commitments and pursue additional measures:
 - Launched new incentive programs, including:
 - Alternatives to ag open burning
 - Low-dust harvesters
 - Commercial zero-emission lawn/garden
 - Implemented wide-ranging incentive programs, such as replacement of trucks, passenger vehicles, ag equipment, wood-burning devices
 - Adopted enhanced residential woodsmoke reduction strategy
 - Adopted amendments to Rule 4311 (Flares)
 - Adopted amendments to Rules 4306/4320 (Boilers, Steam Generators, and Process Heaters)
 - Adopted underfired charbroiler emission reduction strategy
 - Adopted additional agricultural burning prohibitions

2018 PM2.5 Plan: Upcoming District Measures

- Additionally, District staff anticipate action on the following 2018 *PM2.5 Plan* measures in 2021:
 - Rule 4702 (Internal Combustion Engines)
 - Rule 4354 (Glass Melting Furnaces)
 - Rule 4352 (Solid Fuel-Fired Boilers, Steam Generators, and Process Heaters)
 - Emissions Reductions from Burn Cleaner and Ag Pump Replacement incentive programs
 - Continued implementation of key SIP-creditable incentive programs, including heavy-duty vehicle/equipment replacement, wood-burning device changeouts, low-dust harvesters, alternatives to ag open burning

2018 PM2.5 Plan: Update on CARB Regulatory Measures

- Given significant need for additional emissions reductions from mobile sources in 2024/2025 timeframe, District continues to advocate for fair-share emissions reductions from state and federal governments and funding
- CARB continues to make progress in implementing its State SIP Strategy to reduce emissions from mobile sources:
 - June 2020: Advanced Clean Trucks rule requiring phase-in of zero-emission trucks
 - August 2020: Omnibus rule establishing new low-NOx requirements for heavy-duty trucks and additional requirements
- Additional work by CARB to implement significant regulatory and incentive-based measure commitments are ongoing in 2021, including measures related to advanced clean fleets, locomotives, and statewide heavy-duty truck inspection and maintenance program
- Critical that State Mobile Source Strategy address Valley's near-term public health and attainment needs as new longer-term state goals are established

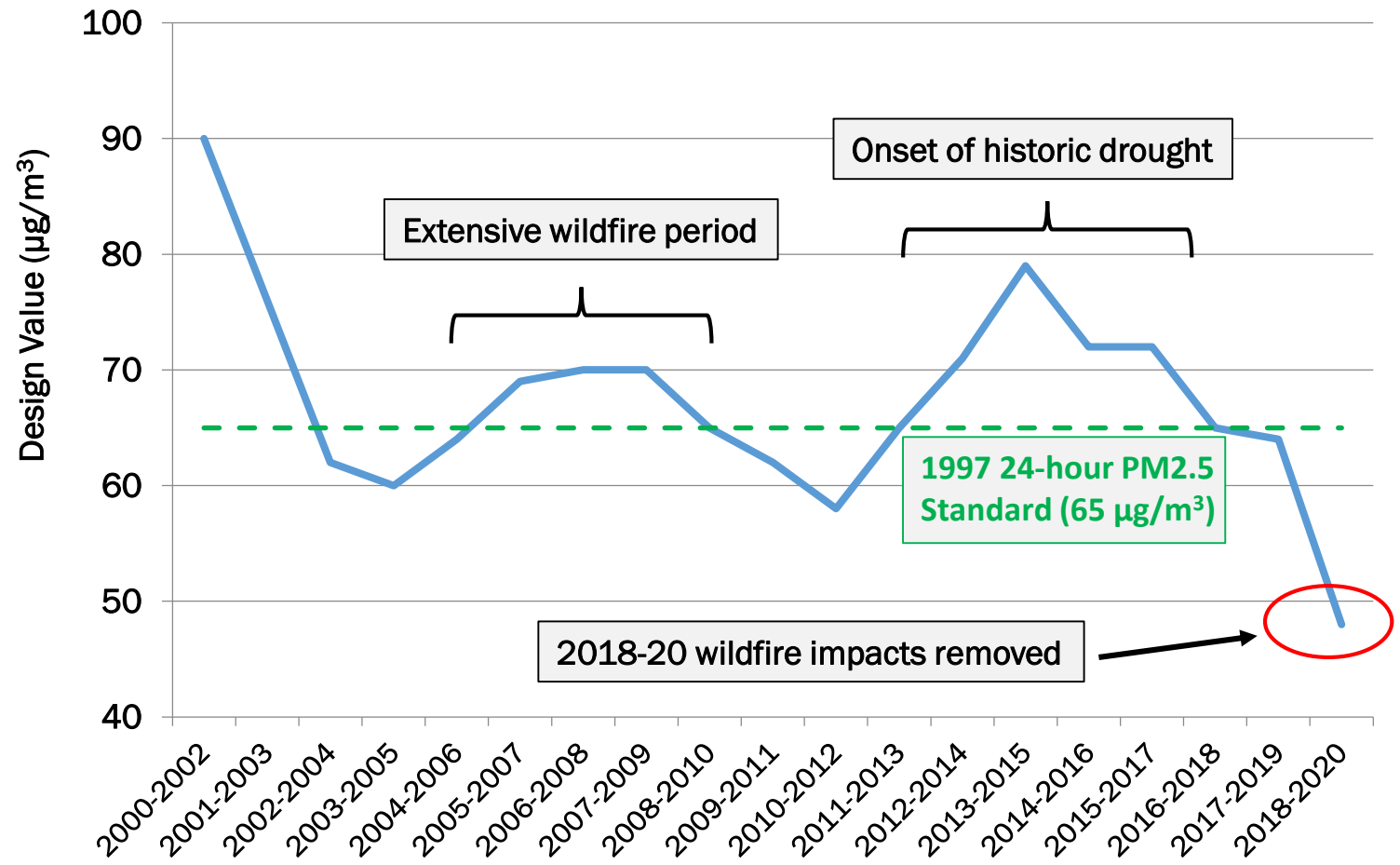
Status of EPA Review of 2018 PM2.5 Plan

- November 15, 2018: District Board adopts 2018 PM2.5 Plan
- January 24, 2019: CARB approves 2018 PM2.5 Plan
- May 2019: CARB submits 2018 PM2.5 Plan to EPA for review
- June 2020: EPA approves SIP for 2006 PM2.5 standard
 - District and CARB in process of implementing measures and strategy for Valley to attain the 2006 PM2.5 standard by 2024
- July 2021:
 - EPA approved District's exceptional event demonstration to support attainment demonstration of 1997 24-hour PM2.5 standard (July 13)
 - EPA proposes to disapprove portions of the 2018 PM2.5 Plan related to the 1997 annual PM2.5 standard (July 22)
- May 2019 to Current: EPA in process of reviewing portions of 2018 PM2.5 Plan concerning 2012 PM2.5 standard

Status of 1997 24-hour PM_{2.5} Standard – Valley Now in Attainment of 24-hour 65 µg/m³ Standard

- San Joaquin Valley now in attainment of 24-hour 65 µg/m³ Standard
- EPA approved exceptional events documentation for 2020 wildfire impacts in July 2021
- Significant clean air milestone for the San Joaquin Valley and represents decades of emission reduction efforts by residents, businesses, and public agencies

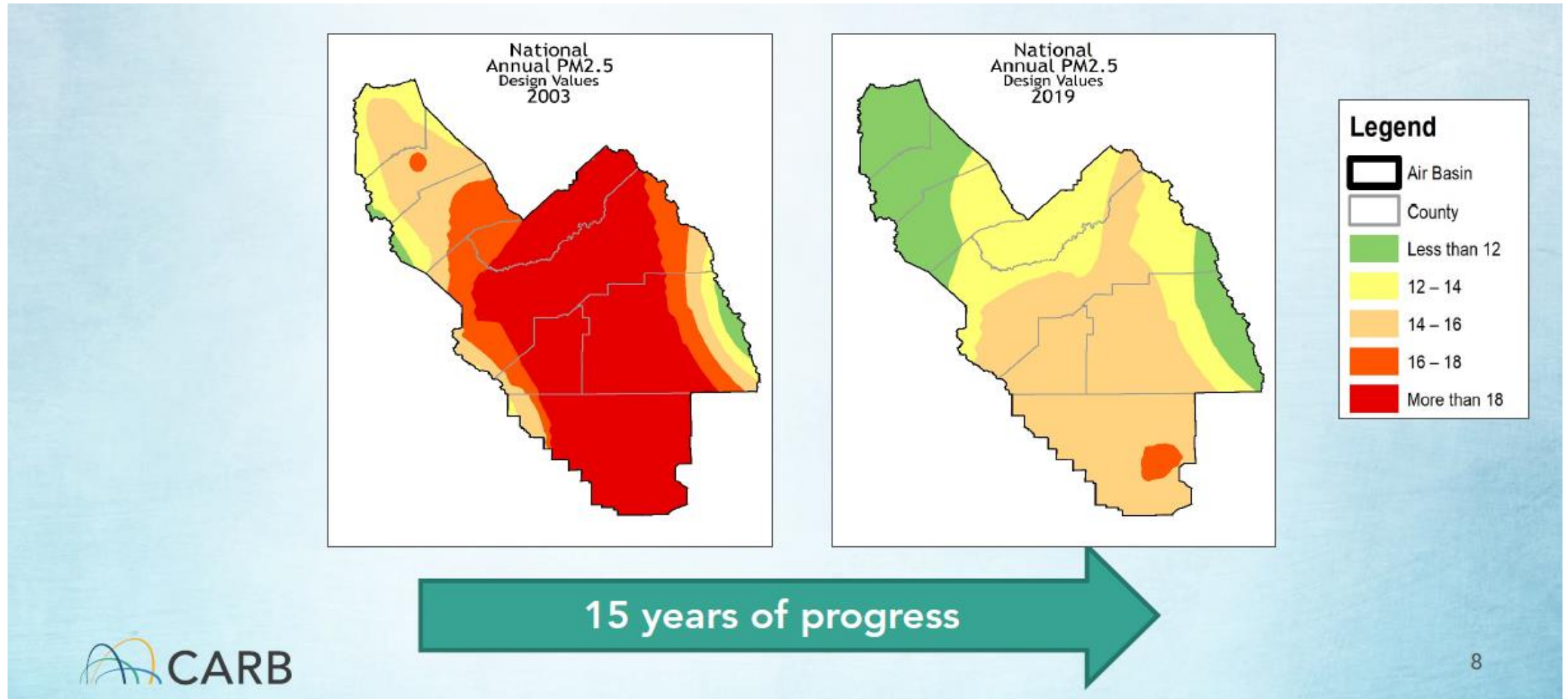
San Joaquin Valley 24-hour PM_{2.5} Design Value Trend



Status of 1997 Annual PM_{2.5} Standard (15 µg/m³)

- Extensive wildfires and CARB/federal data criteria issues during the 2018-2020 design value period caused difficulty in demonstrating attainment of annual average portion of 1997 standard by plan attainment target of December 31, 2020
 - Unprecedented wildfires during summer/fall 2020
 - CARB-maintained Bakersfield-Planz air monitoring site operator issues
- Valley on verge of attainment but for these impacts
 - Majority of Valley now in attainment of annual standard, demonstrating significant progress made
 - Bakersfield-Planz only site exceeding standard after excluding wildfire impacts (in attainment but for operational issues)

Significant Reductions in Annual PM2.5 Concentrations



Status of 1997 Annual PM_{2.5} Standard (15 µg/m³) (cont'd)

- Due to these issues, EPA proposed to disapprove portions of the *2018 PM_{2.5} Plan* related to the 1997 annual PM_{2.5} standard
- To address EPA's proposed action, CARB and the District have prepared a proposed revision to the *2018 PM_{2.5} Plan*
 - Plan revision needed to avoid Clean Air Act penalties, including loss of federal highway funds, additional restrictions on new/expanding permitted sources (offsets), and loss of local control (Federal Implementation Plan)

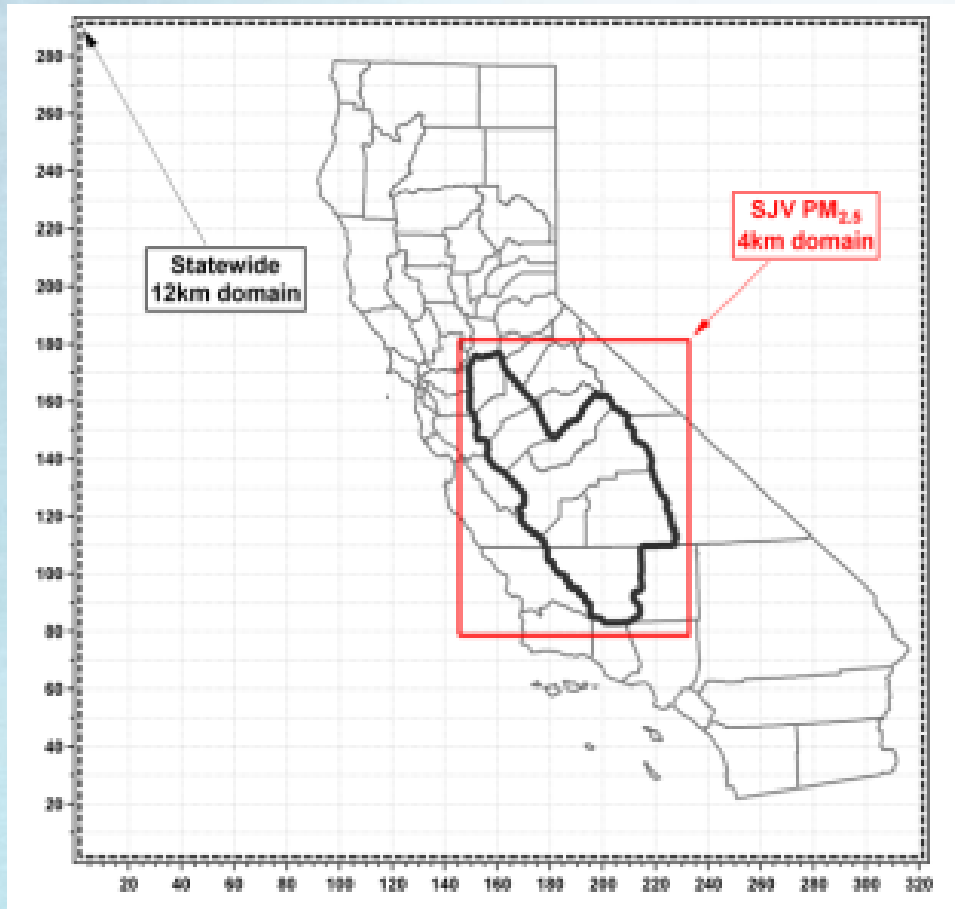
Proposed Revision to the Attainment Plan for the 1997 Annual PM_{2.5} Standard

- Proposed administrative plan revision utilizes the existing emissions inventory, air quality analysis and modeling from the *2018 PM_{2.5} Plan*
 - 5% Plan Demonstration (Chapter 5)
 - Updated Attainment Modeling Demonstration (Appendix K)
 - Revised Motor Vehicle Emission Budgets (Appendix D)
 - Reasonable Further Progress Demonstration (Appendix H)
 - Quantitative Milestones (Appendix H)
- Modeling demonstrates that the Valley will attain the 1997 annual PM_{2.5} standard by no later than 2023

Ongoing District and CARB Efforts to Reduce PM2.5

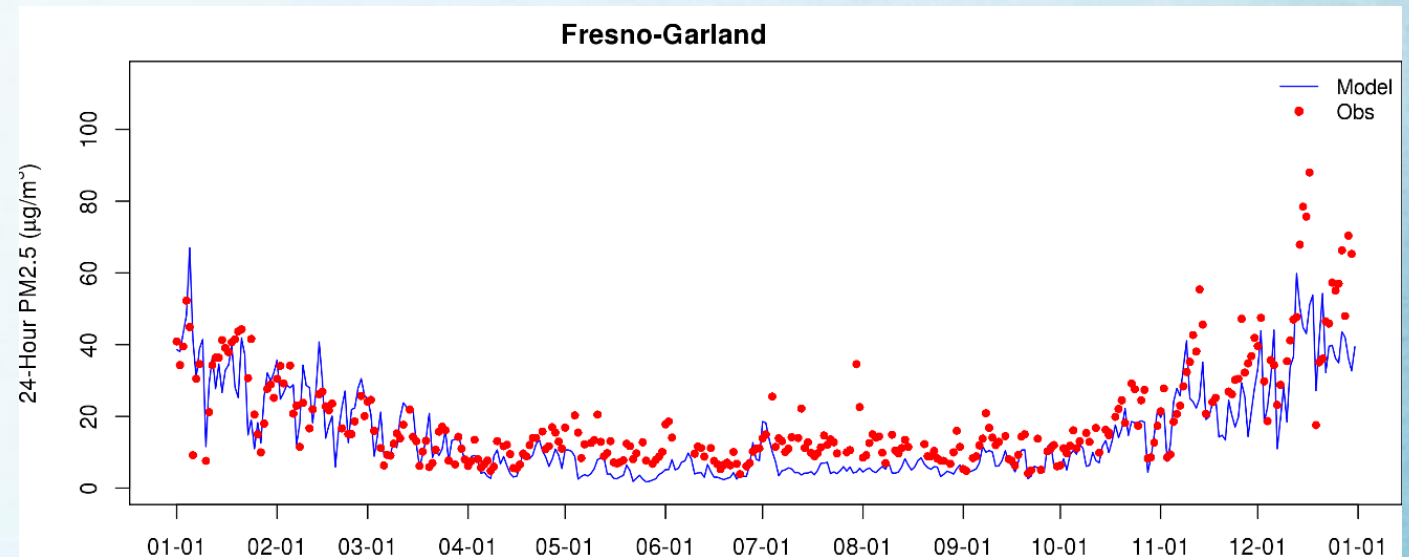
- Continued implementation of *2018 PM2.5 Plan* measures by District and CARB will achieve significant additional emissions reductions in the coming years through 2023
- Some key ongoing measures include:
 - Agricultural equipment replacement program
 - Amended warranty requirements for heavy-duty vehicles
 - Lower opacity limits for heavy-duty vehicles
 - District's residential woodsmoke reduction strategy
- New CARB commitment to achieve 3.0 tpd NOx and 0.04 tpd PM2.5 reductions in 2023 from heavy-duty truck inspection and maintenance program

2018 SJV PM_{2.5} SIP Modeling



Modeling domain

Base modeling year	2013
Future modeling years	2020, 2024, 2025
Meteorological model	WRFv3.6
Chemical boundary conditions	Global chemical model MOZART
Air quality model	CMAQ5.0.2



Model performance

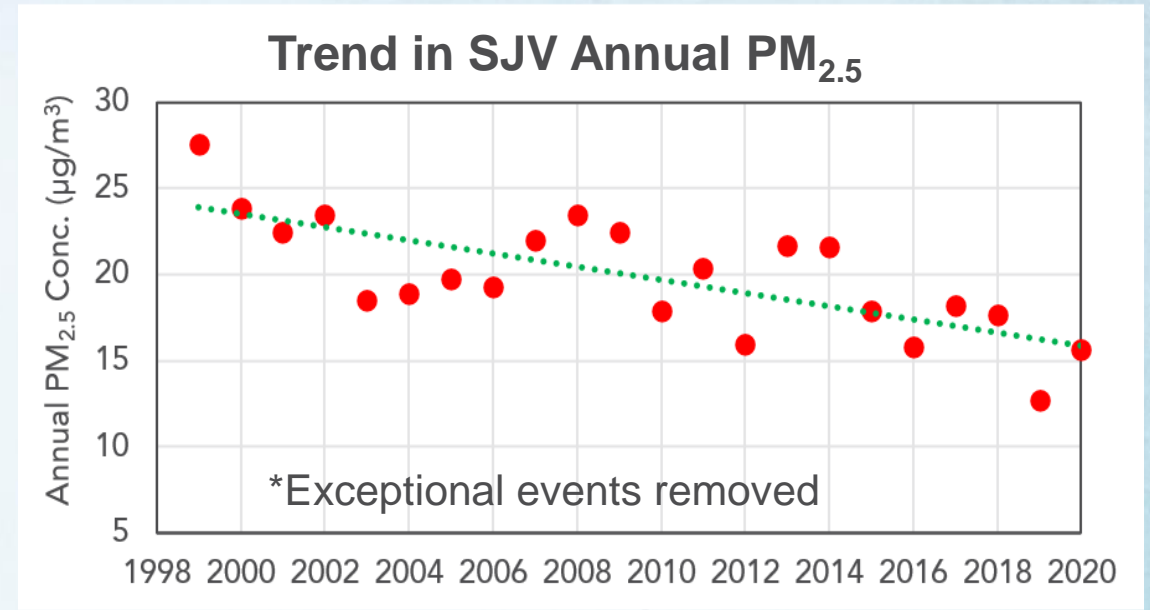
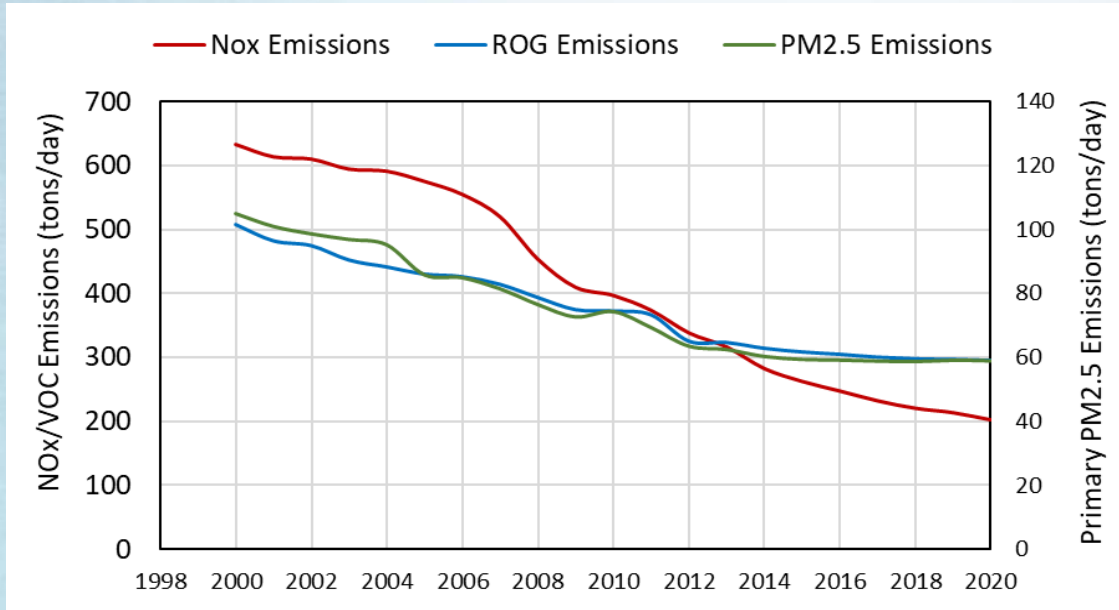
SJV PM2.5 SIP Modeling Revision

- Base year: 2018
- Future year: 2023
- Future year 2023 Design Value (DV) calculated as

$$DV_{2023} = DV_{2018} \times RRF_{2018-2023}$$

- Relative response factors (RRFs) from 2018 to 2023 ($RRF_{2018-2023}$) are estimated from the RRFs from 2020 to 2024 ($RRF_{2020-2024}$) in the 2018 SJV PM2.5 SIP and are adjusted based on the ratio between emission change from 2018 to 2023 and the emission change from 2020 to 2024
- This same approach was used in the 2015 SJV PM2.5 SIP

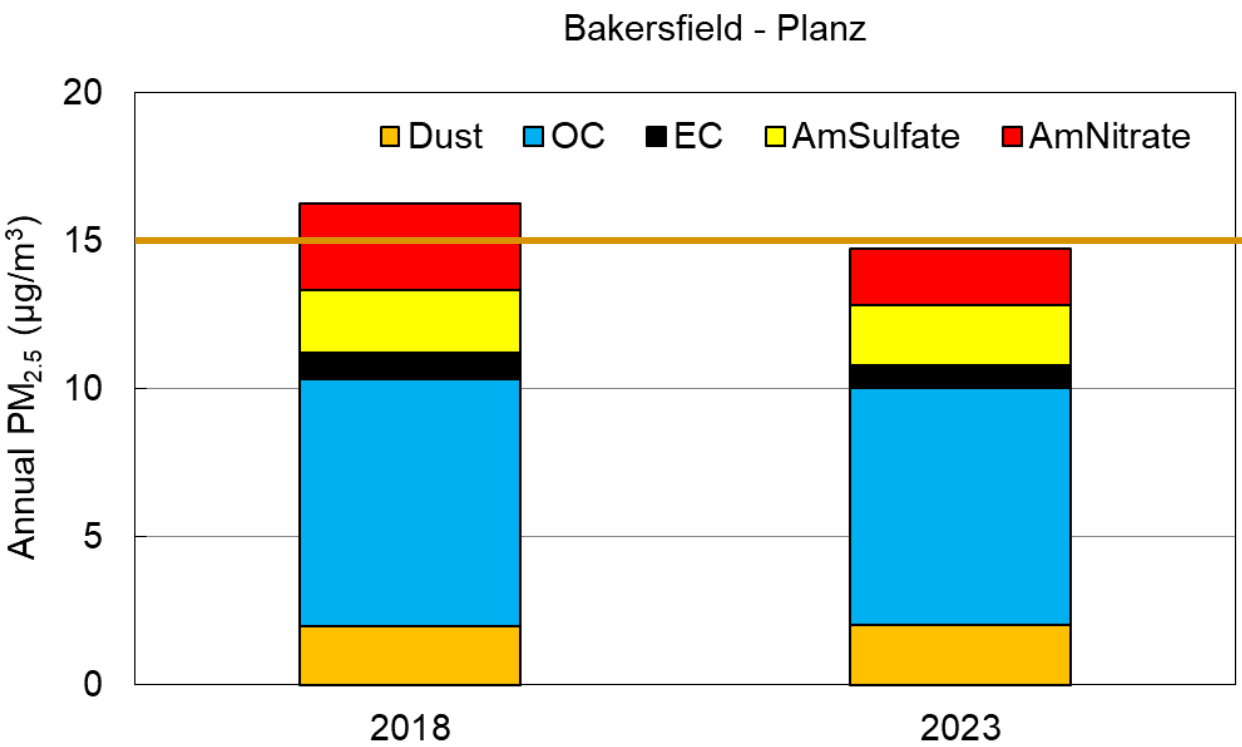
Trends in Emissions and Annual PM_{2.5}



- From 2000 to 2020, anthropogenic emissions of NO_x, primary PM_{2.5}, and reactive organic gases (ROG) in the SJV have decreased by 68%, 44%, and 42%, respectively
- Annual PM_{2.5} concentrations at the highest monitor in SJV have been decreasing since 2000
- Due to the impact from meteorological conditions, year-to-year PM_{2.5} variability can be substantial
- The Bakersfield–Planz site has highest annual PM_{2.5} in recent years (i.e., since 2013)

2023 Design Values

- Bakersfield-Planz has the highest projected 2023 DV, which is 14.7 $\mu\text{g}/\text{m}^3$. Therefore, projected 2023 DVs at all monitors are below the 1997 annual PM_{2.5} standards (i.e., 15 $\mu\text{g}/\text{m}^3$)



Monitoring Site	Projected 2023 DVs
Bakersfield – Planz	14.7
Visalia	14.0
Bakersfield - Golden State	13.6
Hanford	12.8
Bakersfield - California Ave.	13.2
Corcoran	13.3
Fresno - Hamilton & Winery	13.0
Fresno – Garland	12.4
Turlock	11.4
Clovis	11.3
Stockton	11.1
Merced - S Coffee	10.6
Madera	10.2
Merced - Main Street	10.8
Modesto	9.9
Manteca	9.4
Tranquility	6.8

Results of Modeling Analysis for 15 $\mu\text{g}/\text{m}^3$ Standard

- Adopted and upcoming CARB and District measures will provide the NO_x and PM_{2.5} emissions reductions in 2023 needed for attainment
- Includes new 2023 emissions reductions commitments
- Scaled modeling shows Valley will meet standard by December 31, 2023, with emissions reductions from CARB and District measures

Next Steps

- District published Proposed Attainment Plan Revision documents on July 20, 2021 for public review
 - Comment deadline August 3, 2021
 - Public participation and comments invited throughout process
- Proposed Attainment Plan Revision to be presented to District Governing Board at August 19, 2021 hearing
- CARB staff to take Proposed Attainment Plan Revision to CARB Board for consideration after District adoption

Contact

Contact: Michael Corder
Mail: San Joaquin Valley APCD
1990 E. Gettysburg Ave
Fresno, CA 93726
Phone: (559) 230-5800
Fax: (559) 230-6064
Email: michael.corder@valleyair.org
Listserv: http://lists.valleyair.org/mailman/listinfo/pm_plans

Comments/Questions

webcast@valleyair.org