DRAFT 2016 Plan for the 2008 8-hour Ozone Standard

Public Workshop

March 22, 2016

Webcast@valleyair.org

1

Purpose of Today's Workshop

- Present information on the development of the draft plan to address the 2008 8-hour ozone standard, including:
  - Plan foundation and strategy
  - Air quality challenges and trends
  - Planning process
  - 8-hour ozone standards
  - Attainment demonstration and modeling
  - Control measure evaluation
- Receive comments from the public

2

Building on Foundation of Effective Clean Air Strategies

- District has adopted numerous attainment plans:
  - Toughest air regulations in the nation
  - Adopted over 600 stringent rules and regulations
  - Groundbreaking rules serve as models for others
  - Over 80% reduction in stationary source emissions
- Strong incentive programs ($1.4 billion in public and private investment reducing 135,000+ tons of emissions)
- Public education and participation:
  - Build public support for tough measures adopted
  - Urge air friendly behavior by the public

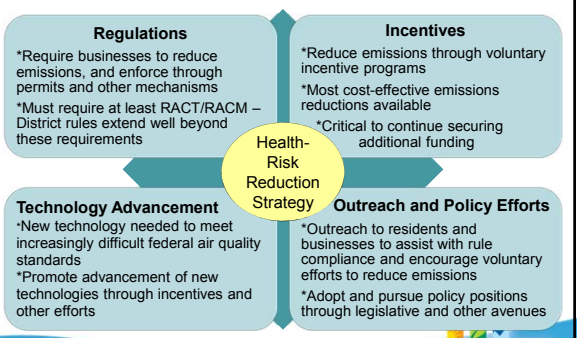
3

Building on Foundation of Effective Clean Air Strategies (cont'd)

- *2007 PM10 Maintenance Plan* (1987 std.)
- *2007 Ozone Plan* (1997 8-hour ozone std.)
- *2008 PM2.5 Plan* (1997 std.)
- *2012 PM2.5 Plan* (2006 std.)
- *2013 Plan for the Revoked 1-hour Ozone Standard* (1979 standard)
- *2015 Plan for the 1997 PM2.5 Standard*

4

No Stone Left Unturned



5

Stringent Control Measures Currently in Place

- Mobile Source Regulations (ARB)
  - Truck and Bus Regulation
  - Off-Road Regulation
  - Advanced Clean Cars
  - Expanded Passenger Vehicle Retirement
  - Smog Check Improvements
  - And more…
- Stationary/Area Source Regulations (District)
  - Combustion Devices
  - Industrial Processes
  - Coatings and Solvents
  - Oil and Gas
  - Managed Burning
  - Agricultural Processes
  - Residential Woodburning
  - Waste Management
  - And more…

6

Success of District Incentive Programs

- Highly respected and acclaimed program
- Accelerate adoption of cleaner technologies
  - Address sources outside District authority
  - Reduce emissions ahead or beyond regulations
- Wide variety of incentive strategies
  - Heavy duty equipment (ag equipment, trucks)
  - Community incentives (vanpools, vehicle rebates, woodstove changeout, electric lawn mowers)
- $136 million in 2015-16 Budget
- Over $1.4 Billion public/private investment
- Over 135,000 tons of reduced emissions

7

Plan is Based on Extensive Scientific Foundation and Analysis

- Valley most studied air basin in the world
- Plan builds on over $60 million Study Agency research and other efforts
  - CCOS (Central California Ozone Study)
  - CRPAQS (California Regional Particulate Air Quality Study)
- Modeling and technical evaluation to predict future ozone levels throughout the Valley
  - Establishes needed emissions reductions

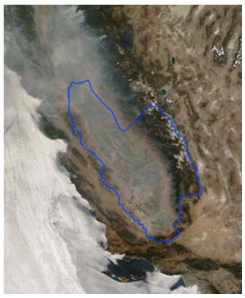
8

Air Quality Challenges and Ozone Trends

9

The Valley's Ozone Challenges

- Topography – pollution is constrained by surrounding mountains
- Meteorology
- Population growth
- Naturally-occurring emissions:
  - Biogenic
  - Wildfire



10

HEALTHY AIR LIVING

Ozone Formation

- Summertime problem
- Forms when ozone precursor emissions (natural and anthropogenic) react in the presence of sunlight
- High temperature & stagnant conditions

11

HEALTHY AIR LIVING

Ozone Health Effects

- Damage to lungs
- Causes chest pain, coughing, shortness of breath and throat irritation
- Worsens respiratory diseases such as asthma
- Compromises the ability of the body to fight respiratory infections
- Increases mortality

12

HEALTHY AIR LIVING

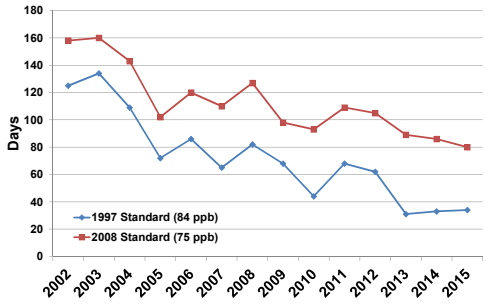
Significant Improvements in Valley's Ozone Air Quality

- Valley in attainment of federal 1-hour ozone standard (no violations for third year in a row)
- 91% reduction in Valley residents exposure to high ozone concentrations above the 84 ppb standard since 2002 (73% reduction in population exposure for the 75 ppb standard)
- Record breaking number of days without exceeding the 75 ppb 8-hour ozone standard in 2015
- Lowest design value on record for 8-hour ozone in 2015
- On track to meet the 84 ppb standard before the 2024 deadline based on emissions inventory projections

13

HEALTHY AIR LIVING

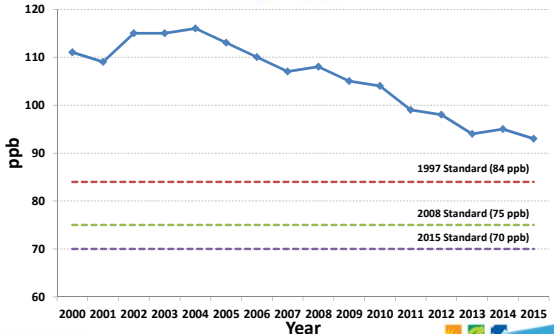
Decrease in Days Exceeding Federal Ozone Standards



14

HEALTHY AIR LIVING

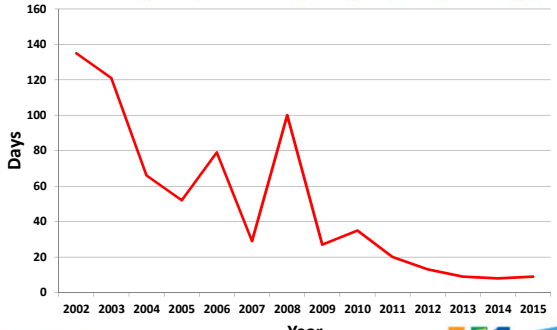
Decrease in Valley's 8-hour Ozone Design Value



15

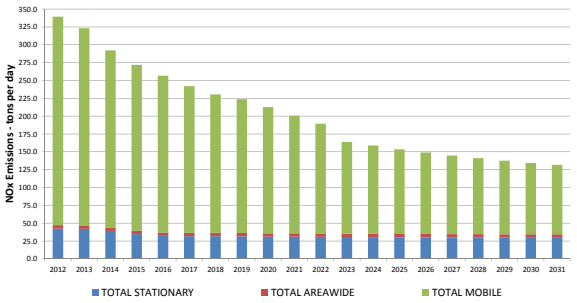
HEALTHY AIR LIVING

Unhealthy AQI County Days (May – Sep)



16

Valley NOx Summer Inventory



17

Ozone Requirements Under the Federal Clean Air Act

18

Planning Process

- The Clean Air Act requires EPA to set health-based standards (NAAQS) for Ozone and other pollutants
- EPA designates an area as attainment or nonattainment based on pollutant levels
  - Nonattainment levels: marginal, moderate, serious, severe, extreme
- District required to develop an attainment plan (SIP) that shows how an area will attain EPA standards
  - Analysis of air quality
  - Analysis of opportunities to reduce emissions
  - Show how enough emissions reductions will be achieved so the region will attain the standard on time

19

HEALTHY AIR LIVING

Federal Requirements for Ozone Attainment Plan

- Analysis of Pollutant Concentrations
- Emissions Inventories (current and future)
- Future Air Quality Projections (Attainment Demonstration)
- Control Strategies (Regulatory, Incentives, Public Outreach)
- Transportation Conformity Budgets

20

HEALTHY AIR LIVING

Federal Requirements for Ozone Attainment Plan (Cont'd)

- Reasonable Further Progress (RFP) Demonstration
- Contingency measures for RFP milestone years and the attainment year
- Vehicle miles traveled (VMT) offsets
- Reasonably Available Control Measures (RACM)
- Reasonably Available Control Technology (RACT)

21

HEALTHY AIR LIVING

EPA Ozone Standards

1979 1-hr	1997 8-hr	2008 8-hr	2015 8-hr
1979: set at 124 ppb	**1997:** set at 84 ppb **2007:** SJV Plan		
2005: standard revoked		**2008:** set at 75 ppb	
		2012: EPA classifies SJV **extreme nonattainment**	
2013: SJV submits new 1-hr ozone plan		**2013:** EPA proposes implementation rule	
2014: SJV attainment finding request		**July 2014:** RACT SIP, base year inventory submitted to EPA	
2015: Second SJV attainment finding request	**2015**: standard revoked		**2015:** set at 70 ppb
		2016: SJV to submit new 8-hr plan	**2017**: EPA expected to designate SJV
	2024: Attainment deadline		**2019**: Estimated date of new 8-hr plan
		2031: Attainment deadline	

22

Emissions Inventory

- District coordinates closely with ARB to ensure accuracy
  - Inventories continuously improved
- Plan inventory is a snapshot reflecting best information at the time for use in modeling
- Best available estimates of the amount of pollutants and precursors being emitted from each source type
- Emissions inventory for 2012-2031 has been published

23

Emissions Inventory Components

- Control Factors based on adopted rules
- Growth Factors for future year emissions
- Spatial Surrogates provide emissions locations for modeling
- Day Specific Data for select categories, like burning
- On-Road and Off-Road vehicle emission models

24

Role of Emission Inventory in SIP

- Provide input to air quality modeling
- Used to calculate and demonstrate compliance with federal requirements
  - Reasonable Further Progress (RFP) milestones
  - Contingencies
  - Vehicle Miles Traveled (VMT) offset analysis
  - Transportation conformity

25

Attainment of 8-hour Ozone Standard of 75 ppb by 2031

- Significant emission reductions achieved/expected from existing District plans and ARB strategy
  - Most stringent regulations in the nation (stationary and mobile sources)
  - Current strategy will result in significant reductions of 211 tons of NOx per day from 2012 (baseline year) to 2031 (attainment date) from stationary and mobile sources
- Extensive photochemical modeling from ARB demonstrates attainment by 2031 deadline
  - Reductions from existing control strategy sufficient to bring Valley into attainment

26

Stationary Source Control Measures

27

Rules/Source Categories Evaluated

Pollutant	Rule #	Rule Name
NOx	4103	Open Burning
NOx	4106	Prescribed Burning and Hazard Reduction Burning
NOx	4301	Fuel Burning Equipment
	4302	Incinerator Burning
NOx	4306 & 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr
NOx	4307	Boilers, Steam Generators, and Process Heaters – 2.0 to 5.0 MMBtu/hr
NOx	4308	Boilers, Steam Generators, and Process Heaters – 0.075 to less than 2.0 MMBtu/hr
NOx	4309	Dryers, Dehydrators, and Ovens

28

HEALTHY AIR LIVING

Rules/Source Categories Evaluated cont'd

Pollutant	Rule #	Rule Name
NOx	4311	Flares
NOx	4313	Lime Kilns
NOx	4352	Solid Fuel Fired Boilers, Steam Generators, and Process Heaters
NOx	4354	Glass Melting Furnaces
VOC	4401	Steam-Enhanced Crude Oil Production Wells
VOC	4402	Crude Oil Production Sumps
VOC	4404	Heavy Oil Test Station – Kern County
VOC	4407	In-Situ Combustion Well Vents
VOC	4408	Glycol Dehydration Systems
VOC	4409	Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants

29

HEALTHY AIR LIVING

Rules/Source Categories Evaluated cont'd

Pollutant	Rule #	Rule Name
VOC	4453	Refinery Vacuum Producing Devices or Systems
VOC	4454	Refinery Process Unit Turnaround
VOC	4455	Components at Light Crude Oil Production Facilities, Natural Gas Production Facilities, and Natural Gas Processing Facilities
VOC	4565	Biosolids, Animal Manure, and Poultry Litter Operations
VOC	4566	Organic Material Composing Operations
VOC	4570	Confined Animal Facilities
VOC	4601	Architectural Coatings
VOC	4602	Motor Vehicle Assembly Coatings
VOC	4603	Surface Coating of Metal Parts and Products, Plastic Parts and Products, and Pleasure Crafts

30

HEALTHY AIR LIVING

Rules/Source Categories Evaluated cont'd

Pollutant	Rule #	Rule Name
VOC	4604	Can and Coil Coating Operations
VOC	4605	Aerospace Assembly and Component Coating Operations
VOC	4606	Wood Products and Flat Wood Paneling Products Coating Operations
VOC	4607	Graphic Arts and Paper, Film, Foil, and Fabric Coatings
VOC	4610	Glass Coating Operations
VOC	4612	Motor Vehicle and Mobile Equipment Coating Operations
VOC	4621	Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants
VOC	4622	Gasoline Transfer into Motor Vehicles Fuel Tanks
VOC	4623	Storage of Organic Liquids

31

Rules/Source Categories Evaluated cont'd

Pollutant	Rule #	Rule Name
VOC	4624	Transfer of Organic Liquid
VOC	4625	Wastewater Separators
VOC	4641	Cutback, Slow Cure, and Emulsified Asphalt, Paving, and Maintenance Operations
VOC	4642	Solid Waste Disposal Sites
VOC	4651	Soil Decontamination Operations
VOC	4652	Coatings and Ink Manufacturing
VOC	4653	Adhesives and Sealants
VOC	4661	Organic Solvents
VOC	4662	Organic Solvents Degreasing Operations
VOC	4663	Organic Solvent Cleaning, Storage, and Disposal
VOC	4672	Petroleum Solvent Dry Cleaning Operations

32

HEALTHY AIR LIVING

Rules/Source Categories Evaluated cont'd

Pollutant	Rule #	Rule Name
VOC	4681	Rubber Tire Manufacturing
VOC	4682	Polystyrene, Polyethylene, and Polypropylene Products Manufacturing
VOC	4684	Polyester Resin Operations
VOC	4691	Vegetable Oil Processing Operations
VOC	4693	Bakery Ovens
VOC	4694	Wine Fermentation and Storage Tanks
VOC	4695	Brandy Aging and Wine Aging Operations
NOx	4702	Internal Combustion Engines
NOx	4703	Stationary Gas Turbines
NOx	4902	Residential Water Heaters
NOx	4905	Natural Gas-Fired, Fan-Type Central Furnaces

33

HEALTHY AIR LIVING

Reasonably Available Control Technology (RACT) Demonstration

- District has most stringent control strategy in nation through numerous attainment plans and over 600 regulatory actions
- Builds on extensive analyses conducted for the *2009 RACT SIP*
  - EPA has approved all District rules as meeting RACT
  - All major sources in Valley covered by RACT rules
- Submitted *2014 RACT SIP* demonstration to EPA on June 2014
  - All NOx and VOC rules continue to meet or exceed RACT

34

Potential Opportunities - Stationary Sources

- District's extensive evaluation has identified the following emission reduction opportunities for possible inclusion in 2016 Ozone Plan as control measure commitments:
  - Additional NOx reductions from flaring activities through use of ultra low NOx flaring technology and implementation of additional flare minimization practices
  - Additional VOC emission reductions from wine fermentation processes through implementation of new emissions control technologies

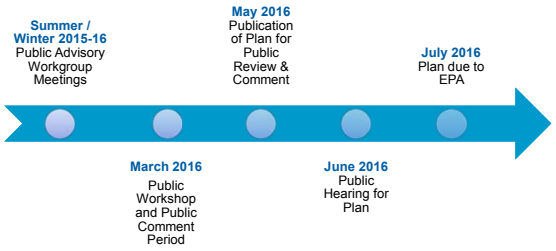
35

Summary of Federal Requirements 2016 Ozone Plan

- ✓ Plan includes sufficient emission reductions to demonstrate expeditious attainment
- ✓ Reasonably Available Control Measures (RACM)
- ✓ Reasonably Available Control Technology (RACT)
- ✓ Reasonable Further Progress (RFP) demonstration
- ✓ Contingency measures for RFP milestone years and the attainment year
- ✓ Vehicle miles traveled (VMT) offsets
- ✓ Transportation conformity budgets

36

Plan Timeline



37

Public Process of Plan Development

- Plan developed through an extensive public process
- Ongoing presentations at monthly Public Meetings
  - Governing Board, CAC, EJAG
- Public Advisory Workgroup (PAW) meetings

Date	Meeting Summary
5/23/2014	Public workshop on the development of the plan
8/25/2015	PAW: Kick-off meeting
9/30/2015	PAW: Emission Inventory Development in California
2/11/2015	PAW: Ozone SIP Modeling in the San Joaquin Valley
3/22/2016	Public workshops (afternoon, evening)

38

Additional Resources

- More information on ozone plans www.valleyair.org/Air_Quality_Plans/Ozone_Plans.htm
- Receive email updates on the development of this and future ozone plans http://www.valleyair.org/lists/list.htm
- Publication of notices for upcoming workshops http://www.valleyair.org/Workshops/public_workshops_idx.htm

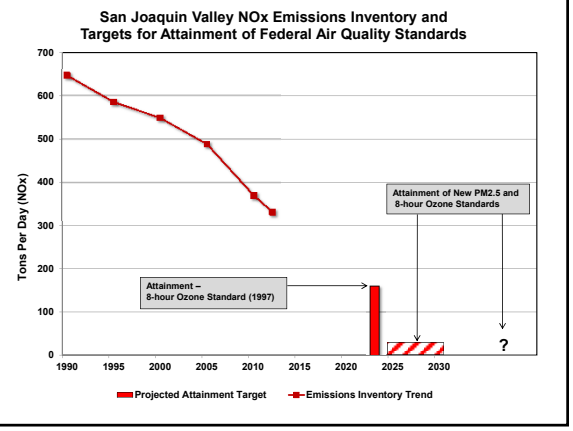
39

Upcoming PM2.5 Attainment Plans and Need for Transformative Measures

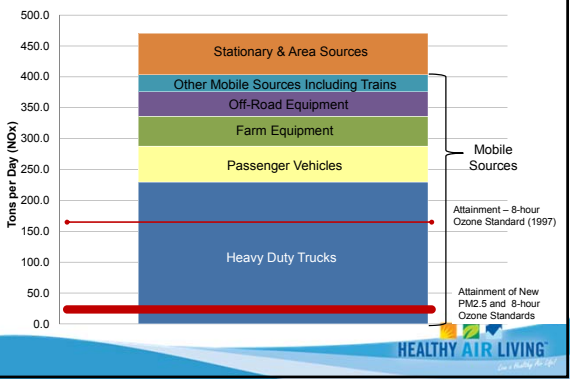
- District required to adopt attainment plans to address the following PM2.5 standards by 2017:
  - Federal 2006 PM2.5 standard (24-hr 35 µg/m^3)
  - Federal 2012 PM2.5 standard (annual 12 µg/m^3)
- Attaining these tough standards will require virtual elimination of fossil fuel combustion emissions and deployment of transformative measures
  - Reductions needed by 2024, much sooner than 2031 ozone deadline
- Planning process currently underway
- District has and will continue to pursue an integrated strategy

40

HEALTHY AIR LIVING



Meeting Federal Air Quality Standards



HEALTHY AIR LIVING

Public Comments

To ensure comments are considered for the Proposed Plan please submit comments no later than 5:00 PM on April 5, 2016 to:

Anna Myers at SJVUAPCD
1990 E. Gettysburg Avenue
Fresno, CA 93726
Anna.myers@valleyair.org
(559) 230 – 6100

43

Public Comments

webcast@valleyair.org

44