South Coast 2016 AQMP

AND

2016 State SIP Strategy

California Air Resources Board
March 23, 2017

Today's Presentation

- SIP Process
- South Coast 2016 AQMP
- State SIP Strategy
- Staff Recommendations

SIP Development

Ambient Air Quality Data

Emission Inventory

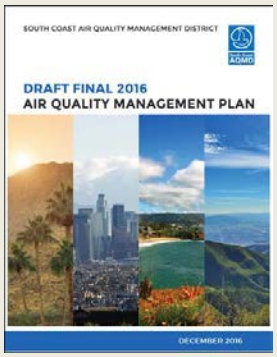
Science-based Attainment Demonstration

Control Strategy

Legal Commitment

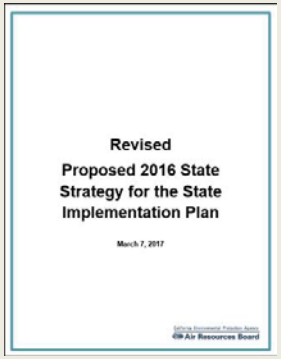
Today's Proposed Actions

1. Adopt South Coast AQMP



Stationary and area sources

2. Adopt proposed mobile source measures



Mobile sources, fuels and consumer products

SIP Submittal to U.S. EPA

Enforceable upon approval

Future action for other nonattainment areas

South Coast 2016 Air Quality Management Plan

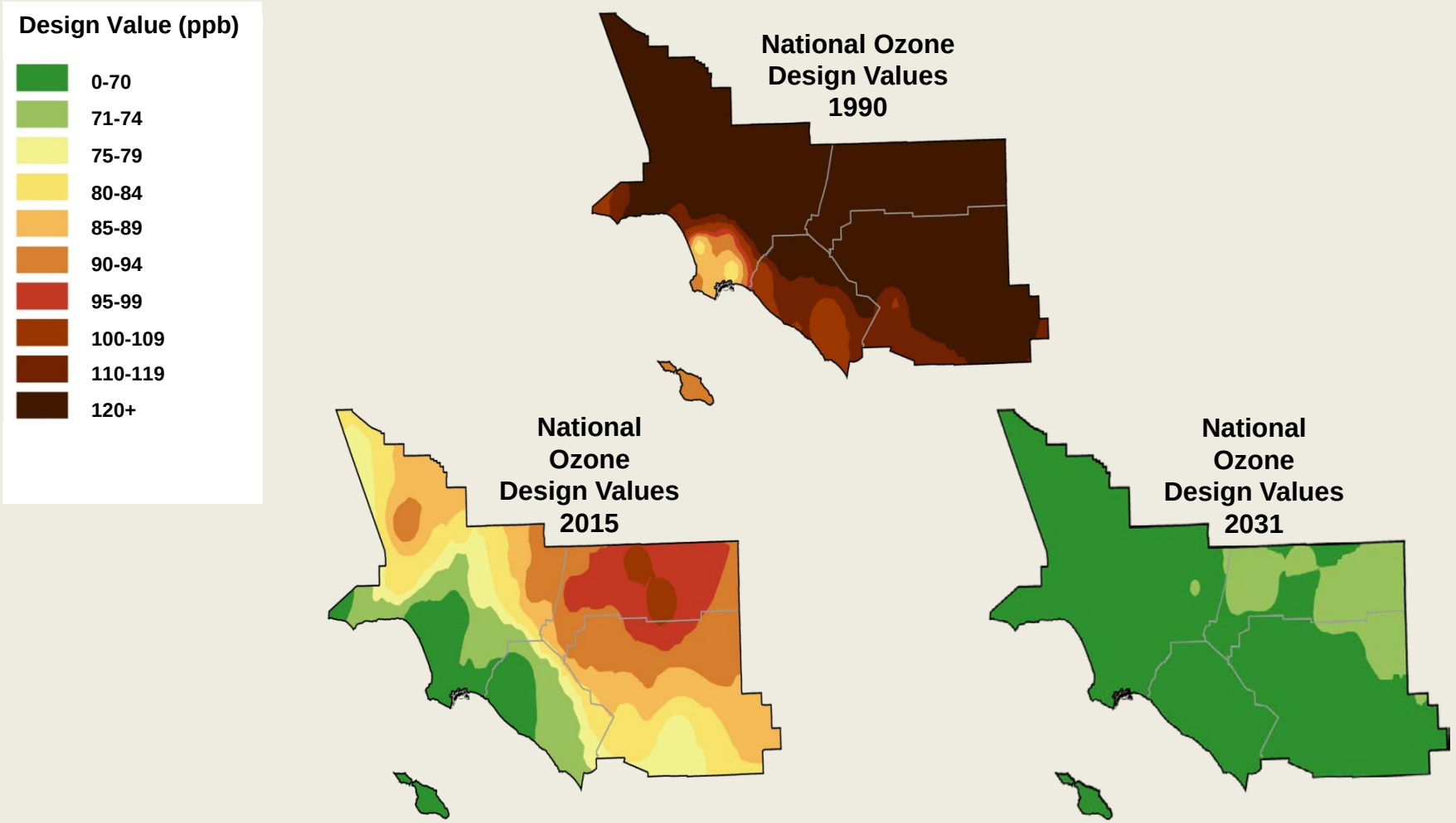
Air Quality Management Plan

- Proposed strategy for meeting multiple air quality standards
- Builds on success of previous planning efforts
- Meeting standards in South Coast will provide:
  - ~1,600 avoided premature deaths each year
  - >200,000 fewer lost work and school days
  - $173 billion in cumulative health benefits

Comprehensive Plan for Multiple Standards

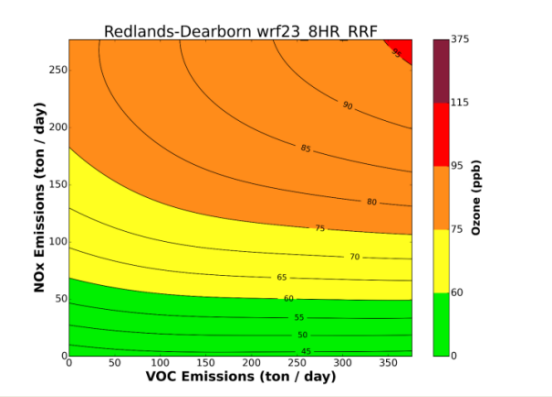
Federal Standard	Attainment Year
South Coast Air Basin	
120 ppb 1-hour Ozone	2022
80 ppb 8-hour Ozone	2023
75 ppb 8-hour Ozone	2031
35 ug/m^3 24-hour PM2.5	2019
12 ug/m^3 Annual PM2.5	2025
Coachella Valley	
75 ppb 8-hour Ozone	2026

Path to 8-hour Ozone Attainment

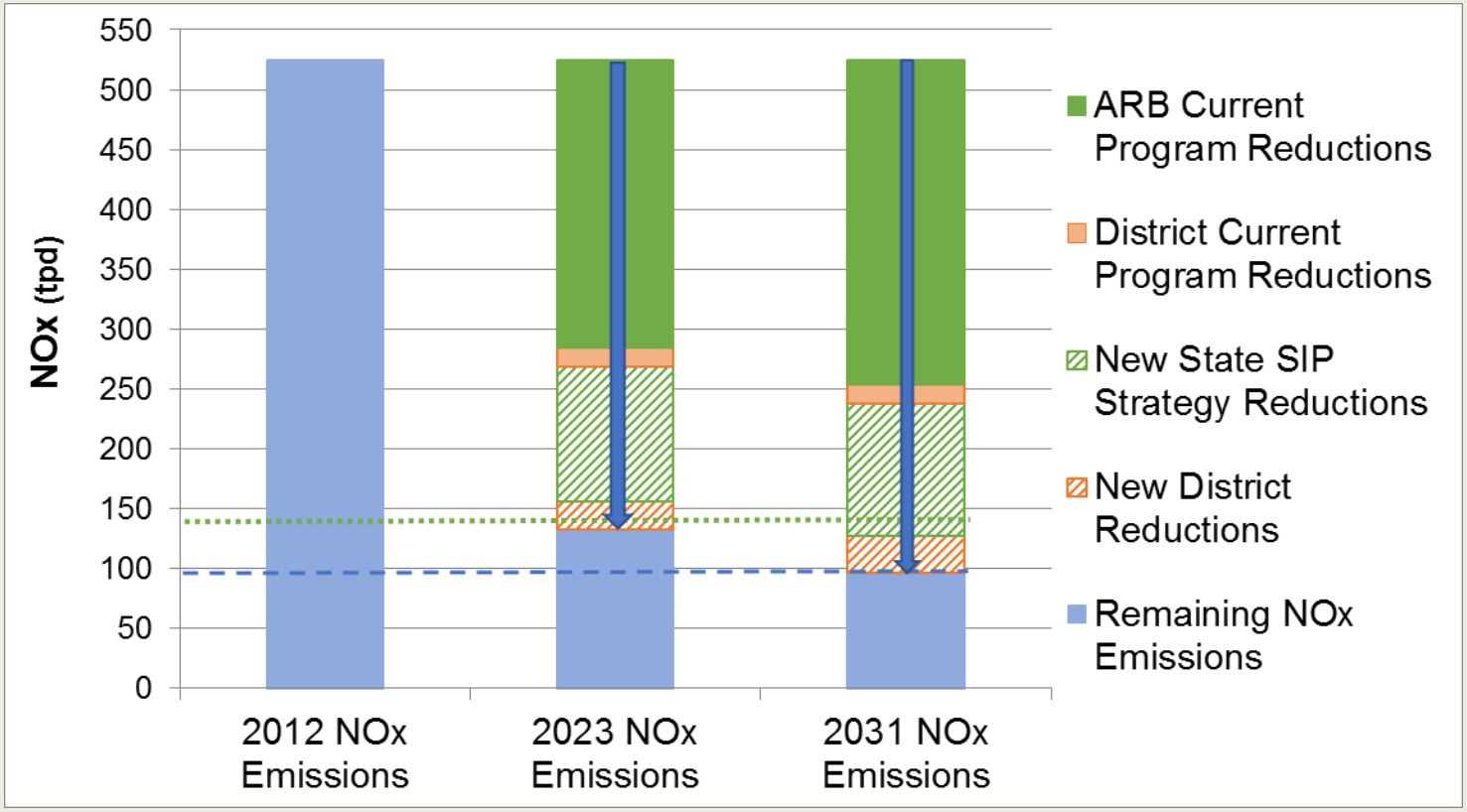


Science-Based Foundation

- Control Strategy informed by peer reviewed research and field studies
- Comprehensive updates to modeling platform reflects latest science
- Modeling demonstrates need for significant NOx reductions



Continued Implementation and New Actions



Transformative Strategy for Stationary Sources

- District measures focus on transformation to cleanest technologies
  - Electrification, fuel cells, solar
  - Commercial and residential cooking
  - Zero and near-zero appliances
  - Commercial and residential energy efficiency
- Sunset RECLAIM and move to direct regulation

Further Reductions from RECLAIM Sources

- ARB identified concerns regarding adequacy of RECLAIM program in meeting State requirements
- District took formal action to sunset RECLAIM program
  - Initiate rulemaking to transition to direct control
  - Accelerate 5 tpd of NOx reductions by 6 years
- District developing documentation to demonstrate amended RECLAIM meets federal requirements

Partnership on Transformative Mobile Source Strategy

- ARB measures establish standards for cleaner technologies
- District measures provide complementary mechanisms to implement the mobile source strategy
- Facility-based measures
  - Airports
  - Ports
  - Warehouses
  - Railyards
- Incentive measures

ARB and District Actions Provide Comprehensive Attainment Strategy

- Multi-year effort with extensive stakeholder input
- Strategy defines clear pathway to attainment of multiple standards over the next 15 years
- Regulatory actions account for roughly 70 percent of the reductions
- Remaining reductions will be met by incentivizing early deployment of new technology
- Funding Action Plan identifies funding needs and mechanisms to support further technology deployment

Identifying and Securing Funding

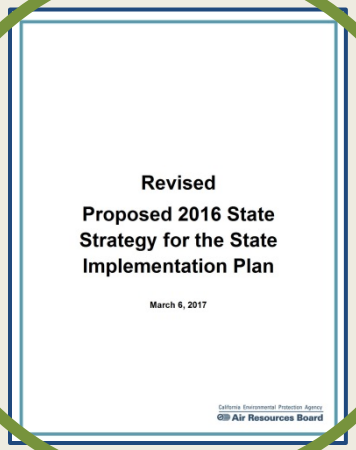
- Scale of technology deployment will require ~$1 billion per year
- Funding Action Plan identifies guiding principles and funding mechanisms
  - Build partnerships and coalitions
  - Maximize reductions in disadvantaged communities
  - Prioritize opportunities for climate and risk reduction co-benefits
- ARB will play key role through complementary State level efforts

2016 AQMP Meets Clean Air Act Requirements

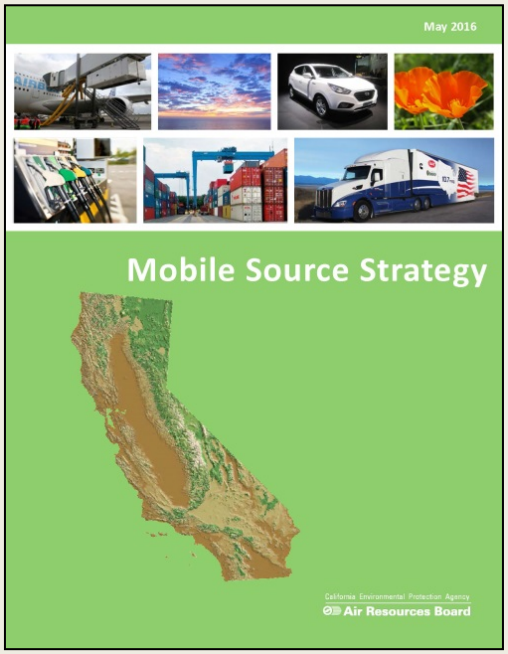
Requirement	2016 AQMP
Emission Inventory	√
Attainment Demonstration	√
Control Measures Assessment	√
Reasonable Further Progress	√
Transportation Conformity	√
Vehicle Miles Traveled Offset	√
Quantitative Milestones	√
Contingency Measures	√

2016 State Strategy for the State Implementation Plan

Framework for Mobile Source Planning



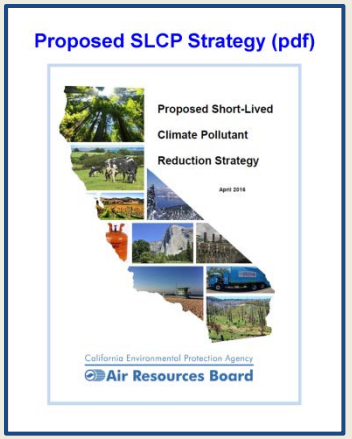
Criteria Pollutants



GHG Emissions

Toxic Risk Reduction

Black Carbon Emissions



Proposed State SIP Strategy

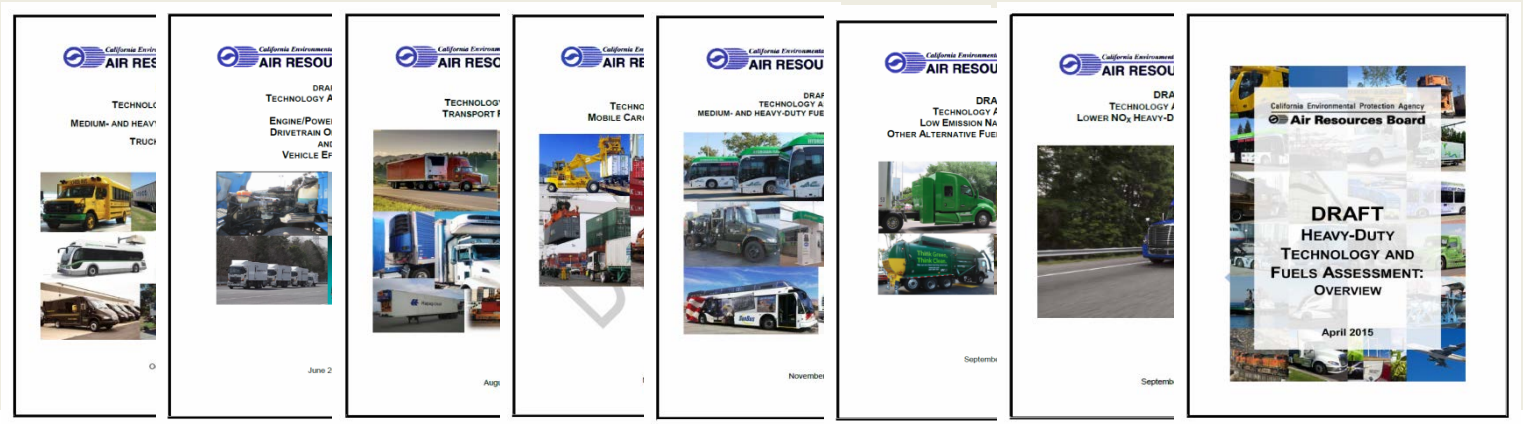
- Comprehensive set of actions for mobile sources and consumer products
  - Establish cleaner engine standards
  - Introduce ZEV technologies
  - Ensure engines remain clean
  - Demonstrate and incentivize deployment
- ARB's commitment to achieve reductions needed for attainment in the South Coast and San Joaquin Valley

Opportunities for Public Input

- Proposed 2016 State SIP Strategy released for public review on May 17, 2016
- ARB and District workshops
  - July 2016: South Coast District workshops
  - September 1, 2016: ARB workshop on SIP Strategy
  - December 1, 2016: ARB workshop on SJV PM2.5
  - December 7, 2016: SJV District workshop on PM2.5
  - March 9, 2017: SJV District workshop on PM2.5
- September 22, 2016: Informational ARB Board Hearing on State SIP Strategy

Actions to Drive Transformation

- Mobile source technical assessments support SIP measures
- Measures define regulatory requirements for next generation of transformative technologies
- Pilot and demonstration studies continue to advance additional technologies
- Supports identification of opportunities for further regulatory measures



Integrated Truck Strategy

New Standards
Bring cleanest technologies to market

In-Use Requirements
Ensure clean operations over life

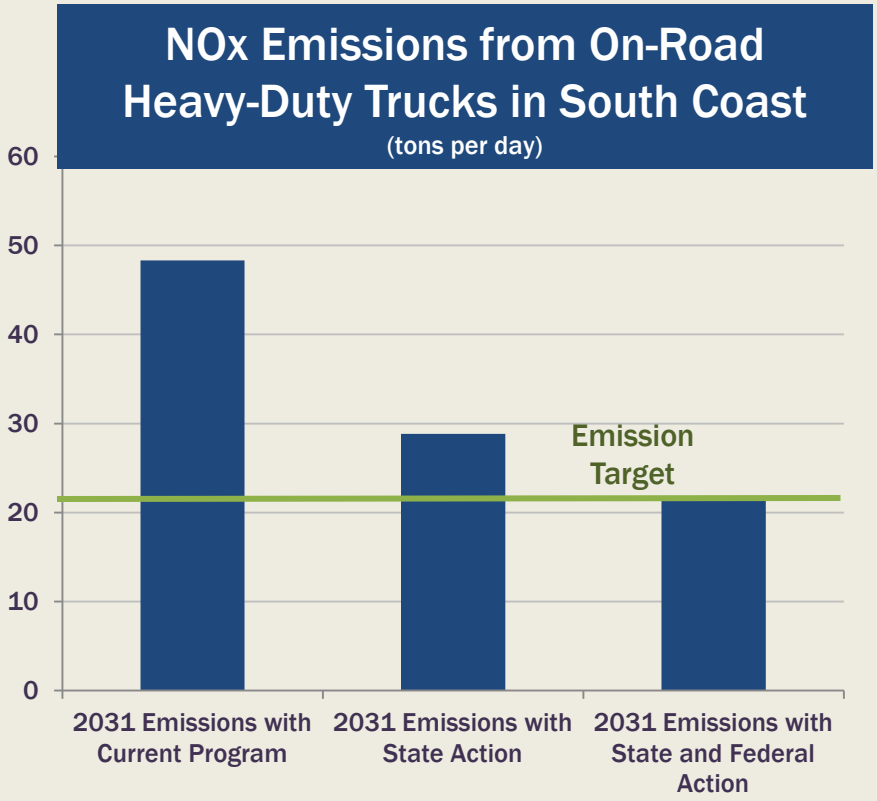
Introduce ZEVs
Targeted applications well-suited for initial deployment

Demo & Pilot Projects
Help develop next generation of cleanest technologies

Incentives
Accelerate penetration to achieve sufficient reductions

Integrated Truck Strategy: Cleaner Engine Standards

- Establish California low-NOx engine standards
- Parallel federal action is critical
- Innovative technology certification flexibility
  - Streamline introduction of the cleanest technologies
  - Adopted October 2016



Integrated Truck Strategy: Ensure Engines Remain Clean

- Enhanced programs for in-use performance
  - Comprehensive inspection and maintenance program
  - Strengthened opacity standard
  - Expanded warranty requirements
  - Revised in-use testing protocols

Integrated Truck Strategy: Introduction of ZEV Technologies

Last Mile Delivery

- Opportunity for near-term ZEV deployment in truck sector
- Purchase and manufacturer requirements
- Advanced technology credit provisions
- Role of incentives

Zero-Emission Airport Shuttle Buses

- Facilitate deployment of ZEV passenger shuttles
- May include other airport-owned vehicles, e.g. operational and maintenance vehicles

Integrated Truck Strategy: Further Technology Deployment

- Enhance deployment of cleaner technologies
  - Incentive programs for early penetration of near-zero and zero emission technologies
  - Further regulatory strategies based on pilot studies and initial technology deployment
  - Strategies for increased operational efficiencies
  - Use of connected and autonomous vehicles and intelligent transportation systems

Innovative Clean Transit

- Reflects consideration of entire transit system
- Long-term vision for transition to zero
- Collaborating with transit agencies
- Pilot innovative approaches
- Explore shared vehicle services for zero-emission first and last-mile solutions

Passenger Vehicles

- Advanced Clean Cars 2.0 measure would increase number of ZEVs and PHEVs sold in California
- Mid-Term Review of rules to 2025 set the stage for 2026 and beyond
- Program will also consider:
  - Addressing upstream emissions from fuels
  - Structuring emission standards to accelerate ZEV penetration
  - Expanding to heavier applications
  - Leveraging partnerships to maximize cost-effective reductions

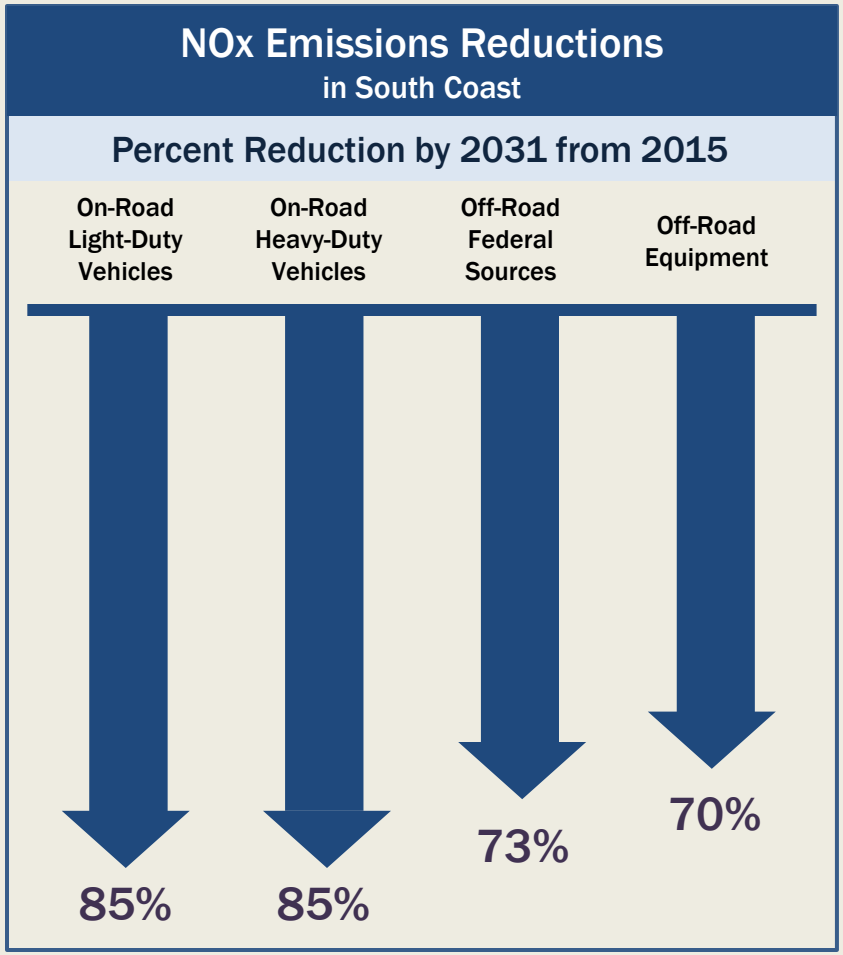
ARB Efforts on New Vehicle Standards

- Technologies are available now to achieve significant emission reductions when put into fleet
- California will move forward on development of new passenger vehicle and low-NOx truck standards, as well as electric vehicle requirements
- Coordination with new federal administration
- Partnerships with other states expand emission reductions and reinforce need for national action

South Coast & San Joaquin Valley Reductions

Strategy Benefits in South Coast

- Measures identify all reductions from mobile sources and consumer products needed for attainment
  - 70% NOx reduction by 2023
  - 80% NOx reduction by 2031



Valley Strategy Development

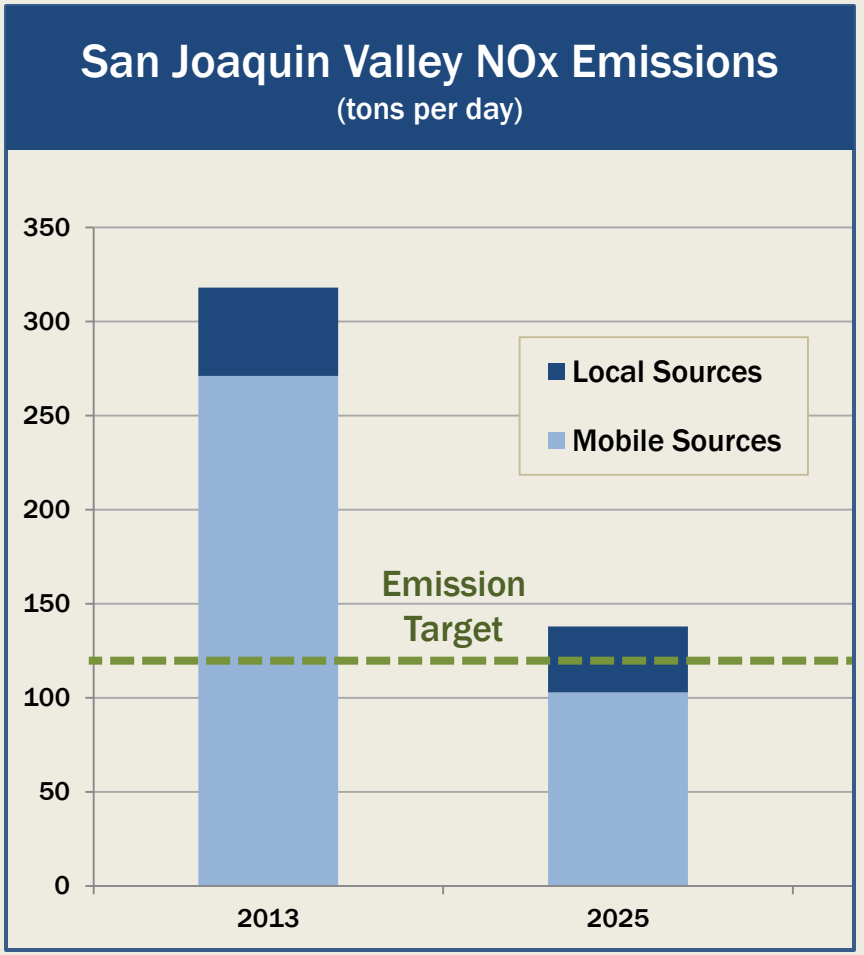
- Existing control program provides for ozone attainment by 2031 deadline
- SIP Strategy accelerates ozone progress
- Key challenge is meeting PM2.5 standards over next decade
- Working with District to develop comprehensive PM2.5 strategy

Valley PM2.5 Attainment Approach

- Last October Board directed staff to identify opportunities for additional near-term reductions
- Will require portfolio of further mobile and stationary PM2.5 and NOx reductions
- Consider strategies that provide multiple benefits:
  - Reduce localized exposure
  - Accelerate ozone progress
  - Ability to achieve near-term reductions
  - Achieve climate pollutant co-benefits such as reductions in black carbon

Valley Mobile Source Reductions

- SIP Strategy provides 168 tpd of NOx reductions by 2025
- Existing incentive programs will provide additional reductions
- Staff will work with District to define emission reduction needs and additional strategies
- Commitment for further reductions will be brought back to Board as part of Valley SIP



Staff Recommendations

Proposed SIP Commitments

- Commitment to achieve emission levels needed for attainment
  - Action on new measures according to schedule
  - Aggregate emission reductions by specific dates
  - Develop and deploy advanced transformational technologies*
- Enforceable upon EPA approval

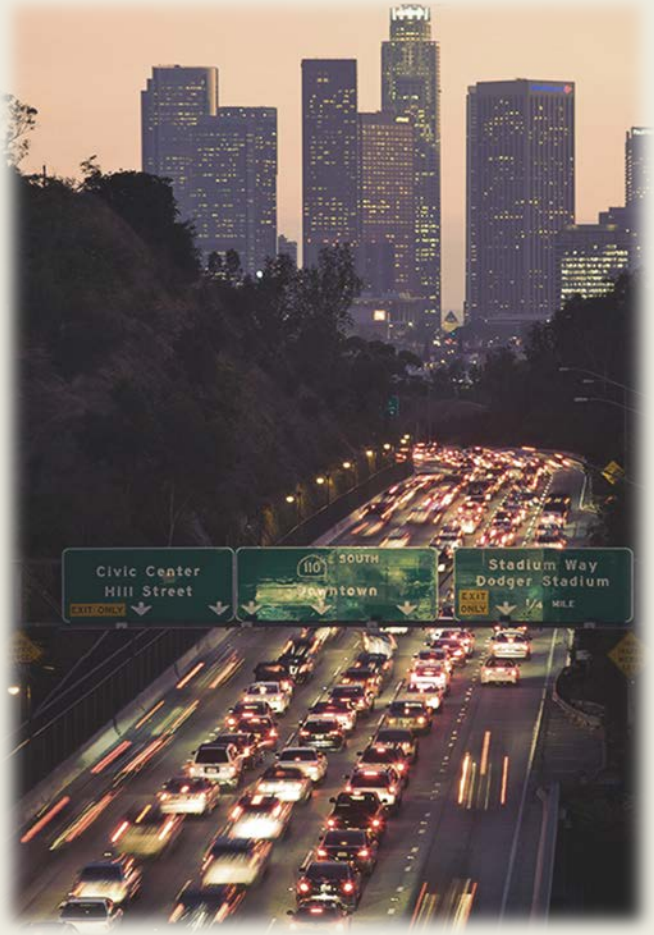
* Pursuant to the Clean Air Act Section 182(e)(5) advanced technology provision

Commitment for Tracking and Reporting

- Pursue demonstration studies to support continued technology advancement
- Annual status report to Board and recommendations for further action
- Collaboration with South Coast on complementary mobile source measures
- Work with EPA on incorporating incentive programs into the SIP

Environmental Analysis

- State SIP Strategy Draft Environmental Analysis (EA) released for public comment May 17, 2016
- Final EA and written responses to comments on the Draft EA released March 10, 2017



Staff Recommendations

1. Certify Environmental Analysis for SIP Strategy
2. Approve State commitment in SIP Strategy
   - Take action on measures according to schedule
   - Achieve aggregate emission reductions by specific dates
   - Contingent approval of San Joaquin Valley 2025 commitment, pending public review period
3. Adopt the South Coast 2016 AQMP as a revision to the California SIP
4. Direct the Executive Officer to submit to EPA for inclusion in the California SIP