Chapter 5

Attainment Strategy

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Chapter 5: Attainment Strategy

The District's strategy for attaining the 2008 8-hour ozone standard builds upon comprehensive strategies already in place from previously adopted District plans and strategies implemented by the California Air Resources Board (ARB) and is guided by the District's *Health Risk Reduction Strategy*. The District's multi-faceted approach to reducing emissions in the Valley consists of a combination of conventional and innovative control strategies. This chapter outlines the District's comprehensive attainment strategy which includes regulatory actions; incentive programs; technology advancement programs; policy and legislative activities; and public outreach, education, and communication.

As supported by extensive photochemical modeling conducted by ARB, the significant emissions reductions achieved by this comprehensive strategy in the coming years are projected to bring the Valley into attainment of the 2008 8-hour ozone standard by the 2031 attainment deadline. Unfortunately, given the antiquated *Clean Air Act* requirements for including contingency measures even in regions classified as "extreme" nonattainment, this attainment plan will be forced to reserve and defer emissions reductions and associated health benefits that would otherwise occur in an earlier timeframe to the final attainment year.

5.1 EXISTING COMPREHENSIVE REGULATORY CONTROL STRATEGY

EPA prefers reliance on control measures that have already been adopted over ones that have yet to be approved. EPA has gone so far as to disapprove attainment plans that demonstrated an over-reliance on unapproved measures. As such, the recognition of recently adopted and implemented District and ARB control measures is an important component of this plan.

5.1.1 District Stationary Source Regulations

The District's regulatory authority is centered on stationary sources and some area-wide sources, and the District's stringent and innovative rules on these sources, such as those for residential fireplaces, glass manufacturing, and agricultural burning, have set benchmarks for California and the nation. The District has implemented a comprehensive regulatory control strategy for over twenty years. Since 1992, the District has adopted over 600 rules and amendments to implement this aggressive control strategy. Many current rules are fourth or fifth generation, meaning that they have been revised and emission limits have been lowered, as new emission control technology has become available and cost effective. Additionally, the District has adopted innovative regulations such as Indirect Source Review and Employer-based Trip Reduction to reduce emissions from mobile sources within the District's limited jurisdiction over these sources.

The District's current rules and regulations reflect technologies and methods that are far beyond minimum required control levels. The aggressive regulations already adopted

under previous District attainment plans (*2007 Ozone Plan, 2008 PM2.5 Plan, 2012 PM2.5 Plan, 2013 Plan for the Revoked 1-hour Ozone Standard, 2015 Plan for the 1997 PM2.5 Standard*) serve as the basis for this *2016 Ozone Plan*. These adopted regulations will reduce emissions of oxides of nitrogen (NOx) and volatile organic compounds (VOCs) as they are fully implemented over the upcoming years, contributing to the Valley's progress toward attainment of the 2008 8-hour ozone standard.

The following table identifies many of the adopted District rules achieving new emissions reductions in and after 2012, the base year for this plan. However, it is important to note that even pre-2012 emissions reductions are contributing and will continue to contribute to the Valley's progress toward attainment.

Table 5-1 Adopted District Rules Achieving Reductions from Stationary Sources in and After 2012

District Rules		*Date Adopted or Last Amended*
4103	Open Burning	4/15/2010
4307	Boilers, Steam Generators, and Process Heaters 2 to 5 MMBtu/hr	5/19/2011
4308	Boilers, Steam Generators, and Process Heaters 0.075 to <2 MMBtu/hr	11/14/2013
4311	Flares	6/18/2009
4306/ 4320	Boilers, Steam Generators, and Process Heaters >5 MMBtu/hr	10/16/2008
4352	Solid Fuel Fired Boilers, Steam Generators and Process Heaters	12/15/2011
4354	Glass Melting Furnaces	5/19/2011
4565	Biosolids, Animal Manure, and Poultry Litter Operations	3/15/2007
4566	Organic Material Composting Operations	8/18/2011
4601	Architectural Coatings	12/17/2009
4605	Aerospace Assembly and Component Coating Operations	9/20/2007
4653	Adhesives and Sealants	9/16/2010
4682	Polystyrene, Polyethylene, and Polypropylene Products Manufacturing	9/20/2007
4684	Polyester Resin Operations	9/20/2007
4702	Internal Combustion Engines	8/18/2011
4905	Natural Gas-Fired, Fan-Type Residential Central Furnaces	1/22/2015
9610	State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs	6/20/2013

5.1.2 Area Source Regulations – ARB

The California Air Resources Board (ARB) shares jurisdictional authority of reducing emissions from area sources in California, and as such, has adopted many stringent regulations to reduce emissions from these sources. The District's and ARB's rules currently in place will ensure emissions will continue to be significantly reduced in the

coming years. Table 5-2 includes a list of regulations adopted or amended by ARB since 2000 that are applicable to area sources.

Table 5-2 Adopted ARB Regulations – Area Sources

ARB Regulation	Adoption Date	Category
Consumer Products Regulation	11/18/2010	Consumer Products
Aftermarket Catalyst Requirements	10/25/2007	Stationary
Vapor Recovery from Above-Ground Storage Tanks	6/21/2007	Stationary
Phase 3 Reformulated Gasoline Amendments	6/14/2007	Stationary
Airborne Toxic Control Measure for Stationary Compression Ignition Engines (Agricultural Eng. Exemption removal)	11/16/2006	Other
Distributed Generation Guidelines and Regulations	10/19/2006	Other
Airborne Toxic Control Measure for Stationary Compression Ignition Engines amendments	05/26/2005	Other
Airborne Toxic Control Measure for Stationary Compression Ignition Engines	12/11/2003	Other
Airborne Toxic Control Measure for Outdoor Residential Waste Burning	02/21/2002	Other
Distributed Generation Guidelines and Regulations	11/15/2001	Other
Architectural Coatings	6/22/2000	Stationary
Air Toxic Control Measure for Chlorinated Toxic Air Contaminants from Automotive Maintenance and Repair Facilities	04/27/2000	Other
Enhanced Vapor Recovery	6/22/2000	Stationary

5.2 REGULATORY CONTROL MEASURE COMMITMENTS

The District has evaluated all sectors and equipment types for additional emission reduction opportunities, as presented in Appendix C. The District has used the following key factors to evaluate potential emission reduction opportunities:

- **Technological Feasibility.** The District looked for any control technologies not already required that might be available to further reduce emissions from sources of air pollution in the Valley. This includes new technologies and technologies that may not have been cost-effective in the past. The technologies used in BACT guidelines; permits; and other air districts' rules, regulations, guidelines, and studies were reviewed for their feasibility, including how commercially available the technology currently is and whether the technology has been used in practice.

- **Cost-Effectiveness.** Cost-effectiveness is the cost of emissions controls compared to the amount of emissions reductions that would be achieved by those controls. The District does not have a pre-determined cost-effectiveness threshold, but control options with extremely high cost-effectiveness (high dollars per ton of pollutant reduction) are unreasonable and inappropriate for regulation.

Each control measure evaluation in Appendix C includes a discussion of the rule applicability, an overview of the emission inventory, and an evaluation for the technological feasibility and cost effectiveness analysis of identified potential emissions reductions opportunities.

This plan demonstrates that the District continues to meet or exceed RACT for all applicable EPA source categories. However, given the enormity of reductions needed to develop plans that demonstrate attainment with the latest federal ozone and PM2.5 standards, the District proposes the following commitments, as described in further detail below.

Table 5-3 Regulatory Control Measure Commitments

Rule	Rule Project Year	Emissions Reductions*	Implementation Date*
Rule 4311 Flares	2017	---	---
Rule 4694 Wine Fermentation and Storage Tanks	2018	---	---
*The District is not committing to a specific amount of emissions reductions or timeframe for the implementation of these control measures, which will be established as appropriate during the rule development process.			

5.2.1 Rule 4311 Flares

Flaring activities in the Valley emit 0.57 tpd of NOx emissions, representing 0.17% of the summer average NOx emissions in the Valley. Despite this relatively small amount of emissions, in keeping with its leave no stone unturned approach, the District has invested significant resources into evaluating potential emissions reductions opportunities from flares. The District has made these further study reports available at: http://www.valleyair.org/Air_Quality_Plans/PM_Plans.htm.

As demonstrated in Appendix C, District Rule 4311 meets RACT requirements, and has also been demonstrated as implementing Most Stringent Measures.[1] As a commitment included in the District's *2015 Plan for the 1997 PM2.5 Standard* (2015 PM2.5 Plan), District staff conducted a further study to review additional emission reduction opportunities under Rule 4311 that reached the following findings:

1. Even though operators of flares in the Valley have already taken extensive measures to reduce flaring through Rule 4311, additional minimization practices currently performed at some facilities may have the potential to be utilized at other facilities to further reduce flaring activities and emissions.

2. Ultra-low NOx technologies with the potential to further reduce emissions from flaring have recently become available and should be potentially required

[1] SJVUAPCD. *2015 Plan for the 1997 PM2.5 Standard*. Appendix C Best Available Control Measures and Most Stringent Measures (2015, April 16). Retrieved from http://www.valleyair.org/Air_Quality_Plans/PM25Plans2015.htm

through future rule amendments where technologically achievable and economically feasible.

Given the enormity of reductions needed to develop plans that demonstrate attainment with the latest federal ozone and PM2.5 standards and based on findings from the recent flare further study, the District commits to working closely with affected operators to undergo a regulatory amendment process for Rule 4311 as follows:

1. District commits to amend Rule 4311 to include additional ultra-low NOx flare emission limitations for existing and new flaring activities at Valley facilities to the extent that such controls are technologically achievable and economically feasible, by December 31, 2017.

2. District commits to amend Rule 4311 to include additional flare minimization requirements to the extent that such controls are technologically achievable and economically feasible, by December 31, 2017.

5.2.2 Rule 4694 Wine Fermentation and Storage Tanks

Fermentation of red and white wines generates VOC emissions (ethanol). Wine fermentation is a significant industry in the Valley with total projected emissions of 4.64 tpd of VOC in 2031. As demonstrated in Appendix C, District Rule 4694 meets RACT requirements.

Through ongoing review of wine fermentation permitting applications, the District has closely tracked the development of new emission control technologies for capturing ethanol emissions from wine fermentation processes. Technologies of interest have included scrubbers, condensers, activated carbon and thermal oxidizers. In recent years, several wine manufacturing facilities have successfully implemented or are experimenting with new emission control systems that capture ethanol emissions from some of their wine fermentation operations (see Appendix C). Two wineries currently utilize water scrubbers to capture ethanol emissions from wine fermentation tanks, and several other wineries have developed systems that utilize scrubbers and chilled vapor condensers. Preliminary cost effectiveness analyses results indicate the costs to be between $18,337 and $89,644 per ton of VOC reduced, depending on the size of the winery, fermentation tank configuration, type of wine, number of fermentation rotations, and other factors.

The District commits to working closely with affected operators to undergo a regulatory amendment process for Rule 4694 as follows:

1. Modeling shows that the Valley is a NOx-limited regime, especially in projections of future years. As such, VOC reductions are not as effective in reducing Valley ozone concentrations as NOx reductions. The District will evaluate the technological achievability and economic feasibility of implementing emission control technologies to reduce VOC emissions from wine fermentation processes and potential benefits to help reduce ozone

concentrations. Upon completion of this review, the District commits to amend Rule 4694 to include additional requirements to further reduce emissions from wine fermentation processes as appropriate by December 31, 2018.

5.3 RULE DEVELOPMENT PROCESS

The District places great value on innovation and full public participation in the development and adoption of regulations. Towards that end, the District's rule development process involves extensive interaction with affected sources to find the most effective means of achieving emissions reductions and a rigorous public engagement and commenting process (see Figure 5-1). Contrasting the broader plan development effort, the rule development process allows greater focus on a single sector or technology area. Early in the rule development process, prior to preparing a draft rule, staff researches technologies and explores options for emissions reductions, gathering preliminary data and performing literature reviews of relevant studies. Through the workshop process staff presents draft rule concepts and receives feedback on specific technology costs, technical insight, and general public comments. Staff uses this information gathering and discussion to refine the rule throughout the rule development process. Using this iterative process of gathering the most up-to-date cost and technical information, staff analyzes cost-effectiveness and potential emissions reductions. These analyses are shared with the public throughout the rule development process.

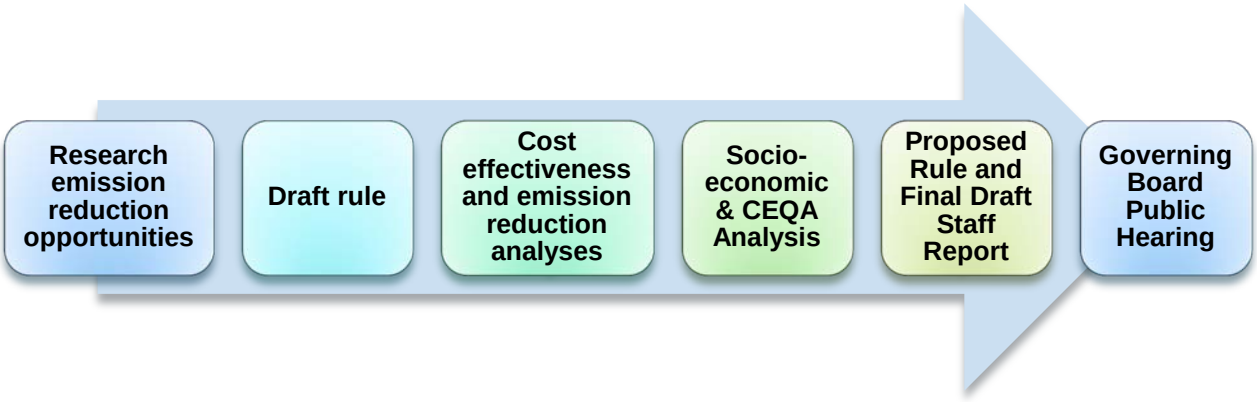
During the rule development process, a socioeconomic impact analysis is performed pursuant to California Health and Safety Code Section 40728.5. To the extent possible, the District minimizes significant economic and socioeconomic impacts by evaluating viable alternatives, adjusting proposed limits, or extending compliance schedules.

The proposed rule and Final Draft Staff Report, including the cost-effectiveness analysis, socioeconomic impact report, emissions reductions analysis, RACT analysis, and California Environmental Quality Assessment (CEQA) analysis are all presented to the District Governing Board during a public hearing. The Governing Board ultimately determines the balance between air quality improvement and rule impacts when adopting proposed rules.

Once adopted, the District forwards the rule through ARB to EPA for inclusion into the state implementation plan, as appropriate. EPA evaluates the rule, determines if the rule meets federal requirements, and provides an opportunity for further public comment. After this review and comment period, EPA will amend the SIP to include the new rule, as appropriate.

Beyond the rule development and adoption process, District staff will continue to engage the public and affected source operators throughout implementation and compliance. Additionally, District staff continues public outreach and education through notifications to stakeholders of the rule adoption, issuance of compliance bulletins, and assistance through the District's Small Business Assistance program.

Figure 5 - 1 Rule Development Process



5.4 MOBILE SOURCE CONTROL STRATEGY

5.4.1 ARB Mobile Source Regulations

Given the enormity of the reductions needed for attainment, mobile sources, particularly in the goods movement sector, must transition to zero and near-zero emission levels through the implementation of transformative measures. The District does not have the authority to implement regulations requiring ultra-low tailpipe emissions standards on mobile sources.

Since 1966, ARB has adopted and amended a number of regulations aimed at reducing exposure to diesel particulate matter (PM) and NOx from fuel sources, freight transport sources like heavy-duty diesel trucks, transportation sources like passenger cars and buses, and off-road sources like large construction equipment. Table 5-4 includes a list of all the regulations adopted or amended by ARB since 2000 that are applicable to mobile sources. Phased implementation of these regulations will produce emission reduction benefits through 2017 and beyond as the regulated fleets are retrofitted, and as older and dirtier fleet units are replaced with newer and cleaner models at an accelerated pace. Several rules in particular, including the Cleaner In-Use Heavy-Duty Trucks, the Cleaner In-Use Off-Road Equipment, the Advanced Clean Car Program, the Enhanced Fleet Modernization Program, and the Enhanced Smog-Check Program, will achieve significant emissions reductions critically needed to attain the ozone standard under this plan.

Table 5-4 Adopted or Amended ARB Mobile Source Regulations

ARB Regulation	Adoption Date	Category
Amendments to the Portable Fuel Container Regulation	02/18/2016	Vapor Recovery
Revisions to On-Board Diagnostics System Requirements	09/24/2015	On-Road

ARB Regulation	Adoption Date	Category
Amendments to Certification Procedures for Vapor Recovery Systems at Gasoline Dispensing Facilities: Aboveground Storage Tanks and Enhanced Conventional Nozzles	04/23/2015	Vapor Recovery
2015 Low Carbon Fuel Standard Amendments	02/19/2015	Fuel
Evaporative Emission Control Requirements for Spark-Ignition Marine Watercraft	02/19/2015	Vapor Recovery
Commercialization of Alternative Diesel Fuels Regulation	02/19/2015	Fuel
2014 Amendments to Zero Emission Vehicle Regulation	10/23/2014	On-road
Amendments to Low Emission Vehicle III Criteria Pollutant Requirements for Light-and Medium-Duty Vehicles the Hybrid Electric Vehicle Test Procedures, and the Heavy-Duty Otto-Cycle and Heavy-Duty Diesel Test Procedures	10/23/2014	On-road
Amendments to the Enhanced Fleet Modernization Program Regulation	06/26/2014	On-road
Truck and Bus Rule Update	04/24/2014	On-road
Heavy-Duty Greenhouse Gas Phase 1: On-Road Heavy Duty Greenhouse Gas Emissions Rule, Tractor-Trailer Rule, Commercial Motor Vehicle Idling Rule, Optional Emission Standards	12/12/2013	On-road
Minor Modifications to the Zero Emission Vehicle Regulation	10/24/2013	On-road
Alternative Fuel Certification Procedures	09/26/2013	Fuel
Off-Highway Recreational Vehicle Evaporative Emission Control	07/25/2013	Vapor Recovery
Amendments to Vapor Recovery for Gasoline Dispensing Facilities	07/25/2013	Vapor Recovery
Gasoline and Diesel Fuel Test Methods	01/25/2013	Fuel
Low Emission Vehicle III Greenhouse Gas and Zero Emission Vehicle Regulation Amendments for Federal Compliance Option	11/15/2012	On-road
Amendments to On-Board Diagnostics (OBD I and II) Regulations	08/23/2012	On-road
Amendments to Verification Procedures, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines	08/23/2012	On-road
Emergency Regulatory Amendments to the Tractor-Trailer Greenhouse Gas Regulation	02/29/2012	On-Road
Zero Emission Vehicle Standards for 2009 through 2017	01/26/2012	On-road
Advanced Clean Car Program	1/27/2012	On-road
Expanded Off-Road Recreational Vehicle Emission Standards	12/16/2011	Off-road
Cleaner In-Use Off-Road Equipment	12/17/2010	Off-road
Port Truck Modernization	12/17/2010	Off-road
Cleaner In-Use Heavy-Duty Trucks	12/16/2010	On-road
Accelerated Introduction of Cleaner Line-Haul Locomotives	06/24/2010	Other
Enhanced Fleet Modernization Program (formerly called the Expanded Vehicle Retirement Program)	06/24/2010	On-road
Smog Check Improvements	08/31/2009	On-road
Portable Outboard Marine Tanks	09/25/2008	Off-road
Clean Up Existing Harbor Craft	11/15/2007	Other
Voluntary Accelerated Retirement Regulation	12/07/2006	On-road
Emergency Regulation for Portable Equipment Registration Program, Airborne Toxic Control Measures and Portable and Stationary diesel-Fueled Engines	12/06/2006	Off-road
Airborne Toxic Control Measure for Stationary Compression Ignition Engines (Agricultural Eng. Exemption removal)	11/16/2006	Other
Distributed Generation Guidelines and Regulations	10/19/2006	Other
Zero Emission Bus Regulation	10/19/2006	On-road
Heavy-Duty In-Use Compliance Regulation	09/28/2006	On-road

ARB Regulation	Adoption Date	Category
On-Board Diagnostic II	09/28/2006	On-road
Off-Highway Recreational Vehicles and Engines	07/20/2006	Off-road
California Motor Vehicle Service Information Rule	06/22/2006	On-road
Portable Equipment Registration Program	06/22/2006	Off-road
Fork Lifts and Other Industrial Equipment (Large Off-Road Spark Ignition Engines > 1 liter)	05/26/2006	Off-road
Technical Amendments to Evaporative Exhaust and Evaporative Emissions Test Procedures	05/25/2006	On-road
Diesel Verification Procedure, Warranty & In-Use	03/23/2006	On-road
AB1009 Heavy-Duty Vehicle Smoke Inspection Program	01/26/2006	On-road
Diesel Particulate Matter Control Measure for On-Road Heavy-Duty Diesel-Fueled Vehicles Owned or Operated by Public Agencies and Utilities	12/08/2005	On-road
Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards	12/08/2005	Off-road
Marine Inboard Sterndrive Engines	11/17/2005	Off-road
Requirements to Reduce Idling Emissions from New and In-Use Trucks, Beginning in 2008	10/20/2005	On-road
2007-2009 Model-Year Heavy Duty Urban Bus Engines and the Fleet Rule for Transit Agencies	09/15/2005	On-road
Portable Fuel Containers (PFC) [Part 1 of 2]	09/15/2005	Off road
Portable Fuel Containers (PFC) [Part 2 of 2]	09/15/2005	Off road
On-Board Diagnostic System Requirements for 2010 and Subsequent Model-Year Heavy-Duty Engines (HD OBD)	07/21/2005	On-road
Airborne Toxic Control Measure for Stationary Compression Ignition Engines amendments	05/26/2005	Other
Transit Fleet Rule	02/24/2005	On-road
Off-Road Compression Ignition Engines	12/09/2004	Off-road
Emergency Regulation for Temporary Delay of Diesel Fuel Lubricity Standard	11/24/2004	Fuels
Diesel Fuel Standards for Harbor Craft & Locomotives	11/18/2004	Fuels
Greenhouse Gas	09/23/2004	On-road
Airborne Toxic Control Measure for Diesel Particulate from Diesel Fueled Commercial Vehicle Idling	07/22/2004	On-road
Urban Bus Engines/Fleet Rule for Transit Agencies	06/24/2004	On-road
Engine Manufacturer Diagnostic System Requirements for 2007 and Subsequent Model Heavy Duty Engines	05/20/2004	On-road
Heavy Duty Diesel Engine-Chip Reflash	03/27/2004	On-road
Airborne Toxic Control Measure for Diesel-Fueled Portable Engines	02/26/2004	Off-road
Modifications to the Statewide Portable Equipment Registration Program (PERP) Regulations	02/26/2004	Off-road
CA Motor Vehicle Service Information Rule	01/22/2004	On-road
Airborne Toxic Control Measure for Diesel Particulate for Transport Refrigeration Units	12/11/2003	On-road
Airborne Toxic Control Measure for Stationary Compression Ignition Engines	12/11/2003	Other
Diesel Retrofit Verification Procedure, Warranty and In-Use Compliance Requirements Amendments	12/11/2003	On-road
Small Off-Road Engines (SORE)	09/25/2003	Off-road
Solid Waste Collection Vehicles	09/24/2003	On-road
Off-Highway Recreation Vehicles	07/24/2003	Off-road
Specifications for Motor Vehicle Diesel Fuel	07/24/2003	Fuels
Zero Emission Vehicle Amendments for 2003	03/25/2003	On-road

ARB Regulation	Adoption Date	Category
Airborne Toxic Control Measure for Diesel Particulate from School Bus Idling	12/12/2002	On-road
Low Emission Vehicles II. Align Heavy Duty Gas Engine Standards with Federal Standards; minor administrative changes	12/12/2002	On-road
Revision to Transit Bus Regulations Amendments	10/24/2002	On-road
Diesel Retrofit Verification Procedure, Warranty and In-Use Compliance Requirements	05/16/2002	On-road
On-Board Diagnostic II Review Amendments	04/25/2002	On-road
Airborne Toxic Control Measure for Outdoor Residential Waste Burning	02/21/2002	Other
Voluntary Accelerated Light Duty Vehicle Retirement Regulations	02/21/2002	On-road
California Motor Vehicle Service Information Rule	12/13/2001	On-road
Distributed Generation Guidelines and Regulations	11/15/2001	Other
Low Emission Vehicle Regulations	11/15/2001	On-road
Heavy Duty Diesel Engine Standards for 2007 and Later	10/25/2001	On-road
Marine Inboard Engines	07/26/2001	Off-road
Zero Emission Vehicle Infrastructure and Standardization of Electric Vehicle Charging Equipment	06/28/2001	On-road
Zero Emission Vehicle Regulation Update	01/25/2001	On-road
Heavy Duty Diesel Engines "Not-to-Exceed (NTE)" Test Procedures	12/07/2000	On-road
Light-and Medium Duty Low Emission Vehicle Alignment with Federal Standards. Exhaust Emission Standards for Heavy Duty Gas Engines	12/07/2000	On-road
Air Toxic Control Measure for Chlorinated Toxic Air Contaminants from Automotive Maintenance and Repair Facilities	04/27/2000	Other
Transit Bus Standards	02/24/2000	On-road
Off-Road Compression Ignition Engines	01/27/2000	Off-road

5.4.2 ARB's Draft "Mobile Source Strategy"

As the District continues to develop new attainment plans to address the latest federal ozone and PM2.5 standards in the coming year, significant additional emissions reductions are needed, particularly with respect to mobile sources under ARB and EPA jurisdiction that make up over 85% of remaining Valley NOx emissions. Given this large contribution and limited local jurisdiction, ARB staff released a draft *Mobile Source Strategy* in October 2015 to address the upcoming attainment challenges facing the Valley and the State. This integrated strategy is designed to help California reach attainment of multiple federal air quality standards for ozone and PM2.5, achieve GHG emission reductions, reduce petroleum use, increase energy efficiency and use of renewable energy sources, and decrease the health risks from exposure to toxic air contaminants from transportation emissions.

The scope of actions in the proposed *Mobile Source Strategy* would establish zero and near-zero emission requirements, deploy these new technologies into the state fleet, require cleaner fuels, and ensure in-use performance of new vehicles. The *Mobile Source Strategy* highlights the use of incentives to accelerate fleet turnover and supports the use of advanced transportation technologies, such as intelligent transportation systems and autonomous vehicles, as a transformative control strategy. Additionally, ARB's strategy emphasizes the importance of federal regulations in the on-road heavy-duty sector.

ARB staff will incorporate the *Mobile Source Strategy* into *the Proposed 2016 State Strategy for the State Implementation Plan* (State SIP Strategy) to be considered by the Air Resources Board (Board) in September 2016. The State SIP Strategy will include a set of commitments for achieving additional NOx emission reductions from proposed mobile source control measures as required to bring the Valley into attainment with federal ozone and PM2.5 standards. The *Mobile Source Strategy* can be found at: http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm.

5.4.3 Mobile Source Evaluation

Higher-emitting heavy-duty vehicles with long service lives can remain on the road for many years. Advancing the turnover of these fleets is a critical component of reducing emissions. To address this legacy fleet, ARB has adopted heavy-duty vehicle in-use control measures to significantly reduce PM and NOx emissions from existing diesel vehicles operating in California. Coupled with these regulatory measures, the District has invested significant resources through its incentive programs to accelerate fleet turnover through the deployment of the latest available vehicle technologies. As new technologies emerge and air quality standards become increasingly stringent, ARB's Draft *Mobile Source Strategy* proposes to continue developing fleet regulations and incentives programs that help these fleets transition to clean vehicles. Through the continued development of regulatory and incentives programs as laid out in their Mobile Source Strategy, in combination with the District's robust vehicle grant programs, these mobile source control measures will continue to significantly advance fleet turnover.

5.4.3.1 Heavy-Duty Trucks

In 2012, ARB adopted the On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation, later amended in 2014. The regulation applies to privately or federally owned, diesel-fueled trucks and buses that operate in California with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. The regulation requires diesel trucks and buses to reduce emissions by replacing older trucks with newer diesel vehicles, retrofitting engines, and installing diesel particulate filters. Reductions are implemented through a compliance schedule based on the engine model year. By 2023, all trucks and buses must have engines certified to EPA's 2010 emission limits. As described in Appendix D of this *2016 Ozone Plan*, this rule has already achieved significant emission reductions will continue to achieve additional emission through 2023.

ARB's *Mobile Source Strategy* outlines a multifaceted approach to continue implementing control measures for these high-mileage heavy-duty trucks. The draft strategy proposes to provide more incentive funding for new technology, infrastructure, and purchase of advanced zero and near-zero on-road heavy-duty trucks. In addition, ARB proposes to develop future truck and bus regulations including a new near-zero emission engine standard (0.02 g NOx/hp-hr) at both the state and federal level.

As described in Appendix E of this Plan, the use of incentives funding through the Prop 1B and Truck Voucher incentive programs have helped accelerate the adoption of clean heavy-duty trucks thereby reducing emissions in this source category. By highlighting

the need for a new near-zero emissions tailpipe emissions standard at the state and national level, and in combination with the continued administration of a comprehensive incentive program, the District will work closely with ARB to ensure continued emissions reductions from heavy-duty trucks.

5.4.3.2 Public Fleets

Transit Fleets: Transit fleets are on-road vehicles operated by a public transit agency, including urban buses and other transit fleet vehicles. ARB adopted the Fleet Rule for Transit Agencies in 2000 in an effort to reduce both criteria pollutant emissions and exposure to toxic air contaminants from urban buses and transit fleet vehicles. Under this rule, all fleets must have achieved an overall 80% reduction in direct PM emissions and obtained a fleet average NOx emission level at or below 2.4 g NOx/bhp-hr by 2010. The rule also encourages the operation and use of zero-emission buses (ZEB) in California urban bus fleets, with the goal of gradually developing a California transit fleet composed of 15% zero-emission buses.

Table 5-5 ARB Transit Fleet Rule Requirements

	By 2008	By 2011
PM (Reduction from 2005 baseline)	40%	80%
Fleet Average NOx (g/bhp-hr)	3.2	2.4

South Coast adopted a similar public transit fleet rule in 2000, Rule 1192—Clean On-Road Transit Buses. This rule requires that public agencies purchase alternative fuel heavy–duty vehicles when buying or acquiring new transit vehicles or urban buses. However, since there is no actual emissions standard required, the South Coast rule is less stringent and is superseded by the statewide fleet regulation.

With the current ARB rule, NOx emissions from diesel urban buses in the Valley are going to decrease from the 2012 baseline year by 87% to 0.5 tpd NOx by 2031. Natural gas buses will see a 69% decrease from 0.2 tpd to 0.07 tpd NOx from 2012 to 2031. In an effort to continue accelerating emissions reductions, ARB's *Mobile Source Strategy* proposes to develop a new transit fleet regulation set to be adopted by ARB in 2016. This "Advanced Clean Transit" regulation would require new bus purchases to be zero emission, with a goal of 100 percent zero emission purchase in 2030 and full zero emission transit fleets in 2040. Implementation is estimated to begin in 2018 with a small percentage of new bus purchases required to be zero emission vehicles, incrementally increasing until 2030. No further action is recommended at this time given that ARB's proposed "Advanced Clean Transit" regulation fully addresses the limited emissions reductions opportunities that remain from this category.

Solid Waste Collection Vehicles: This source category includes waste-collection vehicles weighing more than 14,000 lbs. that collect waste for a fee. The statewide regulation for this source, the Solid Waste Collection Vehicles (SWCVs) Rule, was adopted in 2004 and requires such vehicles to install ARB-verified Best Available

Control Technology (BACT) devices to reduce diesel particulate emissions. South Coast developed a separate fleet rule which requires solid waste collection vehicle fleets to transition to operating entirely on alternative fuel beginning in 2011. This is different than ARB's rule in that it requires fleet transition to alternative fuels rather than imposing requirements to reduce particulate matter. However, since there is no actual emissions standard required, the South Coast rule does not achieve additional emissions reductions beyond the state regulation.

Over the years, the District has been active in providing incentive funding towards the replacement of the Valley's refuse fleets with the latest available vehicle technologies. In recent years, the District worked closely with ARB and CALSTART to develop a new state Hybrid Voucher Incentive Program (HVIP) that provides significant funding towards the replacement of existing refuse trucks with new hybrid electric vehicle technologies, with significant additional funding provided for projects that benefit disadvantaged communities.

Through the existing state fleet rule and ongoing efforts to accelerate fleet turnover to the latest available technologies through existing robust incentive programs, emissions from this category will be significantly reduced in the coming year. In fact, the Valley will see a 75% reduction in NOx from solid waste collection vehicles from the 2012 baseline year for total remaining emissions of 0.4 tpd NOx from this category in 2031. In developing its draft *Mobile Source Strategy*, ARB does not identify any remaining opportunities for feasible reductions in emissions from this source category.

School Buses: Over the years, the District has been active in providing incentive funding towards the replacement of the Valley's school bus fleets with the latest available vehicle technologies. The School Bus Replacement and Retrofit programs provide grant funding for new school buses and retrofit devices for buses that are already on the road. Public school districts in California that own their buses are eligible to receive funding. Eligible projects are funded with local, state, and federal funds including the Lower-Emission School Bus Program (Proposition 1B), DERA funding, and the American Reinvestment and Recovery Act (ARRA). Through December 2015, the District has provided funding to retrofit 2,254 school buses and replace 503 school buses that meet the latest PM and NOx standards.

ARB's school bus rule requires owners to have retired any school buses manufactured before April 1, 1977, by January 1, 2012. By Jan. 1, 2014, 100% of the remaining school bus fleet must have particulate filters (that reduce diesel PM emissions by 85 percent) installed. There is a delayed compliance date of January 1, 2018 for buses unable to be retrofitted, which must be replaced by this date with a bus meeting the current 2010 emissions standard. South Coast AQMD has Rule 1195—Clean On-Road School Buses, adopted in 2001 and amended in 2006. This rule requires newly purchased or leased school buses to be alternative fuel or to retrofit used or existing school buses with a California Air Resources Board (CARB) approved control device(s) to reduce air toxic and criteria pollutant emissions. District Rule 9310, described in section 5.2.4 in this chapter, pre-dates the ARB rule. Per the District rule, all school buses must either be retrofit or replaced by 2016. Since the state rule requires owners

to either retrofit existing vehicles to achieve significant PM reductions or purchase a new vehicle rated to 2010 standards or newer, the state regulation already achieves the most stringent emissions requirements and supersedes local rules.

Commercial Airport Ground Access: The San Joaquin Valley only has a few commercial airports that are very small in size compared to airports in more populated coastal regions of the state, and the emissions from this category are miniscule. There is no current statewide rule for airport shuttle buses.

In 2000, South Coast adopted Rule 1194 (Commercial Airport Ground Access Vehicles), which requires fleet operators to purchase lower emitting vehicles when replacing or adding vehicles, which was relevant when originally adopted and cleaner shuttle buses were in early stages of development. In their draft *Mobile Source Strategy*, ARB proposes to develop and propose a regulation, titled Zero Emissions Airport Shuttle Buses, to help deploy zero emission airport shuttles in order to further support market development of zero emission technologies in the heavy-duty sector beginning in 2020. Through this new strategy, ARB estimates less than 0.1 tpd of NOx emission reductions could be achieved with this measure implemented in South Coast, which has significantly more large airports with numerous shuttles**.** No further action is recommended at this time given that ARB's proposed Zero Emissions Airport Shuttle Buses regulation fully addresses the limited emissions reductions opportunities that remain from this category.

Public Agencies and Utilities (PAU): Over the years, the District has been active in providing incentive funding towards the replacement of the Valley's fleets with the latest available vehicle technologies. In recent years, the District worked closely with ARB and CALSTART to develop a new state Hybrid Voucher Incentive Program (HVIP) that provides significant funding towards the replacement of existing trucks, including utility trucks, with new hybrid electric vehicle technologies, with significant additional funding provided for projects that benefit disadvantaged communities.

Public Agencies and Utilities rules apply to remaining vehicles owned by municipalities or utilities not covered in the above categories. ARB's PAU Regulation was designed to reduce public exposure to diesel particulate matter emissions from these vehicles. The regulation requires owners to operate 100% of their fleet at or below a PM emissions level of 0.01 g/bhp-hr by 2016. While this regulation does not include a specific NOx requirement, it has been successful in advancing fleet turnover through the accelerated purchase of new cleaner diesel and alternative-fueled vehicles operating in PAUs. South Coast adopted a fleet rule for heavy-duty vehicles operated by public agencies and utilities, Rule 1196, which requires newly purchased vehicles to operate on gasoline or other alternative fuels. The state PAU fleet regulation supersedes the South Coast rule. In developing its draft *Mobile Source Strategy*, ARB does not identify any remaining opportunities for feasible reductions in emissions from this source category

5.4.4 District Mobile Source Control Strategies

Although the District does not have the authority to directly regulate the mobile sources, the District, in addition to providing incentives, has developed and implemented the following innovative control strategies to reduce emissions from these sources.

Rule 9410 Employer-Based Trip Reduction (eTRIP)
The District is the only government agency that is authorized under state law to impose this type of regulation on employers. The goal of eTRIP is to reduce single-occupancy-vehicle work commutes. The eTRIP rule requires the Valley's larger employers, representing a wide range of locales and sectors, to select and implement workplace measures that make it easier for their employees to choose ridesharing and alternative transportation. Because of the diversity of employers covered by eTRIP, the rule was built with a flexible, menu-based approach. Using eTRIP, employers choose from a list of measures, each contributing to a workplace that encourages employees to reduce their dependence on single-occupancy vehicles. Each eTRIP measure has a point value, and employer eTRIPs must reach specified point targets for each strategy over a phased-in compliance schedule (2010–2015). The District has continually provided employer assistance through training, guidance materials, promotional information, and online reporting options. Upon full implementation, the eTRIP rule will reduce NOx and VOC emissions from passenger vehicle commute trips by approximately 1.2 tpd. See www.valleyair.org/tripreduction.htm for further information about the eTRIP Rule.

Rule 9510 Indirect Source Review (ISR)
The District has longstanding statutory authority to regulate indirect sources of air pollution. District Rule 9510 was adopted in 2005 to reduce the impacts of growth in emissions resulting from new land development in the San Joaquin Valley. The rule applies to new residential and non-residential development projects, including transportation and transit projects, which equal or exceed established applicability thresholds. Developers of projects subject to Rule 9510 must reduce emissions occurring during construction and operational phases through on-site measures, or pay off-site mitigation fees. One hundred percent of all offsite mitigation fees are used by the District to fund emission reduction projects through its Incentives Programs, achieving emission reductions in behalf of the project.

Rule 9310 School Bus Fleets
The District adopted Rule 9310 in September 2006 to limit NOx, PM, and diesel toxic air contaminants from school bus fleets. Diesel-fueled school bus fleet operators must replace or retrofit all of their school buses to meet the applicable ARB and EPA emission standards for engines by 2016. The rule also requires all existing gasoline or alternative-fueled school buses and any diesel school buses manufactured after October 1, 2002 to be operated according to manufacturer specifications and, if replaced, meet all applicable ARB and EPA current-year emissions standards for the year of delivery of that school bus engine and fuel type.

5.5 TECHNOLOGY ADVANCEMENT

Despite major reductions in emissions and corresponding improvements in air quality, the San Joaquin Valley continues to face difficult challenges in meeting the federal ambient air quality standards. Achieving attainment of EPA's increasingly stringent ambient air quality standards will require the development and implementation of transformative zero/near-zero emissions technology over the coming decades.

On March 18, 2010, your Board approved the District's Technology Advancement Program, a strategic and comprehensive program to identify, solicit, and support technology advancement opportunities. The program's primary goal has been to advance technology and accelerate the deployment of innovative clean air technologies that can bring about emission reductions as rapidly as practicable. To date the District has undergone four rounds of Request for Proposals (RFPs) resulting in the successful demonstration of numerous innovative technologies.

The Technology Advancement Program (TAP) represents a significant step forward in the District's efforts to attain ever-tightening federal air quality standards and fulfill our public health mission. The Technology Advancement Program's primary goal is to advance technology and accelerate the deployment of innovative clean air technologies that can bring about emission reductions as rapidly as practicable. To address the Valley's needs with respect to both ozone and PM2.5, which are largely driven by NOx emissions, the Technology Advancement Program has placed a particular focus on NOx emissions reduction technologies. The Technology Advancement Program is implemented through a coordinated and collaborative process that engages technology developers and potential end-users through:

- Grant funding for technology advancement projects in the San Joaquin Valley through competitive processes
- Integration of technology advancement goals into existing grant programs
- Comprehensive outreach to identify potential technology and demonstration partners
- Ongoing review and feedback on new technologies
- Building partnerships with other agencies
- Building local capacity for research and development in the San Joaquin Valley

To encourage the development of technologies in source categories critical to the Valley's attainment goals, your Board established the following three technology focus areas:

- **Renewable Energy:** Zero and near-zero emission renewable energy technologies.

- **Waste Solutions:** Zero and near-zero emission technologies that minimize or eliminate emissions from waste management systems and processes, including waste-to-fuel systems, such as dairy digesters and other bio-fuel applications.

- **Mobile Sources:** Zero and near-zero emission technologies with emphasis on goods and people movement, off-road equipment, and agricultural equipment.

To date, the District has completed four Technology Advancement Program competitive funding RFPs, receiving over 130 proposals for clean technology demonstration projects through these RFPs. In total, your Board has approved 34 of the proposed projects for total funding of over $11 million, with successful demonstrations of zero emissions yard trucks, electric composting, ultra-low NOx biogas engines, and other technologies.

For more information on technology advancement efforts by the District, please refer to Appendix F.

5.6 HEALTH RISK REDUCTION STRATEGY

In September 2010, the District's Governing Board adopted the groundbreaking Risk-Based Strategy (RBS), which was later rebranded to the Health Risk Reduction Strategy (HRRS) in 2013. These policies were developed because the District recognizes that the Valley has a mature air quality program that has made considerable progress in reducing air pollutants on a mass basis, which has led to a steady escalation in costs per ton of pollution abatement. At the same time, new scientific discoveries are paving the way for more targeted, health-based control strategies that deliver greater health benefits in a more cost effective fashion. In other words, the strategies are designed to focus limited resources on measures that have been shown scientifically to provide the best benefit for public health. As a result, the District puts a greater emphasis on implementing control measures targeted at reducing health risks, such as the effects discussed in Section 1.3.1. Since its implementation, the District's HRRS has gained significant support from EPA, the scientific community, and industry representatives.

5.6.1 What is the Health Risk Reduction Strategy (HRRS)?

The conventional mass-based regiment for attaining federal air quality standards generally measures progress in protecting public health by comparing the total amount of emissions reduced on a Valley-wide basis to the Valley's target for total emissions needed for attainment based on modeling and worst-case projections. For example, under ozone attainment plans, progress is measured by the mass quantity of either NOx or VOC reduced across the Valley over time, regardless of the actual ozone concentration reductions and associated health benefits achieved by strategies throughout the Valley. In contrast to this broad approach for planning and measuring progress, the District implements its diverse control measures and strategies throughout the Valley with clear and quantifiable public health benefits that are not fully accounted for under the conventional approach.

Additionally, driven by a rapidly expanding body of scientific research, there is now a growing recognition that from an exposure perspective, the NAAQS metrics for progress are a necessary but increasingly insufficient measure of total public health risk associated with air pollutants. In particular, control strategies for sources of ozone do not necessarily account for qualitative differences in the nature of their emissions. Differences in the relative potency of ozone precursors, VOCs in particular, are not captured by a strict, mass-based approach to precursor controls. Thus, while the federal air quality standards and plan process are motivated by public health, the process set forward under the federal CAA does not guarantee that the public health benefits of control strategies will be maximized. In contrast, the HRRS does the following:

- Applies to regulatory, incentive, and outreach strategies
- Public health is the primary driver for prioritizing clean air actions by the District
- Recognizes that risk to the public is not always proportional to the mass rate of emissions; examples include:
    - NOx versus VOCs
    - Photochemical reactivity of VOCs
- Clean air strategies with the highest benefit to public health are prioritized first regardless of mass, such as control strategies for the following:
    - Lawn care emissions
    - Gross-polluting vehicles
- Greater weight given to emissions reductions in Environmental Justice communities
- Greater weight given to reducing pollutants that are most effective in improving public health, such as:
    - NOx reductions versus VOC reductions
- All decisions are science-based; District continues to invest in Valley-specific research on population exposure and risk

5.6.2 Implementation of the Health Risk Reduction Strategy

To reduce ozone-related health risks, the District implements the HRRS through a number of strategies. A number of District programs have been influenced by the underlying principles and goals of the HRRS and provide a model of the success and added potential benefits possible under this strategy. The following are some examples:

- **Prioritizing NOx reductions over VOC reductions** – NOx emissions reductions have been demonstrated through numerous research studies and modeling efforts to be the most effective control strategy (precursor) for reducing the formation of ozone in the Valley, with VOC reductions found to be much less effective than NOx reductions in reducing ambient ozone concentrations. This plan and the District's other adopted ozone attainment plans place great priority in reducing NOx emissions, and maximize the reduction of ambient ozone concentrations and associated health benefits. As the primary precursor to the

formation of PM2.5, reducing NOx emissions is also the focus of the Valley's attainment strategies to address federal PM2.5 standards.

- **Grant funding priority for reduction of NOx emissions** – NOx is a criteria pollutant and a precursor to both ozone and particulates. The reduction of NOx emissions in the Valley is vital for the District to expedite attainment of both PM2.5 and ozone air quality standards and associated health benefits. Given its health-based significance with respect to reducing both ozone and PM2.5 concentrations, the majority of the District's grant programs are focused on maximizing NOx emissions reductions.

- **Prioritized adoption of strategy commitment for reducing emissions from high-polluting residential and commercial lawn mowers** – Through the District's popular Clean-Green-Yard-Machine grant program, the District has replaced over 3,900 high-polluting gas-powered lawn mowers with clean electric mowers, thus decreasing the urban, localized health risks associated with the use of gas-powered equipment. The District has also expanded its lawn care strategy to the commercial sector by funding over 175 commercial lawn and garden projects.

- **Grant funding priority for reduction in motor vehicle emissions through "Tune-In Tune-Up" vehicle repair and vehicle scrappage programs** – Emissions produced from vehicle travel significantly contribute to the air quality problem in the Valley, with mobile sources as the leading contributor of air pollution in the Valley. Motor vehicle emissions are also one of the biggest sources of pollution in the Valley's urban population centers, and reducing vehicle emissions will provide for expedited public health benefits to Valley residents. Within this context, environmental justice communities facing the highest social and environmental vulnerabilities also face significant air quality and economic impacts resulting from the disproportionally higher number of older, high-polluting vehicles driven by residents of these communities. Given this health-based significance, the District prioritizes grant funding for programs that reduce motor vehicle emissions in low income communities. Vouchers have been offered for the replacement of older high-emitting vehicles with newer cleaner vehicles, and the Tune-In Tune-Up program offers vouchers for emissions-related repairs to high-emitting vehicles. Tune-In Tune-Up has focused its outreach in Valley environmental justice communities and has received a large level of interest, with over 21,000 vehicle repair vouchers offered to Valley residents.

- **Grant funding priority for emissions reductions in environmental justice communities** – Environmental justice communities typically have a higher exposure risk to air pollution and are consequentially more vulnerable to the associated adverse health effects caused by poor air quality. The District's Governing Board has prioritized grant funding for emissions reductions that provide benefits for environmental justice communities. District staff has worked

closely with the District's Environmental Justice Advisory Group to identify potential enhancements to incentive programs to increase benefits to, and participation by, environmental justice communities. One example of this is that the Public Benefit Grants Program provides significant scoring consideration for projects that benefit environmental justice communities.

- **Expanded outreach to environmental justice communities through permitting process** – Historically, the District has allowed extensive public review and input into the air quality permit issuance process, with procedures that extend beyond minimum state and federal requirements. The District has continued to enhance its permit issuance outreach efforts in environmental justice communities through increased workshops in those communities, expanded multilingual outreach, and increased utilization of web resources to make project information more easily available.

- **Timely air quality information provided to public through Real-Time Air Quality Advisory Network (RAAN)** – Launched in 2010, the District's innovative RAAN system uses real-time data from air monitoring stations throughout the Valley to provide hour-by-hour air quality updates to schools and other subscribers. Subscribers can use this information to make informed decisions and plan outdoor activities for times with the best air quality, reducing potential air quality health risks.

- **Air Quality Index (AQI) and Daily Air Quality Forecasting** – an AQI is a color-coded designation for the day that is used as a tool for projecting the forecasted air quality and recommends corresponding activity modifications based on pollution levels.

- **Air Alerts** – Air Alert is a notification that the Valley is currently experiencing conditions that may lead to a federal ozone standard exceedance. When the District calls an Air Alert, Valley residents and businesses are advised to put into place measures that reduce vehicle use to proactively reduce emissions and protect public health.

- **Web-Based Archived Air Quality (WAAQ) System** – The WAAQ System is a revolutionary web application developed by the District to let anyone retrieve historical neighborhood air quality information. A user can provide a specific address or location in the Valley and the system will retrieve various air quality information for that specific neighborhood displayed as a graphical chart. There are also options to compare air quality trends on a year-to-year basis.

- **Tracking and sponsoring of health research** – As part of the District's HRRS, the District is playing an active role in funding leading edge health research focusing on the Valley population. In 2010–2011, the District sponsored the first major epidemiological investigation of health effects of air pollution in the Valley, focusing on the populations of Modesto, Fresno, and Bakersfield. The study

found that daily exposure to high PM2.5 concentrations was significantly correlated with increased daily hospital and emergency room admission rates for asthma and other respiratory and cardiovascular diseases. In 2012, the District sponsored a follow-up epidemiological study to examine which of the chemical species found in Valley PM2.5 are most highly correlated with elevated ER and hospital admission rates. Results are expected to be published in the near future. In 2010, the District sponsored a pilot study of PM 0.1 (ultrafine particles) in Fresno. UCSF-Fresno investigated the quantity and spatial distribution of PM 0.1 plumes from motor vehicles, lawn care equipment, wood burning, and restaurants. Currently the District is funding a UC Davis research project to develop a model of PM0.1 population exposure in the Valley based on previous Valley observational research. PM0.1 exposure will be correlated with short- and long-term health effects by making use of the large body of Valley epidemiological data that has been generated by the previous studies described above. The District will continue to seek out and fund research opportunities that further the understanding of PM-related impacts on public health.

Building on the above strategies, this *2016 Ozone Plan* will continue to identify and prioritize control measures with the most benefit to public health. This public health-centered strategy will include the prioritization of stationary and area source control measures, mobile source control measures, incentive programs, public outreach, and other innovative strategies.

5.7 INCENTIVES

Incentive programs have become a crucial component of the District's overall strategy for achieving the emissions reductions necessary to bring the Valley into attainment. The District operates one of the largest and most well-respected voluntary incentive programs in California. Through strong advocacy at the state and federal levels, the District has appropriated $136 million in incentive funding in the 2015-2016 District Budget.[2] Since the District's inception in 1992, considerable funding has been expended in support of clean-air projects in the Valley and achieved significant emissions reductions with corresponding air quality and health benefits. The District typically requires match funding of 30% to 70% from grant recipients. To date, grant recipients have provided $653,243,285 in matching funds, with a combined District and grant recipient funding investment of more than $1.4 billion.

[2] SJVAPCD. Recommended Budget 2015-2016. p.68. (2015, May 21) Retrieved from http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2015/May/BudgetHearing/final/03.pdf

Table 5-6 Summary of Grant Expenditures and Results[3]

District Incentive Funding ($)	Grant Recipient Match Funding ($)	Emissions Reductions (tons)	Cost-Effectiveness ($/ton)
$751,520,858	$653,243,285	136,177	$5,519

Over the past 15 years, the incentive programs have been used to purchase, replace, or retrofit thousands of pieces of equipment.

In addition to funding the existing core incentive programs that have traditionally achieved highly cost-effective emissions reductions, the District continues to evaluate additional potential opportunities to expand the portfolio of programs available. As new funding sources and opportunities are identified, the District will continue to look for additional incentive programs and expansions to existing programs. See Appendix E for complete details on the District's emissions reductions incentives program.

5.8 LEGISLATIVE PLATFORM

Each year the District Governing Board adopts a legislative platform to guide District advocacy and policy efforts. Through state and federal lobbying efforts and delegation visits to Washington D.C., the District informs elected officials about Valley needs and concerns based on the priorities established in the legislative platform. With persistence, the District has secured support and additional incentive funding for programs critical to emissions reductions in the Valley. For complete details of the District's 2016 legislative priorities and general legislative priorities, please refer to Appendix G.

5.9 EDUCATION AND PUBLIC OUTREACH

The District's mission to protect public health by improving air quality in the Valley relies on the public's awareness and understanding of the District's air-quality improvement programs. The Valley cannot meet these public health goals on the back of businesses alone. Valley businesses are subject to some of the most stringent air quality regulations in the nation. As Valley businesses continue to be subject to additional rounds of prohibitory regulations, the role of the public becomes increasingly important in reaching federal standards.

Emissions from public behavior such as driving, residential wood burning and lawn-care maintenance continue to be a key factor in the Valley's emissions inventory. Consequently, public acceptance of concepts such as alternative commute options, as well as specific clean-air strategies, such as Check Before You Burn, the Air Alert program and Healthy Air Living (HAL), requires widespread lifestyle changes. To that end, the District Governing Board has placed a high priority on conducting an active and effective public education and outreach program.

[3] As of January 1, 2016.

The District's comprehensive public education and outreach program is composed of numerous elements that are designed to allow the District to leverage opportunities to advance the District's multiple strategic objectives, such as:

- Encourage and enlist the general public to do their part to reduce air pollution
- Empower and inform the public to protect themselves during episodes of poor air quality by providing them timely air quality information as well as scientific and comprehendible information on the health effects of air pollution
- Provide accurate and objective information about Valley efforts to reduce air pollution, measurable results and achievements, and challenges that remain.

For more information about the District's public education and outreach efforts, please refer to Appendix G.

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