

# Chapter 3

## Control Strategy

*2013 Plan for the Revoked 1-Hour Ozone Standard*  
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## CHAPTER 3: CONTROL STRATEGY

The San Joaquin Valley Unified Air Pollution Control District's (District) strategy for attaining the revoked 1979 1-hour ozone standard includes adopted strategies from previous District plans (*2007 Ozone Plan*, *2008 PM<sub>2.5</sub> Plan*, *2012 PM<sub>2.5</sub> Plan*) and strategies implemented by the California Air Resources Board (ARB). The District strategy is a multi-faceted approach that uses a combination of conventional and innovative control strategies. This comprehensive strategy includes regulatory actions; incentive programs; technology advancement programs; policy and legislative activities; public outreach, participation, and communication; and other innovative strategies.

Per Sections 182(b)(2) and 182(f) of the federal Clean Air Act, ozone nonattainment areas are required to implement reasonably available control technology (RACT) for sources that are subject to control techniques guidelines (CTG) issued by EPA and for major sources of volatile organic compounds (VOCs) and oxides of nitrogen (NO<sub>x</sub>), which are ozone precursors. EPA defines RACT as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility."<sup>1</sup>

In response to the District's *2009 RACT Demonstration for Ozone State Implementation Plans (2009 RACT SIP)* and related rule amending projects, EPA has issued federal actions documenting its approval of District rules and its concurrence that District rules are at least as stringent as RACT levels. In fact, these efforts show that many District rules are more stringent than established RACT standards. The continued RACT status of District rules was confirmed recently by the extensive analysis performed under the District's *2012 PM<sub>2.5</sub> Plan*, which is discussed in Appendix C of this plan and summarized throughout this chapter. In the rare instances where additional opportunities to reduce ozone precursor emissions were identified, the District made commitments for rule amendments (see Table 3-3). Additionally, the District's next ozone attainment plan to address the 2008 8-hour ozone standard will build on the foundation established by this and previous plans.

### 3.1 COMPREHENSIVE REGULATORY CONTROL STRATEGY

Air quality improvements in the San Joaquin Valley Air Basin (Valley) document the success of the District's innovative and effective rules. Previously adopted *2007 Ozone Plan* and the *2008 PM<sub>2.5</sub> Plan* regulatory control measures are achieving 247.8 tons per day (tpd) of NO<sub>x</sub> emission reductions; these measures include both stationary and area source control measures as well as ARB rules for mobile sources.

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. States and the federal government—but not

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<sup>1</sup> 44 FR 53762 (September 17, 1979).

regional agencies like the District—can directly regulate tailpipe emissions from mobile sources. ARB has adopted tough regulations for heavy-duty trucks, off-road equipment, and other mobile sources. However, the District has also 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.

### 3.1.1 Current Regulatory Control Strategy

The District and ARB have implemented a comprehensive regulatory control strategy over the past couple of decades. Since 1992, the District has adopted over 500 new 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. These and other District and ARB rules already guarantee that emissions will continue to be reduced.

#### 3.1.1.1 District Regulations Contributing to Continued Ozone Reductions

The District’s current rules and regulations reflect technologies and methods that are far beyond minimum required control levels. In December 2010, ARB determined, based on the District’s State Implementation Plans (SIP) and the evaluation of control feasibility in all rulemaking actions, that the District has undertaken *all feasible measures* to reduce nonattainment air pollutants from sources within the District’s jurisdiction and regulatory control.<sup>2</sup> This determination considered all air pollution controls and standards applicable to all source categories under the District’s authority based on maximum reductions achievable as well as technological, social, environmental, energy and economic factors, including cost-effectiveness.<sup>3</sup>

The aggressive regulations already adopted under previous attainment plans also serve as control measures for this plan. EPA prefers reliance on control measures that have already been adopted over ones that have yet to be approved, and 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.

The following table identifies many of the adopted District rules achieving new emissions reductions after 2007, the base year for this plan. However, even pre-2007 emissions reductions are contributing and will continue to contribute to the Valley’s progress toward attainment.

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<sup>2</sup> California Air Resources Board [ARB]. (2010, December 10), ARB Executive Order G-10-126, required under California Health and Safety Code §40612.

<sup>3</sup> California Administrative Code, Title 17 §70600(a)(1). (2012)

Table 3-1 Adopted District Rules

<i>Adopted District Regulatory Control Measures</i>	<i>Date Adopted or Last Amended</i>
<b>Rule 4103</b> Open Burning	04/15/2010
<b>Rule 4106</b> Prescribed Burning and Hazard Reduction Burning	01/21/2001
<b>Rule 4307</b> Boilers, Steam Generators, and Process Heaters 2 to 5 MMBtu/hr	05/19/2011
<b>Rule 4308</b> Boilers, Steam Generators, and Process Heaters 0.075 to <2 MMBtu/hr	12/17/2009
<b>Rule 4309</b> Dryers, Dehydrators, and Ovens	12/15/2005
<b>Rule 4311</b> Flares	06/18/2009
<b>Rules 4306 &amp; 4320</b> Boilers, Steam Generators, and Process Heaters >5 MMBtu/hr	10/16/2008
<b>Rule 4352</b> Solid Fuel Fired Boilers, Steam Generators and Process Heaters	12/15/2011
<b>Rule 4354</b> Glass Melting Furnaces	05/19/2011
<b>Rule 4565</b> Biosolids, Animal Manure, and Poultry Litter Operations	03/15/2007
<b>Rule 4566</b> Organic Material Composting Operations	08/18/2011
<b>Rule 4570</b> Confined Animal Facilities	10/21/2010
<b>Rule 4601</b> Architectural Coatings	12/17/2009
<b>Rule 4603</b> Surface Coating of Metal Parts and Products, Plastic Parts and Products, and Pleasure Crafts	09/20/2007
<b>Rule 4604</b> Can and Coil Coating Operations	09/20/2007
<b>Rule 4605</b> Aerospace Assembly and Component Coating Operations	09/20/2007
<b>Rule 4606</b> Wood Products and Flat Wood Paneling Products	09/20/2007
<b>Rule 4607</b> Graphic Arts and Paper, Film, Foil, and Fabric Coatings	12/18/2008
<b>Rule 4612</b> Motor Vehicle and Mobile Equipment Coating Operations	09/20/2007
<b>Rule 4621</b> Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants	12/20/2007
<b>Rule 4622</b> Gasoline Transfer into Motor Vehicle Fuel Tanks	12/20/2007
<b>Rule 4624</b> Transfer of Organic Liquid	12/20/2007
<b>Rule 4653</b> Adhesives and Sealants	09/16/2010
<b>Rule 4661</b> Organic Solvents	09/20/2007
<b>Rule 4662</b> Organic Solvent Degreasing Operations	09/20/2007
<b>Rule 4663</b> Organic Solvent Cleaning, Storage, and Disposal	09/20/2007
<b>Rule 4682</b> Polystyrene, Polyethylene, and Polypropylene Products Manufacturing	09/20/2007
<b>Rule 4684</b> Polyester Resin Operations	09/20/2007
<b>Rule 4692</b> Commercial Charbroiling	09/17/2009
<b>Rule 4694</b> Wine Fermentation and Storage Tanks	12/15/2005
<b>Rule 4695</b> Brandy Aging and Wine Aging Operations	09/17/2009

<b>Adopted District Regulatory Control Measures</b>	<b>Date Adopted or Last Amended</b>
<b>Rule 4702</b> Internal Combustion Engines	08/18/2011
<b>Rule 4703</b> Stationary Gas Turbines	09/20/2007
<b>Rule 4902</b> Residential Water Heaters	03/19/2009
<b>Rule 4905</b> Natural Gas-Fired, Fan-Type Residential Central Furnaces	10/20/2005
<b>Rule 9310</b> School Bus Fleets	09/21/2006
<b>Rule 9410</b> Employer-based Trip Reduction	12/17/2009
<b>Rule 9510</b> Indirect Source Review	12/12/2005
<b>Rule 9610</b> State Implementation Plan Credit for Emission Reductions Generated Through Incentive Programs	06/20/2013

### **3.1.1.2 ARB Regulations Contributing to Attainment**

Since 1989, ARB has adopted and amended a number of regulations aimed at reducing exposure to diesel particulate matter (PM) and NO<sub>x</sub> 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 3-2 includes a list of all the regulations adopted or amended by ARB from 2000 through 2011. 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 be achieving significant emissions reductions critically needed to attain the ozone standard under this plan.

**Table 3-2 Adopted ARB Regulations**

<b>ARB Regulation</b>	<b>Adoption Date</b>	<b>Category</b>
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
Consumer Products Regulation	11/18/2010	Consumer Products
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

ARB Regulation	Adoption Date	Category
Clean Up Existing Harbor Craft	11/15/2007	Other
Aftermarket Catalyst Requirements	10/25/2007	Stationary
Voluntary Accelerated Retirement Regulation	12/07/2006	On-road
Vapor Recovery from Above-Ground Storage Tanks	6/21/2007	Stationary
Phase 3 Reformulated Gasoline Amendments	6/14/2007	Stationary
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
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 Stern-drive 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

ARB Regulation	Adoption Date	Category
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
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
Architectural Coatings	6/22/2000	Stationary

ARB Regulation	Adoption Date	Category
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
Transit Bus Standards	02/24/2000	On-road
Off-Road Compression-Ignition Engines	01/27/2000	Off-road

Some of the most significant regulations adopted by ARB in recent years, such as the Truck and Bus Regulation and the Off-Road Regulation, depend on truck and equipment owners playing a key role in implementation. Accordingly, ARB's approach to ensuring compliance is based on a comprehensive outreach and education effort. ARB staff develops regulatory assistance tools, conducts and coordinates compliance assistance and outreach activities, administers incentive programs, and actively enforces the entire suite of diesel regulations. ARB's goal is to provide readily accessible and clear information for all diesel rules and incentive programs. ARB compliance assistance and outreach activities also include the following:

- Training and implementation classes conducted by ARB staff in classroom settings throughout the State, including at community colleges
- Participation at business events throughout California, giving presentations, displaying materials, providing handouts, and responding to questions
- Marketing efforts such as advertisements, press releases, a television presence, and radio spots, including public service announcements statewide
- Websites for ARB's multiple programs

Complementing these efforts, ARB and District enforcement actively provide a level playing field for the regulated entities and ensure the emission reduction benefits are achieved.

### 3.1.2 Evaluation of Potential Future Regulatory Control Strategies

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.
- **Reasonably Available Control Technology (RACT).** RACT is the lowest reasonable emissions limit that a particular source is capable of meeting, considering technological and economic feasibility of the technology. RACT changes over time as new technologies become feasible and cost-effective, thus making them reasonable to require. The District has conducted comprehensive reviews of all NOx and VOC rules for compliance with federal RACT requirements. For these reviews, the District evaluates all District rules against federal rules, regulations, and technology guidelines, as well as any comparable rules and compliance methods from California's most technologically progressive air districts. In response to the District's *2009 RACT SIP* and related rule amending projects, EPA has issued federal actions documenting their approval of District rules and their concurrence that District rules are at least as stringent as RACT levels. In fact, these efforts show that many District rules are more stringent than established RACT standards.

RACT is, by definition, reasonable. Although air quality attainment plans must include a thorough analysis of reasonably available measures, it need not analyze every conceivable measure; reasonableness must drive the analysis. The District would not require any measure that is absurd, unenforceable, impractical, or socioeconomically disruptive.

### 3.1.3 New Regulatory Control Measure Commitments

The District's thorough evaluation of control measures in the District's *2012 PM2.5 Plan* for potential opportunities to further reduce emissions resulted in numerous commitments for future regulatory actions.

As noted at the beginning of this chapter, the District is using a multi-faceted emissions control approach to reach beyond traditional regulations. For various reasons, some control measure opportunities are not appropriate for regulatory commitments at this time. These reasons include limits on the District's regulatory authority, costs, the need for additional information, the need for technology development, and the need to demonstrate the technology in practice. Such opportunities that are better suited for incentive programs, technology demonstration, and other approaches as discussed later in this chapter. These combined efforts expedite emissions reductions and pave the way for future regulatory measures that might be needed under upcoming attainment plans for future EPA air quality standards.

The District committed to five rule projects in the *2012 PM2.5 Plan*, including one new rule and four amendments to existing rules. Two of these commitments will reduce directly emitted PM2.5, and the other three will reduce NOx (the two remaining NOx

rules are shown in Table 3-3 below; the third NOx commitment from the PM2.5 plan has already been adopted).

**Table 3-3 Regulatory Control Measure Commitments**

Rule	Amendment Date	Compliance Date	Emissions Reductions*
<b>Rule 4308</b> Boilers, Steam Generators, and Process Heaters 0.075 to <2 MMBtu/hr	2013	2015	TBD
<b>Rule 4905</b> Natural Gas-Fired, Fan-Type Residential Central Furnaces	2014	2015	TBD
* Based on full implementation and best available information as of this plan. A more thorough evaluation of control techniques and feasibility will be conducted at the time of rule development.			

### 3.1.4 Commitments for Further Study

The District thoroughly reviewed the Valley's current emissions sources and emissions control measures to search for additional control measure opportunities. In some cases, though, additional information is needed regarding the current emissions inventory, the effectiveness of current controls, and the potential of additional controls. Consistent with the commitments in the *2012 PM2.5 Plan*, the District will continue to review these areas as *further study measures*, as summarized in Table 3-4. These analyses can provide the foundation for related control measure commitments in future attainment plans.

Some of the measures included in Table 3-4 are measures related to VOC emissions reductions. Historically, the Valley has been required to demonstrate RACT for VOC sources, although research and modeling has consistently demonstrated that the Valley is a NOx-limited area, and reducing NOx emissions continues to be the most effective strategy for reducing Valley ozone concentrations (much more effective than reducing VOC emissions). However, in EPA's proposed implementation rule for the 2008 8-hour ozone standard<sup>4</sup>, EPA proposed to consider any lack of air quality benefit of further VOC controls as part of a region's RACT demonstration. If EPA confirms this approach in the final implementation rule, the District would consider the relative air quality benefit of further VOC controls as part of any further study measure evaluating an opportunity to reduce VOC emissions.

<sup>4</sup> Implementation of the 2008 NAAQS for Ozone: State Implementation Plan Requirements (Proposed Rule). 78 Fed. Reg. 109, pp 34178-34239 at p. 34193. (2013, June 6). Retrieved from <http://www.gpo.gov/fdsys/pkg/FR-2013-06-06/pdf/2013-13233.pdf>

**Table 3-4 Further Study Measures**

Control Measure	Description	Completion Date
<b>Rule 4103</b> Open Burning	Evaluate the feasibility of postponed burning activities every 5 years, as outlined in the current rule.	2015
<b>Rule 4106</b> Prescribed Burning	Examine the feasibility of implementing a biomass removal program similar to one in Placer County.	2013
<b>Rule 4311</b> Flares	Review of flare minimization plans and annual reports for further emission reduction opportunities.	2013
<b>Rule 4601</b> Architectural Coatings	Further evaluate potential opportunities for future emission reductions during the development of the next ozone plan.	2014
<b>Rule 4624</b> Transfer of Organic Liquids	Evaluate the technological feasibility of lowering the VOC limit to be as stringent as BAAQMD Regulation 8 Rule 33 and BACT limits during the development of the next ozone plan.	2014
<b>Rule 4693</b> Bakery Ovens	Evaluate the feasibility and potential for emission reductions from implementing a 30 ppmv @3% O <sub>2</sub> NO <sub>x</sub> emission limit during the development of the next ozone plan.	2014
Lawn Care Equipment	Evaluate emissions inventory and technology demonstration efforts to identify potential emission reduction opportunities.	2013
Asphalt and Concrete Operations	Examine feasibility of warm-mix asphalt as a potential emission reduction opportunity.	2013
Ongoing Study and Research	Conduct and support ongoing research that continues to enhance the District's understanding of ozone concentrations and formation, including further health research.	Ongoing

**Rule 4103 Open Burning**

The District evaluated the *2010 Final Staff Report and Recommendations on Agricultural Burning* in May 2012 and found there were no significant changes in the economic feasibility of various alternatives to agricultural burning. Annually, the District evaluates each crop category still allowed to burn and determines a cost threshold based on the economic feasibility of alternatives to burning. The District carefully manages the agricultural burning under its Smoke Management System to ensure that burning is only allowed on days when the amount burned would not cause or contribute to an exceedance of any air quality standard, and to ensure that there are no cost-effective alternatives available. The District will continue to consider the economic feasibility of burning alternatives on a case-by-case basis and continue with the five-year evaluation period outlined in Rule 4103.

**Rule 4106 Prescribed Burning**

Placer County Air Pollution Control District has implemented a successful program for reducing emissions from hazard reduction burning by removing biomass from the area and sending it for combustion at a biomass plant. The District has considered the feasibility of implementing a similar program in the Valley; however, the unique Valley

geography presents several challenges in implementing a comparable program. Such challenges and the on-going success of the Placer County program need to be evaluated before determining whether a biomass removal program could be implemented successfully and whether it would result in cost-effective emissions reductions for the Valley. The District commits to further evaluating these challenges and the potential for such a program in the future.

#### **Rule 4311 Flares**

Effective July 1, 2012, facilities subject to the flare minimization plans (FMPs) provision in Rule 4311 are required to submit annual reports to the District with *reportable flaring event* and *annual monitoring report* data. District Rule 4311 is one of the most stringent rules in the nation for flaring operations, and limits within the rule are as stringent as established RACT requirements. The District has analyzed Santa Barbara APCD Rule 359, and has found while it appears to include a performance standard restricting the use of flaring, it actually allows flaring under broad conditions, and the District's rule is at least as stringent, as further supported by EPA analysis and approval of rule requirements as satisfying RACT requirements.

Pursuant to a commitment in the District's *2012 PM<sub>2.5</sub> Plan* the District has begun the further study process for flares; immediate opportunities for further reducing emissions from these sources has not been identified as of yet. However, staff continues to research the annual reports and FMPs because information in these annual reports could potentially provide insight for further emissions reduction opportunities for this source category. Given the time necessary to thoroughly analyze the FMPs, reportable flaring event reports, and annual monitoring reports, the District commits to analyzing these documents by the end of 2013. Additionally, because flares are a relatively small source of ozone precursor emissions, attempting to expedite this further study would not affect the Valley's projected 1-hour ozone attainment year.

#### **Rule 4601 Architectural Coatings**

In the control measure evaluation of Rule 4601, the District did not identify any feasible emission reduction opportunities for sources subject to this rule at this time. The South Coast Air Quality Management District (SCAQMD) amended their architectural coatings rule (Rule 1113) in June 2011 and implemented some VOC emission limits that are more stringent than established RACT requirements. Rule 4601 satisfies RACT requirements. The District commits to further evaluate potential opportunities for future reductions as adopted in the SCAQMD rule during the development of the next ozone plan.

#### **Rule 4624 Transfer of Organic Liquids**

District Rule 4624 implements RACT level requirements on facilities subject to the rule. However, Bay Area Air Quality Management District (BAAQMD) Regulation 8 Rule 33 (Gasoline Bulk Terminals and Gasoline Cargo Tanks) has a VOC limit beyond RACT of 0.04 lb VOC/1,000 gallons. Additionally, BAAQMD BACT and SCAQMD BACT requirements have some limits more stringent than those in Rule 4624. Research of the District's permit database indicates that most Valley facilities are not currently permitted

at the more stringent BACT limits and BAAQMD Regulation 8 Rule 33 limits. Therefore, there may be a potential opportunity for emission reductions if it is ultimately determined that these limits are technologically feasible and cost effective as retrofits to existing facilities. The District will evaluate these limits further during the development of the next ozone plan.

#### **Rule 4693 Bakery Ovens**

The District identified a potential opportunity to reduce emissions from units subject to Rule 4693 by implementing BACT requirements. The District's BACT requirements, while beyond RACT, limit NO<sub>x</sub> emissions from these units to 30 ppmv @ 3% O<sub>2</sub>. This standard can be achieved by using low-NO<sub>x</sub> burners. However, further study is needed to determine if low-NO<sub>x</sub> burners are cost-effective and technologically feasible retrofits for all facilities. The District commits to further evaluate this potential opportunity during the development of the next ozone plan.

#### **SC 001 Lawn Care Equipment**

The District's Governing Board approved funding for District-sponsored research to quantify Valley-specific lawn care activity levels through public survey. The survey results will allow review and improvement of the emissions inventory for this source category.

The District is also demonstrating zero-emission lawn-care equipment technology through the recent launch of the Zero-Emission Commercial Lawn and Garden Equipment Demonstration Program. This program is funded with State Air Quality Improvement Program funds and will provide eligible cordless, zero-emission commercial lawn and garden equipment to commercial landscape professionals who conduct business within the Valley. The District will continue its work with commercial operators to address the concerns with commercial viability through the implementation of this program. Based on findings and feedback from program participants, the District commits to developing more incentive program options for commercial operators to help deploy zero-emissions lawn and garden technologies.

#### **SC 005 Asphalt and Concrete Operations**

Warm-mix asphalt shows promise for reducing emissions associated with the production of asphalt for paving projects, when compared to hot-mix asphalt, because lower temperatures result in lower levels of criteria pollutant emissions. The cost, unfamiliarity with potential implementation issues, and uncertainty in the exact percentages of potential emissions reductions are potential barriers to the technology's use in the Valley. District staff commits to further evaluate the cost, effectiveness, and feasibility of this technology for Valley sources in the future.

## 3.2 INCENTIVES

Incentive programs are an integral part of the District's emissions reduction effort. These programs provide an effective way to accelerate emissions reductions and encourage technology advancements, particularly in the mobile source sector, a sector not directly under the District's regulatory jurisdiction. Given that 80% of the Valley's NO<sub>x</sub> emissions come from mobile sources, these successful voluntary incentive grant programs help the Valley achieve highly cost-effective emissions reductions that are surplus of the reductions required by regulations.

The District operates one of the largest and most well-respected voluntary incentive programs in the state. Through strong advocacy at the state and federal levels, the District has increased its incentive funding levels over the past five years to a proposed incentive program appropriation of \$121.6 million in the 2013–2014 District Budget. Since the District's inception in 1992, considerable funding has been expended in support of clean-air projects in the Valley. These projects have 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, the District has provided over \$500,000,000 in incentive funding and grant recipients have provided over \$400,000,000 in matching funds.

Over the past 10 years (01/01/2002 through 12/11/2012), the District has provided incentive funding to purchase, replace, or retrofit thousands of pieces of equipment, including the following:

- 4,456 agricultural irrigation pump engines
- 928 agricultural tractor replacement
- 903 off road repower projects
- 37 locomotives
- 339 alternative fuel light duty
- 14 bicycle infrastructure
- 697 car crushing (PASS)
- 153 car crushing (Tune-In Tune-Up)
- 2,537 commuter subsidies
- 2,723 fireplace
- 3,186 heavy duty trucks
- 3,567 lawnmower replacements
- 435 school bus replacements
- 1,889 school bus retrofits

The District's incentive programs generate reductions that are SIP-creditable, and serve as a model for other agencies throughout the state. Recent audits noted the District's efficient and effective use of incentive grant funds in reducing air pollution. The District has collaborated with EPA, ARB, and the California Natural Resource Conservation Service (NRCS) to establish criteria for quantifying incentive program emissions reductions for use in the SIP through new District Rule 9610 (State Implementation Plan

Credit for Emission Reductions Generated through Incentive Programs). Adopted in 2013, District Rule 9610 provides a mechanism for the District to claim credit in state implementation plans for SIP-creditable incentive-based emission reductions achieved in the Valley through incentive programs administered by ARB, NRCS, and the District.

### 3.2.1 EPA Section 185 Fees

In December 2011, the EPA took action against three California air districts for their failure to attain the 1-hour ozone standard. Even though EPA revoked the standard in 2005, to comply with anti-backsliding requirements of the CAA, air districts that did not meet the standard prior to the revocation were still required to work toward attainment of the standard; this includes the District. The District's nonattainment of 1-hour ozone standard past the 2010 attainment year caused EPA to impart the failure-to-attain determination, which in turn imposed certain penalty fees to satisfy requirements of Section 185 of the CAA.

In anticipation of such action, in October 2010, the District proposed and was approved for an innovative alternative to outright payment of the penalty fees to EPA. In lieu of imposing nonattainment penalties strictly on Valley business and stationary sources that have already invested billions into clean air technologies, the District, as authorized by California Health and Safety Code Section 40610 through 40613, increased the motor vehicle fees established under Sections 44223 and 44225. Imposition of the fee increase on all motor vehicles in the Valley provides an equitable distribution of responsibility to mobile sources; thus, not diminishing the enormous expenditure and sacrifice that Valley businesses have made to significantly reduce emissions Valley wide. Through District collection of the necessary Section 185 fees, the Valley is assured that all monies collected from the increased motor vehicle fees will be spent on emissions reductions activities within the Valley.

Collection of the additional motor vehicles fees was established through Assembly Bill 2522 (AB 2522). To date, these fees are supporting existing District incentive programs, either by adding functionality or increasing participation, and will be used to fund District programs in development. AB 2522 funds are fully or partially funding the following District programs:

- Public Benefit Grant Program (public agencies)
  - Light-duty vehicle program
  - Alternative-fuel infrastructure
  - Advanced transit and transportation
- Drive Clean! Rebate Program (light-duty vehicle incentives)
- Tune-In Tune-Up Program
- Heavy-Duty Engine Program
  - Agriculture equipment replacement
  - Refuse truck replacement (in development)
  - Small Business Truck Voucher Program

### 3.2.2 Current District incentives programs

The District offers numerous incentives programs to reduce emissions from a variety of equipment types such as heavy-duty engines, school buses, and lawn and garden equipment. The District places particular emphasis on providing incentives to environmental justice communities. To date, the District has awarded over \$500 million in incentive funding resulting in over 100,000 tons of lifetime emissions reductions. The District will continue to expand on the success of its current programs and craft new incentive programs for additional emissions reductions from Valley sources. The following summarizes incentive programs the District currently implements:

#### 3.2.2.1 Heavy-Duty Trucks

The District has administered numerous incentive programs targeted at on-road heavy-duty trucks, one of the biggest sources of NO<sub>x</sub> emissions in the Valley. Through the State's Proposition 1B Goods Movement Emission Reduction Program, Carl Moyer Voucher Incentive Program (VIP), and other District-operated voucher incentive programs funded by grants from EPA and locally generated incentive funds, the District has replaced hundreds of older, high-polluting trucks with cleaner trucks certified to meet the latest ARB emissions standards.

The District's truck voucher programs have been designed to provide an alternative source of incentive funding for small businesses that do not qualify for funding under the Proposition 1B Program. The District contracts with Valley dealerships and makes the review and approval process efficient and streamlined to provide vouchers to truck operators.

#### 3.2.2.2 Agricultural Pumping Engines

The District provides grant funding in amounts up to 85% of the cost of low-emission Tier 4 engines or zero-emission electric motors to farmers looking to replace older, dirtier diesel engines. This program not only provides for significant emissions reductions from agricultural operations, but provides economic relief to Valley farmers, ranchers, and dairy operators. Eligible projects are funded with local, state, and federal sources, including but not limited to District Indirect Source Review (ISR) mitigation fees, Carl Moyer Program funding, AB 923 funding, federal designated funding, and federal Diesel Air Shed Grant funding. In the past, collaboration with the California Public Utilities Commission and local utilities has allowed for additional incentives on electric line extensions and special rate schedules, enhancing participation in the District's replacement program.

Over the past ten years, the District has funded the replacement of over 4,584 agricultural pump engines, with more projects currently in the queue. Over 2,000 of these replacements involved replacing older diesel engines with electric motors. The District has seen an increased demand for emissions-compliant diesel-engine repowers to electric motors in recent years. This option is ideal for both parties, since the District achieves the maximum emissions reductions with electric motor repowers and farmers lower their operating costs by switching to electricity, a more affordable fuel source.

### **3.2.2.3 Agricultural Equipment**

Off-road agricultural equipment replacements and repowers play a crucial role in reducing emissions. These equipment units include, but are not limited to, tractors, backhoes, wheel loaders, and other off-road farming vehicles. Eligible projects are funded with local, state, and federal sources, including but not limited to ISR, Carl Moyer funding, AB923 funding, federal designated funding, and federal Diesel Air-Shed Grant funding.

The District has funded the repower or replacement of over 1,017 off-road agricultural vehicles, with more projects currently in the queue. The District estimates that a large inventory of vehicles that qualify for repower or replacement still exists, and the program has the potential for significant and very cost-effective emissions reductions. Whether a farmer wishes to repower the current equipment with a cleaner engine or replace the equipment altogether, this program allows the District to achieve surplus emissions reductions while also facilitating the early equipment retirement and fleet turnover, both of which result in more efficient farming operations with less overall hours of operation.

An important component of the District's incentive efforts in this category has been its collaboration with the NRCS to replace agricultural tractors. Over the course of this collaborative tractor replacement program, the District has obligated \$21.4 million in incentive funds, NRCS has obligated \$72.2 million, and this has leveraged \$89.9 million in applicant cost share for new tractors. This \$183 million investment by the District, NRCS, and Valley farmers has resulted in significant emissions reductions, and work is underway with EPA to ensure the reductions from this investment can be credited to the SIP.

### **3.2.2.4 Locomotives**

The emissions from goods movement are a significant source of diesel particulate matter (PM) in the Valley and the state. The locomotive component of the Heavy-Duty Engine Program awards up to 85% grant funding for newer, cleaner diesel locomotive engines and locomotive replacements. Eligible projects are funded with local, state, and federal sources, including but not limited to the Carl Moyer Program, federal Diesel Air Shed Grant funding, and DERA funding. One of the major benefits to the locomotive repower and replacement program is increased efficiency and longevity and reduction of unnecessary emissions.

### **3.2.2.5 Forklifts**

The District funds the replacement and retrofit of forklifts through its Large Spark-Ignited (LSI) Forklift Retrofit program and its Electric Forklift New-Purchase program. Because emission standards for new engines in this source category have only been in effect for the past few years, a significant number of high-emitting units are still in operation and available for retrofit. Operators can meet the proposed in-use fleet-average emission standards by purchasing low- and zero-emission equipment and by retrofitting uncontrolled equipment in their fleets. The use of new controlled engines and the retrofit of existing engines can reduce fuel use and improve engine life. Eligible projects

are funded with federal, state, and local sources, including Carl Moyer Program funds, and motor vehicle surcharge fees.

The District has funded 17 forklift projects. The installation of a LSI retrofit system will improve engine operation and reduce fuel use. Closed-loop fuel systems generally improve the engine's overall efficiency. There is an estimated 10% to 20% reduction in fuel consumption with engines using closed-loop systems. An electric forklift has an obvious advantage as an emission-free vehicle, but can typically cost \$1,500 to \$5,000 more than a comparable LSI forklift. However, since an electric forklift has a longer useful life and reduced fuel and maintenance costs, the electric forklift can reduce life-cycle costs compared to a LSI forklift.

### **3.2.2.6 School Bus Replacement and Retrofit**

School bus replacements and retrofits play a vital role in reducing school children's exposure to both cancer-causing and smog-forming pollution. The School Bus Replacement and Retrofit programs provide grant funding for new, safer school buses and air pollution control equipment (retrofit devices) on 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).

The District has provided funding to retrofit 1,879 school buses and replace 432 school buses. New buses purchased to replace older buses may be fueled with diesel or an alternative fuel, such as compressed natural gas (CNG), provided that the required emissions standards specified in the current guidelines for the Lower-Emission School Bus Program are met. Funds are also available for replacing on-board CNG tanks on older school buses and for updating deteriorating natural gas fueling infrastructure. Commercially available hybrid-electric school buses may be eligible for partial funding.

### **3.2.2.7 Alternative Fuel Infrastructure**

The District has undertaken a variety of efforts to support alternative fuel infrastructure. The District currently has an open solicitation under the Public Benefit Grants Program for Alternative Fuel Infrastructure projects. \$5 million has been allocated for this solicitation for projects that construct new infrastructure or expand existing infrastructure that provide alternative fuels such as compressed natural gas (CNG), liquefied natural gas (LNG), a combination of both, large-scale electricity for transit vehicles, or other alternative fuels such as propane.

The District has also received two Plug-in Electric Vehicle (PEV) Readiness grants, one from the Department of Energy (DOE) and the other from the California Energy Commission (CEC), to help prepare the Valley for PEVs. The DOE grant (\$75,000) was a statewide project, in which the District collaborated with other regions around the state to review and document best practices to be electric vehicle ready. The CEC grant (\$200,000 from CEC, with \$50,000 in-kind match provided by the District) built upon the DOE grant by looking at the Valley's challenges to PEV adoption on a more detailed

level. The District created the San Joaquin Valley Plug-in Electric Vehicle Coordinating Council (SJV PEVCC), comprised of representatives from industry, local government, utility companies, etc., as required by the grant to help the District appropriately address the challenges unique to our area. The final deliverable for this project is a comprehensive Readiness Plan (includes best practices info, templates, etc.) that can be used as a tool by local municipalities to help get more electric vehicles on the road and infrastructure in place. The District expects to present this plan to the Governing Board in early 2014.

The District currently offers incentive funding for Alternative Fuel Mechanic Training, up to \$15,000 per year, to help owners and operators of alternative fuel programs train their personnel in subjects such as the safe operation, maintenance, etc. of infrastructure and vehicles.

The District is an executive committee member of the San Joaquin Valley Clean Cities Coalition, which actively promotes alternative fuel technology and infrastructure. The District is also a member of an Action Team coordinated by the Fresno State Office of Community and Economic Development with the purpose of “advancing and supporting industry-specific partnerships and career pathways throughout the eight-county San Joaquin Valley in alternative motor vehicles and fuels.” The District is currently exploring additional opportunities for regional planning to evaluate barriers to the wider deployment of alternative fuel infrastructure, and develop strategies.

### **3.2.2.8 Community Incentives**

The District currently operates several incentive programs designed to give the general public the opportunity to contribute to the goal of cleaner air for all Valley residents. The District’s community incentives include a wide range of project types and source categories. Current community incentive programs include the following:

- **Burn Cleaner Program** – The Burn Cleaner Program helps Valley residents upgrade their current wood-burning devices and open hearth fireplaces to natural gas, propane gas, or clean-pellet devices. The District offers a financial incentive to any interested resident and an additional incentive to low-income residents through a streamlined voucher program that involves partnering with interested retailers. The program has upgraded over 2,300 wood-burning devices, and continues to receive a steady stream of applicants.
- **Polluting Automobile Scrap and Salvage (PASS)** – The PASS program offers a cash incentive for participants who have retired their older vehicle; a voucher toward the replacement of an older high-emitting vehicle with a newer cleaner vehicle; or a voucher for emissions-related repairs to high-emitting vehicles. The program has replaced 202 high-emitting vehicles with newer, cleaner vehicles, retired 504 additional vehicles through a cash incentive. Additionally, the District’s award-winning “Tune-In Tune-Up” program has screened nearly 5,000 vehicles for high emissions, and provided nearly 3,000 vouchers for emissions-related repairs. The program has been operated with locally generated incentive funds and will continue

to retire and replace vehicles with funding provided by the State's Enhanced Fleet Modernization Program. Vehicle repairs were conducted with grant funding from the Reformulated Gasoline Settlement Fund created as a result of an antitrust class action, and it will continue to be funded using locally generated incentive funds.

- **Clean-Green-Yard-Machine (CGYM)** – The CGYM program helps clean the Valley's air through incentives for residents to retire their old, gas mowers in favor of nonpolluting, electric mowers. The program has used locally generated incentive funds as well as funding from the State's AQIP. Over the past two years, the program has replaced over 3,500 gas lawn mowers with clean electric models.
- **Drive Clean! Rebate Program** – During the 2011–2012 fiscal year, the District revamped its incentive program structure to encourage Valley residents to drive advanced, clean vehicles, including electric and other alternative-fuel vehicles. In addition to clean-vehicle rebates, the Drive Clean! Program includes incentives that cover a portion of the charging infrastructure cost associated with electric vehicles.
- **Alternatives to Professionally Managed Pyrotechnic Firework Displays** – In 2012, the District provided incentive funding for a pilot program to demonstrate clean laser-light shows as an alternative to pyrotechnics for July 4<sup>th</sup> celebrations.
- **Public Benefit Grants Program** – The Public Benefit Grant Program provides funding to Valley cities, counties, and other public agencies for a variety of clean-air, public-benefit projects. Eligible applicants include cities, counties, special districts (e.g. water districts and irrigation districts), and public educational institutions (e.g. school districts, community colleges, and state universities) located within the Valley.
- **REduce MOtor Vehicle Emissions (REMOVE)** – The REMOVE program provides incentives for specific projects that will reduce the Valley's motor vehicle emissions, including e-mobility (video-telecommunications), bicycle infrastructure, alternative-fuel-vehicle mechanic training, and public transportation and commuter vanpool subsidies. The program allocates funds to cost-effective projects that have the greatest motor vehicle emissions reductions resulting in long-term impacts on air pollution problems in the Valley. All projects must have a direct air quality benefit in the Valley.

### 3.2.3 Potential new incentive programs

The District has successfully launched and expanded incentive programs in the Valley while steadily increasing the scope, accessibility, and efficiency of those programs. The District's incentive programs have been models for other agencies to follow: the State used the District's successful PASS program as a model for its Enhanced Fleet Modernization Program, the SCAQMD implemented the District's augmentation of the State's Hybrid Truck and Bus Voucher Incentive Program (HVIP), and the U.S. Department of Agriculture's NRCS used the District's highly successful agricultural equipment replacement program as the model for their own complementary program. The District's commitment to developing new and innovative incentive programs will continue to serve as a shining example for other agencies nationwide.

In addition to funding the existing core incentive programs that have traditionally achieved highly cost-effective emissions reductions (heavy-duty tractors, trucks, etc.), the District has evaluated some additional 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.

**Table 3-5 Potential New Incentive Programs**

<i>Potential New Incentive Measures</i>	<b>Implementation Date</b>
<b>Ongoing Enhancements.</b> Continue to seek additional funding to implement incentive programs and continue to support existing incentive programs for mobile sources, as appropriate.	Ongoing
<b>Internal Combustion Engines.</b> Consider funding new programs to further promote replacement of remaining agricultural internal combustion engines with electric motors, including but not limited to providing additional incentives for the high cost associated with utility line extensions to remove irrigation pump installations.	Ongoing
<b>Lawn Care.</b> Continue to evaluate commercial lawn care technologies through the Cordless Zero-Emission Commercial Lawn and Garden Equipment Demonstration Program; once new technologies are verified as viable for the Valley, develop on-going incentive programs to encourage use of these new technologies; consider expanding the Clean Green Yard Machine program to include other eligible types of yard-care equipment, including low- or zero-emission equipment.	Ongoing
<b>Energy Efficiency.</b> Continue to foster and incentivize programs, as appropriate, consistent with the District Regional Energy Efficiency Strategy; including but not limited to continued support of the use of state Energy Efficiency and Conservation Block Grant funds, the funding of a pilot program to assess and analyze two manufacturing facilities to determine the potential to operate more efficiently, and funding outreach program showing government and service organizations the benefits of "going green."	Ongoing
<b>Construction Equipment Replacement.</b> Consider providing incentives for construction fleets to replace their heavy-duty off-road equipment sooner than required by the State's In-Use Off-Road Diesel Vehicle Regulation.	Ongoing
<b>Refuse Vehicle Replacement Program.</b> Consider providing incentives for the replacement of older refuse trucks, with a particular emphasis in environmental justice and other vulnerable communities.	Ongoing

### 3.3 TECHNOLOGY ADVANCEMENT

The District Governing Board approved creation of the Technology Advancement Program in March 2010 to accelerate development of technologies that can help reduce air pollutant emissions in the Valley. Meeting EPA's increasingly stringent ozone and PM<sub>2.5</sub> air quality standards requires significant advancements in low-emissions technologies from mobile and stationary sources. The Technology Advancement Program provides a strategic and comprehensive means to identify, solicit, and support technology advancement opportunities. Ongoing refinement of the program's technology focus areas targets efforts to achieve the greatest impact on the Valley's attainment and other health-based goals under the *2012 PM<sub>2.5</sub> Plan*, the *2013 Plan for the Revoked 1-Hour Ozone Standard*, and the District's other attainment plans.

The Valley's air quality challenges are not completely unique to the Valley, nor are they isolated within the boundaries of the air basin. Technology development can benefit regional and state air quality. Strategies for reducing emissions in the Valley can be enhanced through partnerships and collaborations with other air districts and state agencies. The District is currently collaborating with the ARB and the SCAQMD to prepare a document outlining a common vision for attainment of federal air quality standards, common greenhouse gas goals, and reduced exposure to toxics. The market penetration of transformative technologies will be a critical component of realizing a common vision, and the Technology Advancement Program will help to identify and support upcoming technology opportunities.

#### 3.3.1 Technology Focus Areas

The District has structured the 2013 Technology Advancement Program to encourage participation within three focus areas:

**Renewable Energy.** Renewable energy projects are those that overcome barriers to using renewable energy such as remote solar energy/storage, vehicle-to-grid, wind energy, or peak-shaving systems with zero- or near-zero-emissions technologies.

**Waste Solutions.** Waste solutions focus on waste systems or technologies that minimize or eliminate emissions from existing waste management systems and processes, including waste-to-fuel systems, such as dairy digesters and other bio-fuel applications.

**Mobile Sources.** Mobile source projects include, but are not limited to, retrofit technologies for reducing particulate or NO<sub>x</sub> emissions from heavy-duty trucks, zero- or near-zero-emissions goods movement solutions, clean alternative fuels (hydrogen, electric, etc.), vehicle hybridization, and efficiency improvements to on-road or off-road equipment.

Innovative projects that advance alternative fuel infrastructure technologies are a good fit to the program's mobile sources focus area and are actively encouraged to participate in this competitive program. For example, the District's Technology

Advancement Program has awarded funding to projects that advance technologies relevant to alternative fueling infrastructure. Gaseous fuel projects include landfill gas to CNG and digester gas to LNG projects. The program has also funded a project demonstrating dual high-capacity inverter/charger units for rapid charging between shifts allowing electric heavy-duty truck use for full 8-hour shifts in a distribution center setting.

These focus areas represent the current needs of the Valley; they also reflect the types of proposals previously received by the District within this and other programs. The District will continue to evaluate and, if necessary, update these technology focus areas to address to the Valley's air quality challenges.

### **3.3.2 Future demonstration projects**

For fiscal year 2013 – 2014, the District has committed \$6,103,900 of funding for new demonstration projects. In addition to directly funding demonstration projects, the District actively seeks opportunities to collaborate with technology innovators in seeking additional funding. An example of this type of funding is the District's administration of the Zero-Emission Commercial Lawn and Garden Technology Demonstration, funded with State Air Quality Improvement Program funds.

Moving forward, District staff will continue to search for opportunities to support projects that build the air quality technology research and demonstration capacity of colleges and universities in the Valley. This emphasis will improve the ability of local institutions to engage in future clean-technology projects that are specifically suited to the Valley's needs. To accomplish this, staff has adapted the Technology Advancement Program scoring criteria so that projects that incorporate local colleges and universities will score higher in that category than those that do not.

### **3.3.3 Interagency Collaborative Demonstration Projects**

In addition to projects selected through the request-for-proposals process, the District has partnered with other California air quality agencies to demonstrate new and emerging technologies.

#### **3.3.3.1 Zero-Emission Commercial Lawn and Garden Equipment Demonstration – ARB**

The goals of the Cordless Zero-Emission Commercial Lawn and Garden Equipment Demonstration Program (Demonstration Program) were to allow participating commercial landscape professionals (participants) to gain hands-on experience with cordless zero-emission commercial lawn and garden equipment (zero-emission equipment) and to initiate deployment of zero-emission equipment to the commercial sector. The ARB and the District funded \$501,351 for the Demonstration Program, which concluded in June 2013.

The District worked with ARB, participating manufacturers and vendors (Technology Demonstrators), and participants to implement the Demonstration Program. The five

Technology Demonstrators who participated in the Demonstration Program included STIHL, TMC Power Equipment, Mean Green Products, The Greenstation, and EcoCut & Trim. The Technology Demonstrators offered a total of 23 items through the Demonstration Program, which consisted of zero-emission equipment, batteries, chargers, and related accessories. The Demonstration Program had a total of 60 participants with near equal distribution of participation across the San Joaquin Valley in all eight counties and included private landscape businesses and public agencies.

The Demonstration Program allowed the participants to conduct real world, in-use testing of zero-emission equipment and provide valuable performance data. The length of equipment use varied based on the size and type of field work and how the zero-emission equipment was operated. Data collection during the Demonstration Program showed that many participants used multiple batteries or required more than one charge per battery to operate a piece of equipment during a typical work day. Additionally, the equipment usage by the participants was determined by, but was not limited to, the location and season.

Several participants were impressed with the technology and felt that some of the zero-emission equipment provided through the Demonstration Program are ready for commercial use, specifically the riding lawnmowers, some regular lawnmowers, hedge trimmers, and chainsaws. District staff has shared the participant's data and feedback with the Technology Demonstrators as informational tools to help further improve the zero-emission equipment, as necessary. Some of the Technology Demonstrators mentioned that certain zero-emission equipment that were used for the Demonstration Program have since undergone additional improvements and are available for commercial use.

### **3.3.3.2 *Natural-Gas-Fired, Fan-Type Central Furnaces with Reduced NO<sub>x</sub> Emissions – South Coast AQMD***

SCAQMD is currently conducting a demonstration project focused on prototype natural-gas-fired, fan-type central furnaces with reduced NO<sub>x</sub> emissions. South Coast released a program opportunity notice for this demonstration project in February 2010, which solicited a number of proposals from furnace manufacturers and gas industry technology developers in partnership with furnace manufacturers. This technology assessment of reduced-NO<sub>x</sub> central furnaces was initiated with the November 2009 amendment of SCAQMD Rule 1111. The District committed to financial support of the technology assessment in June 2010, and has provided \$50,000 for the demonstration project.

The goal of this technology assessment is to demonstrate reduced-NO<sub>x</sub> furnaces capable of meeting an emissions goal of 14 nanograms NO<sub>x</sub> per joule of useful heat. Based on the preliminary results of the SCAQMD furnace demonstration project, the technology required to meet new NO<sub>x</sub> standards will be available by 2015.

### **3.3.3.3 *Vision for Clean Air: A Framework for Air Quality and Climate Planning – SCAQMD & ARB***

While the District's air quality challenges are significant, many aspects of those challenges are not unique, and they are not isolated to the boundaries of the Valley. Strategies for reducing emissions in the Valley are enhanced through partnerships and collaborations with other air districts and state agencies. The District seeks out opportunities for such collaborations to build strong relationships and even stronger attainment strategies.

In 2012, ARB, the District and SCAQMD, collaborated to develop the *Vision for Clean Air: A Framework for Air Quality and Climate Planning*. The goal of this collaboration is to draft a common vision for mobile and stationary source strategies that integrate the need to meet federal air quality standards for PM<sub>2.5</sub> and ozone, the need to reach California's greenhouse gas goals, and the need to reduce public exposure to toxics (e.g. diesel particulates). This collaborative effort will take advantage of the efficiencies inherent in dealing with these three issues as inter-dependent problems with inter-dependent solutions.

Through the *Vision for Clean Air* effort, the three agencies have been evaluating pollutant reductions needed to meet overlapping air quality requirements for 2023 and 2032 for ozone, and 2020 and 2050 for GHG emission targets. The *Vision for Clean Air* effort is a process that is just beginning to look at the scope of transformation needed to meet these goals; the specific actions and advanced technologies needed are still under development. Ultimately, the needed reductions will depend on the integration of transformative measures and emerging technologies (including zero- and near-zero emission goods movement) with long-range planning and control strategies.

Critical to the attainment of targets will be the evaluation of the potential policies, legislation, infrastructure, and efficiencies that will ensure that South Coast, the Valley, and California are prepared to meet the long-term goals. More detailed analyses will be conducted as part of the planning efforts for the upcoming 8-hour ozone SIPs in 2016.

### **3.3.3.4 *On-Road Heavy-Duty Development, Integration, and Demonstration of Ultra-Low Emissions Natural Gas Engines – California Energy Commission, South Coast AQMD, and Southern California Gas Company***

A consortium of funding partners including the California Energy Commission, SCAQMD, and Southern California Gas Company are conducting development and demonstration projects to develop production-intent or production near-zero NO<sub>x</sub> emission heavy-duty natural gas engines, integrate the engines into heavy-duty vehicles chassis, and evaluate the performance of the vehicles in a variety of heavy-duty vehicle applications in the South Coast Air Basin and the Valley.

The target for these projects is to demonstrate engines capable of producing 90% less NO<sub>x</sub> than the current 2010 engine standards, with minimal increases in ammonia

emissions. Vehicles will be deployed and demonstrated in commercial services to evaluate performance, reliability, and emissions expectations.

### **3.4 LEGISLATIVE STRATEGY**

The extreme air quality challenges of the Valley demand that the District and the community take extraordinary measures to improve air quality and public health. The District has developed the most stringent rules and regulations in the nation, and has already achieved such significant emissions reductions that the Valley is at the point of diminishing returns from new regulatory controls on stationary and area sources. The District's legislative strategy is an example of the innovative, multi-faceted approach that it takes to reduce emissions in the Valley.

#### **3.4.1 Current Legislative Strategy**

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. The policy positions outlined in the legislative platform provide guidance on legislative and regulatory actions, and reflect current priorities involving air quality issues in the Valley. The District 2013 legislative platform was adopted by the District Governing Board on January 17, 2013; the following is a summary of the legislative platform priorities for 2013. Table 3-7 summarizes the 2013 Legislative Platform priorities. Refer to [http://www.valleyair.org/Board\\_meetings/GB/agenda\\_minutes/Agenda/2013/January/i11-CorrectedCorrectedFinalGBItemLegPlatform2013.pdf](http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2013/January/i11-CorrectedCorrectedFinalGBItemLegPlatform2013.pdf) for more information about the District's entire legislative strategy.

**Table 3-6 Summary of the 2013 Legislative Platform Priorities**

Policy Level	Legislative platform priority
Federal	Seek common sense improvements to the federal Clean Air Act
State	Support SB 11 and AB 8 that would re-authorize the Carl Moyer and AB 118 incentive programs and provide funding for the Clean-Fuel Outlet mandate
State/ Federal	As the state and federal governments implement climate change programs, support measures that target a portion of any revenues generated under cap and trade programs to emissions reduction projects in areas that are already disproportionately impacted by air pollution, support measures that have co-benefits to criteria pollutant reductions, and oppose measures that may lead to increases in criteria pollutant or toxic emissions
State	Support streamlining of the California Environmental Quality Act (CEQA).
Federal	Support the establishment of an Air Quality and Health Empowerment Zone designation that would provide financial assistance to regions that have significant air quality, health, and economic challenges
State/ Federal	Seek funding and other support from the ARB and EPA to install and operate additional air quality monitoring instruments throughout Valley
State/ Federal	Support efforts that provide for cost-effective alternatives to agricultural burning including subsidies and preferential utility rates for power produced from biomass and additional research to identify other technologically and economically feasible alternatives
State/ Federal	Support energy efficiency and alternative energy policies and initiatives that will result in emissions reductions and cost-effective alternatives to burning agricultural waste
State/ Federal	Support adequate resources and policies to reduce the impact of wildfires and their attendant public health impact
Federal	Support the continuation of air quality funding in the federal Farm Bill that is designated to accelerate the replacement of agricultural equipment

#### **3.4.1.1 Common Sense Improvements to the Federal Clean Air Act**

Since its adoption, the CAA has led to significant improvements in air quality and public health throughout the nation. However, areas of the nation with mature, local air quality management programs, like the Valley, have reached the point of diminishing returns. After more than 20 years since the last amendments to the CAA in 1990, many well-intentioned provisions are leading to unintended adverse consequences. The antiquated provisions of the CAA are now leading to confusion, and the lack of updated congressional directive has the courts into policy makers.

The District supports the well-intentioned concepts in the CAA that call for routine review of health-based air quality standards, clean air objectives that are technology-forcing, and clean air deadlines that ensure expeditious attainment and timely action. However, the CAA should be amended to eliminate current confusion, restore congressional leadership in clean air policy, and maintain and strengthen its health-protective core.

#### **3.4.1.2 Extend Sunset Dates of Critical State Funding Programs**

The District has aggressively pursued air quality incentive funds to achieve accelerated emissions reductions from mobile sources of pollution. Two programs that have historically provided incentive funding, the Carl Moyer and the AB 118 alternative fuels

programs, are set to expire in the coming years. The District supports SB 11 (Pavley and Rubio) and AB 8 (Perea and Skinner) that would extend the sunset dates of these critical programs. Funds from these two programs, and other similar programs, would be used by the District for incentive programs to achieve SIP creditable emissions reductions through District Rule 9610 (State Implementation Plan Credit for Emission Reductions Generated through Incentive Programs) adopted in 2013 per a commitment in the District's *2012 PM2.5 Plan*.

Additionally, the bills provide funding under AB 118 for hydrogen-fueling infrastructure funding necessary to support commercial fuel-cell vehicle deployment in California beginning in 2015. Fuel-cell vehicles, in addition to other advanced clean vehicles, are necessary to meet federal and state clean air standards. Without this legislation, installing this fueling infrastructure is an unfunded mandate on the oil industry.

#### **3.4.1.3 Support Streamlined Climate Change Regulations that Do Not Hinder Criteria and Toxic Pollutant Emissions Reductions**

In response to AB 32 and SB 375, the ARB has adopted a number of climate change regulations including a cap and trade program. EPA has begun including climate change considerations in their regulations for large stationary emissions sources. Many of the sources that are, or will be, regulated by ARB and EPA are currently regulated by the District. These new requirements have the potential to require duplicate inefficient reporting by businesses to multiple regulatory agencies. Using the existing infrastructure at local air districts can provide for a more efficient and expeditious implementation of these new mandates. Therefore, the District supports measures that would integrate the new state and federal mandates into existing local air district programs.

The cap and trade program recently adopted by ARB sets up a mechanism by which affected sources can procure allowances or offsets to meet specified and declining caps on their greenhouse gas emissions. This scenario can potentially lead to adverse impacts in areas that are already disproportionately impacted by criteria pollutant emissions. The District supports measures that would target a portion of any revenues generated under the sale or auctioning of cap and trade allowances to emissions reduction projects in such areas, including the Valley. Although climate change measures provide for many co-benefits in reducing both greenhouse gasses and criteria pollutant emissions, there are some measures that may lead to increases in criteria pollutant or toxic emissions. Therefore, the District will support only those reasonable climate protection measures that reduce greenhouse gas emissions as well as toxic and criteria pollutants.

#### **3.4.1.4 Support Streamlining of CEQA**

California Environmental Quality Act (CEQA) provides a process for government to evaluate and mitigate adverse environmental impacts from projects and programs. While the original intent of CEQA must remain intact, the law has been abused by interest groups that are opposed to projects or those that want concessions from projects not related to the environment. Frivolous CEQA lawsuits cost taxpayers

money, unnecessarily slow economic activity, and lead to considerable expense and uncertainty for project proponents. The Governor and the State's legislative leaders have indicated that CEQA reform is a top priority for the 2013 legislative session. The District supports reform that maintains CEQA as a forum to evaluate and mitigate environmental impacts, streamlines the review process, provides more certainty to project timelines, avoids duplicative reviews, lessens opportunities for litigation, and provides for better integration and coordination with environmental protection mandates.

#### **3.4.1.5 Support the Establishment of an Air Quality and Health Empowerment Zone Designation**

This new program would provide financial assistance for incentive programs in areas that face significant air quality, health, and economic challenges. Given the Valley's air quality challenges and continued double-digit unemployment rates, the Valley would be a prime candidate for designation under this new program. The program would provide a mechanism for ongoing appropriations for incentive programs to accelerate the introduction of new emissions reduction technologies.

#### **3.4.1.6 Seek Funding and Support from ARB and EPA for Additional Monitoring Equipment**

The Valley is currently designated nonattainment for both the ozone and PM<sub>2.5</sub> NAAQS and operates one of the most extensive air monitoring networks in the nation. Data from these monitors provides schools, parents, and the general public with instant, real-time access to local air quality information through the District's first-in-the-nation Real-Time Air Advisory Network (RAAN). A more extensive monitoring network would greatly enhance the data that the District provides to the public and help to limit the health impact associated with exposure to elevated levels of air pollution. Data from these monitors also provides the foundation of the District's attainment planning efforts. The state and federal government should continue to fund, and enhance, the existing monitoring network for ozone and PM<sub>2.5</sub>.

The federal government is also requiring new monitoring sites near roadways to monitor nitrogen dioxide (NO<sub>2</sub>). Local fee revenues from stationary sources cannot support the significant cost associated with installation and operation of these new monitors. The current proposal identifies existing EPA 105 grant funds for constructing and operating the new monitoring sites and does not provide additional funding to agencies. The District cannot use existing 105 funds for the new stations because these funds are already fully expended to operate our existing federally required air monitoring network. To have to divert existing EPA 105 grant funding from the existing monitoring network to construct the new NO<sub>2</sub> near-road monitors could affect the District's ozone and particulate attainment strategies and limit the availability of information that is critical to protecting public health. With state and federal government having the primary authority over mobile sources, it is imperative that the state and federal governments provide funding to offset the substantial cost of establishing and operating new monitoring sites near roadways. Additionally, as the near roadway monitors are designed to be *hotspot* monitors for impact from mobile sources, EPA should make it clear that the data obtained from these monitors is not to be used to determine

compliance with other ambient air quality standards that were established using monitors more representative of community-wide exposure.

#### **3.4.1.7 Support Cost-Effective Alternatives to Agricultural Burning**

The District has been phasing out agricultural burning per the SB 705 schedule. To date, agricultural burning has been reduced by 70% and with the latest amendments approved by the District, approximately 90% of agricultural burning is projected to be eliminated in the coming years. Further progress and complete phase-out of agricultural burning requires economically feasible alternatives that do not currently exist. Subsidies or preferential utility rates for power produced from biomass can serve as measures to enhance the economic feasibility of this alternative. Additional research is also needed to identify other technologically and economically feasible alternatives. A comprehensive strategy to promote these alternatives will also help in meeting renewable power goals and standards.

#### **3.4.1.8 Support Energy Efficiency and Alternative Energy Policies for Emissions Reductions and Alternatives to Agricultural Burning**

Energy efficiency and clean-energy alternatives provide an opportunity for meaningful reductions in emissions in areas where stationary sources are already well-regulated, such as in the Valley. The District has identified energy efficiency and renewable energy as part of its effort to attain air quality standards as expeditiously as possible. Toward that end, the District supports policies and initiatives that encourage renewable energy and energy efficiency including the following: a) developing additional biomass capacity using agricultural waste materials; b) expansion of net metering and feed-in tariffs for the use of solar and other renewable sources of energy; c) programs that promote energy efficiency for energy end-users that will result in lower pollutant emissions and a more stable electrical distribution system; and d) measures that incentivize and encourage low-emission technologies for use of waste gas as an alternative to waste-gas venting or flaring.

#### **3.4.1.9 Support Resources and Policies to Reduce the Impact of Wildfires**

Wildfires result in significant loss of life and property. Air pollution generated from wildfires is also significant and far exceeds the total industrial and mobile source emissions in the Valley. In the summer of 2008, California experienced a record number of wildfires, and the resulting emissions caused adverse public health impacts and unprecedented levels of PM<sub>2.5</sub> and ozone in the Valley and throughout the state. The resulting pollutant levels caused multiple exceedances of the health-based standards, and in some cases were higher than levels in recorded history. Reducing wildfires and the resulting air pollutants requires a sustained, multi-faceted approach to reduce fuel supplies and adequate resources to manage fires when they occur. Toward that end, the District supports policies and initiatives that would encourage rapid disposal of the fuel supply, including the following: a) additional financial and staffing resources for public and private land managers to conduct prescribed burning for reducing fuel supplies that lead to large and uncontrollable wildfires; b) additional resources to manage wildfires when they occur; c) lessening or removal of contradictory environmental protection policies that prohibit the use of mechanized methods, or

prescribed burning to reduce fuels when those are the only feasible methods available; and d) changes in the federal policies that better incorporate air quality concerns by shifting focus to prescribed burning and employing fire management techniques that reduce air quality impact when wildfires occur.

#### **3.4.1.10 Support Continued Federal Farm Bill Funding for Equipment Replacement**

As part of the efforts to attain NAAQS in the Valley, ARB committed to a reduce emissions from in-use agricultural equipment to achieve five to ten tons per day of NO<sub>x</sub> reductions in the Valley by 2017. ARB's measure would accelerate fleet turnover to equipment with engines meeting cleaner, new engine NO<sub>x</sub> standards as quickly as possible. The District and the State support efforts to secure federal funds and other mechanisms to achieve near-term reductions from agricultural equipment that can be credited to the SIP. Toward that end, the District supports the inclusion of continued air quality funding through the NRCS in the Farm Bill, including funding to reduce emissions from agricultural equipment.

#### **3.4.2 Potential Future Legislative Strategies**

Consistent with *2012 PM<sub>2.5</sub> Plan*, the District will continue to provide support for the following through its legislative platform: viability of biomass facilities as an alternative to open burning, cleaner burning alternative fuels, the removal of contradictory environmental protection policies, additional resources to manage wildfires, legislative measures to provide reliable water supplies to the Valley, and additional state and federal funding for incentive programs.

### **3.5 PUBLIC OUTREACH**

The District's public outreach efforts are examples of the innovative multi-faceted approach that the District takes to reduce emissions in the Valley. Engaging the public in efforts to reduce emissions is a key element of the District's attainment strategy; however, further education is needed to increase public support for new and controversial regulations. These activities may not directly generate SIP-creditable emissions reductions, but they reinforce the District's and Valley's commitment in meeting NAAQS as efficiently and expeditiously as possible.

#### **3.5.1 Current Public Outreach Strategy**

##### **3.5.1.1 Air Alerts**

The District developed the Air Alerts notification system to address potential exceedances of the 1-hour ozone standard. Used in late summer when the air basin historically experiences such exceedances, Air Alerts provide a structured process to notify the public that ozone levels are rising and advise them that emission-reduction actions are needed to prevent an exceedance, such as using alternative transportation and postponing emission-causing activity that creates ozone precursors. Notification is provided through the District's website, direct faxes, social media, and emails using

targeted recipient lists, Valley media advisories, and press releases. Besides being an effective tool to communicate ozone trends, the Air Alerts notification system is also a way to broaden the public discourse about the 1-hour ozone standard and educate Valley residents and businesses about the economic penalty for exceeding the standard.

Based on the first two seasons of Air Alert activity, the District has seen a reduction in the number and length of 1-hour ozone exceedances. In 2011, the first season of Air Alerts, the air basin recorded just three exceedance days, down from 56 days in 1996 and 30 days in 2002. August 2011 was the only August in the history of the air basin without a 1-hour ozone exceedance. Also in 2011, the Valley had the longest stretch of time without an exceedance, with the first 1-hour ozone exceedance not occurring until September 22, 2011. Throughout the season, the Valley experienced lower 1-hour ozone peaks and shorter-term exceedances on days when the standard was exceeded, and those results continued into 2012.

There is a causal correlation between the Valley's incidences of 1-hour ozone exceedances and the beginning of the new school year. During the past few years, the only exceedances have occurred during mid-afternoon hours at the beginning of the school year, suggesting that the increase in traffic to and from school sites is the source of these emissions. Recognizing this, the Air District has embarked on an aggressive public education and outreach campaign to 1) educate Valley drivers, particularly those with school-aged children, of the correlation and 2) encourage them to modify their behavior when dropping off and picking up students. The Air District's Governing Board recently approved funding to conduct targeted outreach to an estimated 841 schools and 168,000 students during the 2013-14 school year to reduce school-site idling. Outreach components include:

- Educating and training school staff regarding the effect of idling on students
- Providing educational materials to schools for distribution to parents regarding the effects of idling on air quality
- Providing educational materials to teachers to share with students regarding the effects of idling on air quality
- Continuing to provide and encourage use of No-Idling signs at schools where parents pick up students after school
- Promoting teacher incentive program to fund small classroom projects related to idling and air quality.

### **3.5.1.2 Real-Time Air Advisory Network (RAAN)**

Pollution levels can vary greatly during the day. While the District issues a daily air quality forecast for each county in the Valley, localized air quality often deviates from these generalized, county-wide forecasts. Access to real-time data advises the public of such deviations and helps ensure that outdoor activity can be limited to periods of the day when air quality is acceptable and healthier.

The District launched the Real-time Air Advisory Network (RAAN) in 2010. This program is the first communication network in the nation to provide automated

notification of poor or changing local air quality to the public throughout the Valley. While the District initially developed the program for schools as a tool to determine appropriate levels of outdoor activity for their students, the District expanded the program in 2011, and now it is available to all Valley residents. Through RAAN, the District combines local air quality information with specific, concentration-based health recommendations that allow RAAN subscribers to make informed decisions about when and for whom outdoor activities should be limited.

Anyone can subscribe to RAAN at no charge through the District's website; all that is required is the subscriber's email address. Once subscribed, the District will send email notifications with a link to the real-time data of the closest monitoring station within the District's extensive monitoring network. The District sends automated notifications on an hourly basis when air quality deteriorates or improves.

### **3.5.1.3 Multi-Media Efforts**

Reflecting both radical changes in methods of communication and the District's ongoing strategy to incorporate the newest technologies in delivering critical air quality information to the District's stakeholders and residents, the District has integrated the use of social media into its message-delivery systems. Advances in social media have provided a new tool to connect and unite Valley residents around the mission of improving air quality. Social networking allows the District to expand its outreach and improve its ability to interact with and serve the public.

The Outreach and Communications department uses Facebook, Twitter and a newly developed, free iPhone application to disseminate time-sensitive information including real-time air quality data, forecasts of deteriorating air quality, Air Alert advisories and health cautionary statements. This enables the delivery of important air-quality information to diverse populations that may not engage in the use of traditional media and ensures that critical health information is accessible to the broadest population possible.

Additionally, the District uses LinkedIn to engage stakeholders, industry colleagues, and the professional community in technical discussions and inform them of grant programs, air quality developments, and related topics.

### **3.5.1.4 Real-Time Outdoor Activity Risk (ROAR)**

To support the expanded RAAN program, the District developed the Real-Time Outdoor Activity Risk (ROAR) scale, which has specific recommendations and limitations for increasing levels of activity—from recess through competitive athletic events. This scale is based on the Air Quality Index system used for the daily air quality forecasts, but provides more detailed activity recommendations based on the latest health science. The ROAR system, when used in conjunction with the Air Quality Flag Program and daily air quality forecasts, is part of a comprehensive set of tools available to schools and the public for effective health protection.

### **3.5.1.5 Healthy Air Living**

Most of the District's outreach activities and programs are covered by the Health Air Living umbrella. As a year-round message, the Healthy Air Living idea of "make one change" promotes and encourages Valley residents and businesses to implement voluntary measures to reduced emissions and improved air quality. Emission-reduction recommendations address PM<sub>2.5</sub> emissions, either directly emitted or as byproducts of other pollutants (e.g. reducing the number of miles traveled in a car reduces NO<sub>x</sub> and, therefore, particulates) and NO<sub>x</sub> emissions for overall reductions in Valley ozone levels.

Components of the Health Air Living message include the *For Reel Video Contest*, aimed at middle-school, high-school, and college-aged students; the *Healthy Air Living Kids Calendar* for kindergarteners through high-school students; and *Healthy Air Living Pledge Cards*, which are customized for residents, businesses, schools, and faith-based organizations. In addition to these specific programs and others, the Healthy Air Living logo and message are incorporated into the District's communications, collateral, incentive materials, and outreach efforts.

### **3.5.1.6 Air Quality Flag Program**

The Air Quality Flag Program is provided free of charge to hundreds of elementary and secondary schools throughout the Valley. The District provides to each school a set of colored flags mirroring the levels of the Air Quality Index (AQI), which are used to convey the daily air quality forecast. These flags represent a visual cue for students, faculty, and staff as to the daily air quality and potential risks associated with the expected air quality. School site training is a critical component of the flag program, providing school staff with the background and knowledge to effectively execute this program.

## **3.6 OTHER INNOVATIVE STRATEGIES**

Non-regulatory strategies help accelerate attainment of the NAAQS and have been an important part of recent District plans. For example, through the District's Fast Track strategy, the District and its Fast Track task force have evaluated several innovative and collaborative emissions-reducing measures, complementing the more traditional measures included in the *2007 Ozone Plan*, the *2008 PM<sub>2.5</sub> Plan*, the *2012 PM<sub>2.5</sub> Plan*, and now this plan. These Fast Track efforts have resulted in increased incentive funding being brought to the Valley and have expanded public outreach through Healthy Air Living, guidance documents, and model policies.

### **3.6.1 Green Purchasing and Contracting**

Valley businesses and government agencies can get involved in air quality improvements by considering the environmental impacts when making purchasing and contracting decisions. Green purchasing and contracting is the selection of goods, services, and vehicles that have a reduced impact on human health and the environment when compared with other products that serve the same purpose. These efforts can reduce waste, energy consumption and the overall impact of day to day

operations. When making purchasing decisions, give preference to environmentally responsible products, materials and supplies; fuel-efficient, low-emission and hybrid vehicles; energy-efficient and water-efficient appliances; service providers who employ greener methods.

The District has created the *Green Purchasing and Contracting: A guide to reducing environmental impacts through the procurement process* guideline and made it available on the District webpage at [http://www.valleyair.org/Programs/FastTrack/2011/GreenPurchasingReport4-6-11%202 .pdf](http://www.valleyair.org/Programs/FastTrack/2011/GreenPurchasingReport4-6-11%202.pdf). The District has also set an example for other agencies by adopting and implementing its own Green Procurement & sustainable Practices Policy in January 2012. The District will continue to support Valley organizations in adopted policies and practices to make green purchasing and contracting a routine part of their operations.

### 3.6.2 Energy Efficiency

California has been on the forefront of developing renewable energy sources, and has implemented regulations to ensure cleaner, non-renewable energy. The District's involvement in energy efficiency and renewable energy is guided by its Regional Energy Efficiency Strategy (REES), which was adopted in January 2010.<sup>5</sup> This policy identifies the District's commitment to fostering energy efficiency and clean energy alternatives as opportunities for emissions reductions. Consistent with the District's Legislative Platform, the District continues to work with stakeholders and state agencies to expand net metering and feed-in tariffs for use of solar and other renewable energy sources, promote energy efficiency programs for energy end users that will result in lower emissions and a more stable electrical distribution system, and develop measures that incentivize and encourage low-emission technologies for use of waste gas as an alternative to waste-gas venting or flaring.

### 3.6.3 Eco-Driving

Given that mobile source emissions now represent approximately 80% of the NO<sub>x</sub> emissions in the Valley, and that mobile sources are essentially outside the regulatory control of the District, finding ways through education and outreach to reduce such emissions in the Valley is critical to future attainment of the NAAQS. One such program in development is *Eco-Driving*. Eco-Driving refers to everyday techniques that drivers can do to maximize the fuel economy of their vehicles. These include observing good operating maintenance, such as proper tire pressure, wheel alignment, and oil viscosity; improving aerodynamics; traveling at efficient speeds; choosing the appropriate gear for manual transmissions; driving defensively to avoid unnecessary braking; accelerating at a constant pace; and other simple, yet often forgotten, driving techniques. As with other

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<sup>5</sup> San Joaquin Valley Air Pollution Control District. (2010). *Approval of the District's Regional Energy Efficiency Strategy*. Memorandum to the SJVAPCD Governing Board. Public Hearing, January 21, 2010. [http://www.valleyair.org/Board\\_meetings/GB/agenda\\_minutes/Agenda/2010/January/Agenda\\_Item\\_7\\_Jan\\_21\\_2010.pdf](http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2010/January/Agenda_Item_7_Jan_21_2010.pdf)

informational activities conducted by the District, an Eco-Driving program could be encompassed under the Healthy Air Living umbrella.

### 3.6.4 Urban Heat Island Mitigation

Pavement, dark-colored roofs, and other hard surfaces absorb sunlight, trap heat, and increase local temperatures. Urban areas, with excessive heat-absorbing surfaces and less vegetation, tend to be warmer than surrounding rural areas. The increase in temperature in urban areas increases ozone formation potential within those areas. Reducing the extent of such surfaces and increasing the amount of vegetation can have a positive effect on reducing local temperature and reducing the potential for ozone to form. Increased temperatures also result in greater demand for interior cooling by way of air conditioners, fans, and evaporative coolers, all of which require more energy.

As part of its effort to educate and inform the public about their role in clean air, the District will expand its outreach to include techniques for reducing the effects the urban heat island, including: re-roofing with light-colored roofs, reducing the extent of paved surfaces in residential and commercial development, and planting site-appropriate vegetation to enhance cooling during harsh central-valley summers. The District can also work with local developers and jurisdictions to encourage the use of light-colored roofs and alternative parking lot surfaces in new development.

### 3.6.5 Alternative Energy

The District encourages cleaner ways of generating electricity and mechanical power, and moving vehicles, in addition to overall reductions in energy use. These alternative energy choices include renewable energy, waste-to-energy systems, and alternative fuels and vehicle technologies. The District also encourages the use of alternative energy sources that are clearly cleaner than industry standards in terms of criteria pollutants. The *District's Alternative Energy: On the Fast Track to Clean Air* is a guideline for considering clean energy options in the Valley that discuss, and provide additional resources for, the District's current recommendations regarding the most advantageous and viable alternative energy systems. Alternative energy choices include solar energy, wind turbines, biomass, dairy digesters, and electric irrigation pumps, just to name a few. This guidance document is available on the District webpage at

<http://www.valleyair.org/Programs/FastTrack/2011/Alternative%20Energy.pdf>.

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