



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT

# 2017-18 REPORT to the **COMMUNITY**



## Governing Board



### A message from the Air Pollution Control Officer

On behalf of the Valley Air District's Governing Board, it is once again my pleasure to present to all Valley residents this year's Report to the Community. We hope that this report will provide Valley residents with an easy to follow and concise account of our progress, the challenges that remain and upcoming efforts to achieve cleaner air in the San Joaquin Valley.

On a personal note, with a healthy dose of both excitement and melancholy, I will be retiring in July 2018. After 37 years of public service and serving as the Executive Director/Air Pollution Control Officer for our District the last 12 years, I want to express my gratitude to all of the individuals and organizations that were instrumental to our region's many accomplishments. First and foremost, I want to acknowledge all District employees for their hard work and dedication which has made our agency a role model for efficiency, effectiveness, and customer service. Of course, I am forever grateful for the wisdom and leadership that I was blessed with by the local elected officials and others who served as District Governing Board members and guided my efforts. I am also thankful for the level of cooperation that we have consistently received from Valley businesses and residents as we repeatedly imposed some of the toughest air regulations in the nation and continuously asked for greater sacrifice and investment towards clean air.

Looking back we can all be proud of the fact that air pollution in the San Joaquin Valley has been reduced by more than 85%. Most residents live in areas of the Valley which now meet the federal clean air standards, and even in our remaining hot spot areas residents experience more clean air days than ever before. Make no mistake, however, we still face unmatched challenges in bringing all of the Valley into attainment with the latest health-based standards.

As we look to the future, the Governing Board's decision to select Samir Sheikh as our leader serving the Valley as the incoming Executive Director/Air Pollution Control Officer gives us all confidence that we will not miss a beat in our successful journey towards clean air.

**Seyed Sadredin**  
Executive Director / Air Pollution Control Officer



**Buddy Mendes**  
CHAIR  
Fresno County



**J. Steven Worthley**  
VICE CHAIR  
Tulare County



**David Ayers**  
City of Hanford



**Drew M. Bessinger**  
City of Clovis



**John Capitman, Ph.D.**  
Appointed by  
the Governor



**David Couch**  
Kern County



**Bob Elliott**  
San Joaquin County



**Christina Fugazi**  
City of Stockton



**Kristin Olsen**  
Stanislaus County



**Lloyd Pareira**  
Merced County



**Craig Pedersen**  
Kings County



**Monte Reyes**  
City of Porterville



**Alexander C. Sherriffs, M.D.**  
Appointed by  
the Governor



**Tom Wheeler**  
Madera County



**Chris Vierra**  
City of Ceres



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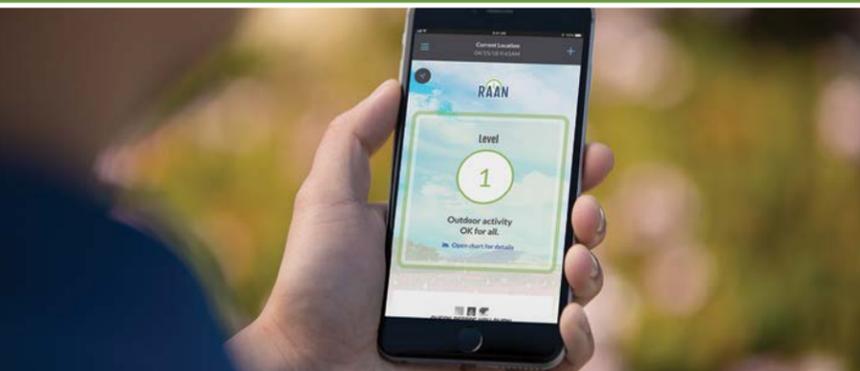


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## About the District

The San Joaquin Valley Air Pollution Control District is a regional public health agency responsible for air quality management in the eight counties of the San Joaquin Valley air basin: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and the Valley air basin portion of Kern.

The District works with local, state and federal government agencies, the business community and the residents of the Valley to reduce emissions that create harmful air quality conditions.

### THE DISTRICT'S MISSION

The San Joaquin Valley Air Pollution Control District is a public health agency whose mission is to improve the health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality management strategies. Our Core Values have been designed to ensure that our mission is accomplished through common sense.

### THE DISTRICT'S VISION

The District's vision is healthful air that meets or exceeds air quality standards for all Valley residents. The District is a leader in air pollution control. Valley residents take pride in our collective efforts to continuously improve air quality.

## Core Values

### PROTECTION OF PUBLIC HEALTH

The District shall continue to strive to protect the health of all Valley residents through efforts to meet health-based, state and federal ambient air quality standards.

### ACTIVE AND EFFECTIVE AIR POLLUTION CONTROL EFFORTS WITH MINIMAL DISRUPTION TO THE VALLEY'S ECONOMIC PROSPERITY

District staff shall work diligently to adopt and fully implement air pollution control measures, provide meaningful incentives for reducing emissions, and develop creative alternatives for achieving emissions reductions.

### OUTSTANDING CUSTOMER SERVICE

District staff shall work to provide excellent customer service for stakeholders in activities including: rule and plan development; permitting and emissions inventory functions; compliance activities; financial and grant funding transactions; and responses to public complaints and inquiries.

### INGENUITY AND INNOVATION

The District values ingenuity and innovation in meeting the challenges we face. Examples of this spirit of innovation include developing programs that provide new incentives for emissions reductions, and providing alternate compliance strategies that supplement traditional regulatory efforts and generate more emissions reductions than could otherwise be reasonably obtained.

### ACCOUNTABILITY TO THE PUBLIC

The District serves, and is ultimately accountable to, the people of the Valley for the wise and appropriate use of public resources, and for accomplishing the District's mission with integrity and honesty.

### OPEN AND TRANSPARENT PUBLIC PROCESSES

The District shall continue to provide meaningful opportunities for public input and be responsive to all public inquiries.

### RECOGNITION OF THE UNIQUENESS OF THE SAN JOAQUIN VALLEY

The Valley's meteorology, topography and economy differ significantly from those in other jurisdictions. Although it is valuable to review and evaluate efforts of other agencies, we must consistently look for solutions that fully consider the Valley's unique needs.

### CONTINUOUS IMPROVEMENT

The District works to continually improve its internal operations and processes, and strives to streamline District operations through optimally utilizing information technology and human resources.

### EFFECTIVE AND EFFICIENT USE OF PUBLIC FUNDS

The District shall continually strive to efficiently use all resources and to minimize costs associated with District functions.

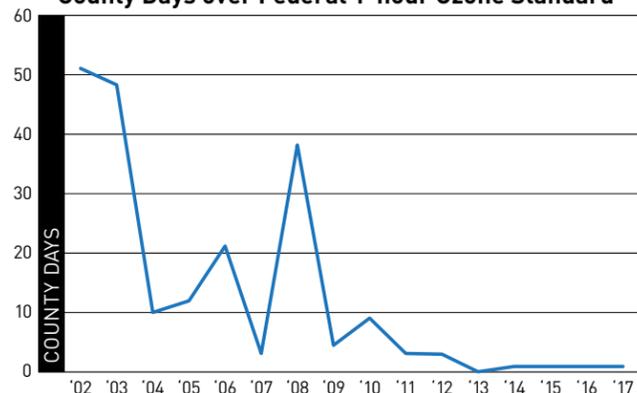
### RESPECT FOR THE OPINIONS AND INTERESTS OF ALL VALLEY RESIDENTS

The District shall respect the interests and opinions of all Valley residents and fully consider these opinions, working collaboratively, in carrying out the District's mission.



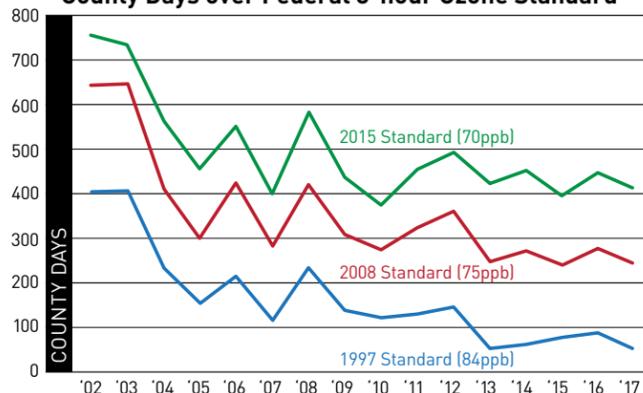
## Ozone Trends

County Days over Federal 1-hour Ozone Standard



The Valley has demonstrated attainment of the federal 1-hour ozone standard, and continues to observe no violations of the standard.

County Days over Federal 8-hour Ozone Standard

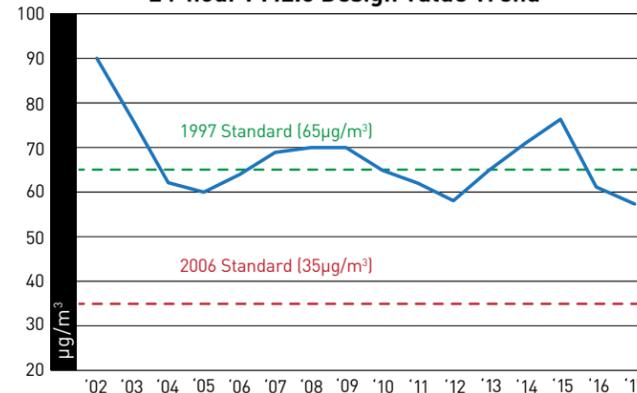


Days over the federal 8-hour ozone standards have declined significantly compared to previous years.



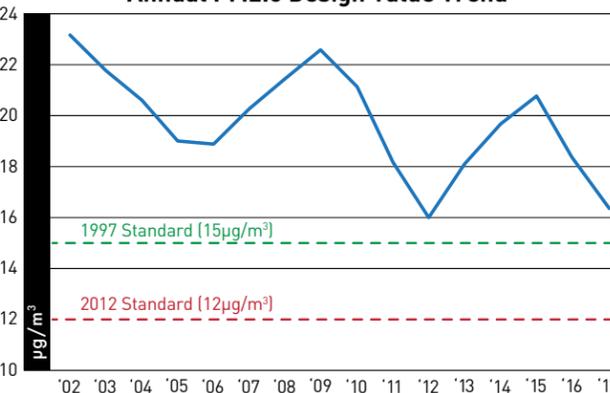
## PM2.5 Trends

24-hour PM2.5 Design Value Trend



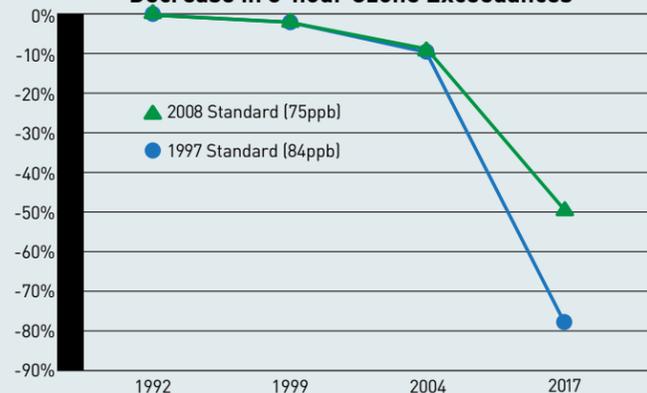
The design value (calculated using a 3-year avg.) dropped below the 1997 standard in 2016 and continued to decline in 2017, despite abnormally long periods of wintertime stagnation.

Annual PM2.5 Design Value Trend



The design value (calculated using a 3-year avg.) has improved despite abnormally long periods of stagnation and wildfire smoke impacts, bringing the Valley closer to attainment of the 1997 annual standard.

Decrease in 8-hour Ozone Exceedances



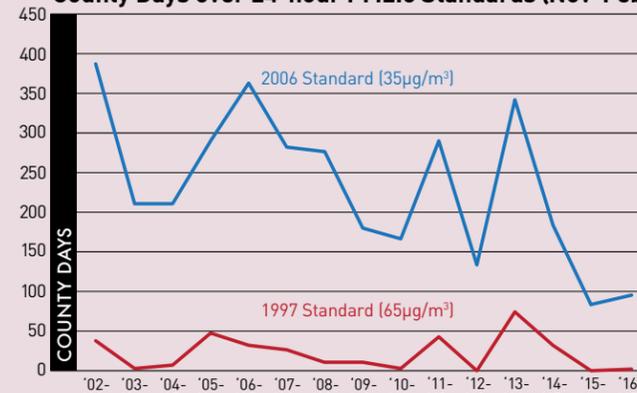
Since 1992, 48% decrease in days over the 2008 8-hour ozone standard and 76% decrease in days over the 1997 standard.

Ozone Season Good and Unhealthy AQI (May-Sept)



Number of Good AQI days has increased and number of Unhealthy AQI days has decreased during the May-September ozone season.

County Days over 24-hour PM2.5 Standards (Nov-Feb)



During the 2016-17 winter season, the Valley experienced one exceedance of the 1997 federal standard and the second lowest number of exceedances of the 2006 federal standard.

PM2.5 Season Good and Unhealthy AQI (Nov-Feb)



The region set a new record during this past winter season for the most Good AQI days across the Valley's counties, and recorded only 5 Unhealthy AQI days.

# Valley Attains Long-Sought Health Standard for PM2.5

Despite the continuation of stagnant conditions, drought, and wildfires that influenced PM2.5 concentrations, the analysis of 2014-2016 air monitoring data demonstrates that the Valley now meets the 24-hour component of the federal 1997 PM2.5 standard. In light of this achievement, on February 28, 2018, the District submitted a clean data finding to EPA in support of the District's analysis formally requesting that EPA determine that the Valley now meets the 65 µg/m<sup>3</sup> 24-hour PM2.5 standard.

Achievement of this milestone would not have been possible without the commitment from Valley stakeholders in doing their part to reduce emissions as much as possible. Recognition of these efforts lends credibility to the effective strategies that have been used and builds a stronger foundation for the additional work that remains in continuing to make progress toward meeting other air quality standards.

Supporting evidence in the clean data finding documentation includes analysis and discussion regarding the PM2.5 air monitoring network and the data collected during the 2014-2016 period, a summary of the emissions reductions achieved through ARB and District regulations, and an analysis demonstrating that reaching attainment was not because of unusually favorable meteorology or a decrease in economic activity, as required by federal regulations.



## District Engages Valley Residents and Businesses in Crafting PM2.5 Attainment Strategy

Due to the ever-tightening National Ambient Air Quality Standards (NAAQS) adopted by EPA under the Clean Air Act, the District is required to prepare attainment plans to address multiple standards. Building on decades of progress, the District, in consultation with the California Air Resources Board (ARB) and EPA, has been leading an extensive public process to develop an attainment strategy that addresses multiple PM2.5 standards:

- 1997 PM2.5 Standard (annual 15 µg/m<sup>3</sup>)
- 2006 PM2.5 Standard (24-hour 35 µg/m<sup>3</sup>)
- 2012 PM2.5 Standard (annual 12 µg/m<sup>3</sup>)

The District places a great value on full public participation in the development and adoption of air quality management strategies and therefore continues to provide ample opportunity for meaningful participation by the general public and other stakeholders as the specific details of the attainment strategy are formulated. This process has taken more than two years as the Valley's challenges in meeting the latest standards are unmatched in the nation due to the region's unique geography, meteorology and topography. The extensive public process to develop an attainment strategy began with a series of workshops in 2016. Additionally, the District convened a Public Advisory Workgroup (PAW) committee consisting of representatives from regulated entities (industry, farms, dairy families and municipalities), community advocates,

and advisors from EPA and ARB. So far, eleven public workshops and PAW meetings have been conducted, in addition to the monthly updates on plan development and progress at District held public meetings of the Governing Board, Citizen's Advisory Committee, and Environmental Justice Advisory Group.

Input and comments received through the public engagement process have been integral to the development of the PM2.5 attainment strategy thus far. Through the public engagement process, the District and ARB have identified a comprehensive list of potential new measures to achieve additional emissions reductions from both stationary and mobile sources.

Building off existing stringent requirements, new potential stationary source measures under consideration include: more stringent NOx requirements for boilers, steam generators, process heaters and non-agricultural internal combustion engines; electrification of agricultural internal combustion engines through incentive funds where feasible; ultra low-NOx flares and enhanced flare minimization practices; and additional reductions of fugitive dust from cropland tilling and fallow lands. However, after decades of imposing tough measures on businesses throughout the region, we have reached a point of diminishing returns, and a targeted strategy is also needed. In fact, given the ever toughening federal standards and the major additional reductions that are necessary, a targeted approach addressing sources such as residential wood burning and commercial underfired charbroiling may be the only cost-effective means available to the Valley to reach attainment. If

incorporated into the plan, these measures will each undergo a robust public process and economic and technological feasibility analysis.

In addition to the District's potential measures, ARB is proposing to achieve additional emission reductions from mobile sources through requirements for zero-emission technologies, low-emission diesel fuel standards, and incentivized turnover of heavy duty trucks/buses, agricultural tractors and off-road equipment to cleaner technologies.

To support its attainment strategy, the District provided resources to conduct an extensive residential wood burning scientific survey, held a summit in the Valley to identify potential alternatives to open burning of agricultural waste, and orchestrated a successful advocacy effort that has increased the Valley's share of incentive grant funding by over 1,000 percent in recent years.

Although significant progress has been made, more work remains to finalize an attainment strategy that will bring the Valley into attainment of the PM2.5 standards by the statutory deadlines. The District's ongoing effort includes completing the air quality modeling, finalizing the evaluation of the feasibility of the proposed measures, and maximizing the acquisition and use of incentive funds that are available at the local, state, and federal level. All of this work continues to be conducted through a robust open public process with additional workshops. The District anticipates bringing a plan to its Governing Board that satisfies all applicable federal requirements in 2018.

## District Pursues New Hot Spot Attainment Strategy

Under the federal Clean Air Act, the entire Valley is designated as not meeting the standard if only a handful of high concentrations occur at a monitor at the worst location, at the worst time. After decades of imposing tough measures throughout the region, we have reached a point of diminishing returns, and a more targeted strategy has become necessary. In fact, given the ever toughening federal standards and the major additional reductions that are required, a targeted approach is the only cost-effective means available to the Valley to reach attainment. Extensive scientific modeling and air quality analysis indicates that these hot-spot areas include Kern County, Fresno County, and the cities of Visalia, Madera, and Corcoran. Potential new measures for these areas include enhanced incentive funding for replacing residential wood burning devices to cleaner units, along with more stringent residential wood burning curtailment thresholds, and enhanced incentive funding to install particulate matter control devices on commercial underfired charbroiling operations with a regulatory backstop to encourage participation.

As a supplement to the hot-spot strategies, the District is also pursuing a community-level targeted strategy to focus on pollution sources aimed at improving localized air quality in areas that do not measurably contribute to achieving attainment in the Valley but may be of local concern. Learn more about this strategy on page 36.



## District Adopts New Community-Level Targeted Strategy

Air quality modeling demonstrates that controlling certain sources of pollution may be ineffective in advancing the Valley's attainment of federal ambient air quality standards. This is primarily because some sources of air pollution, due to the spatial and temporal distribution of their emissions, have minimal or no measurable impact on the concentration of pollutants at the Valley's peak sites that drive the Valley's attainment needs. However, emissions from some source categories may cause periodic, short-term, localized nuisance or aggravation. With this in mind, the District discussed this issue with the Governing Board at the September 2017 Study Session, and consistent with the District's long standing Health Risk Reduction Strategy, the Governing Board gave direction to District staff to pursue Community-Level Targeted Strategies that focus on reducing public exposure to pollution sources of local concern in affected communities.

The Community-Level Targeted Strategy is intended to serve as a supplement to the District's PM2.5 attainment strategy, which is focused in part on the Valley's hot spot regions. For source categories that the District decides not to impose broad-based Valley-wide regulations, the District may utilize air monitoring data, public complaints regarding localized sources of air pollution, and health risk assessment to identify communities and sources of pollution that are candidates for this strategy. This work will also give the Valley a head start in addressing the new mandates that the District faces under the recently enacted AB 617, detailed later in this report.

Once the targeted communities and sources are identified, the District will then develop technologically and economically feasible measures to control emissions. Various approaches may be undertaken depending on the magnitude and number of sources involved. If a small number of sources are involved, the remedy might entail an individualized agreement with those sources. If more sources are involved, then a more programmatic approach will be considered. Pending availability of necessary funding, incentive-based strategies partnering with the affected sources will be the preferred strategy. In all cases, the District will utilize a public participation process and work with the Governing Board to establish control strategies.

Consistent with the District's core values that call for continuous improvement and effective and efficient use of public funds, the District will then routinely measure results utilizing air monitoring, public complaints, and health risk assessments. The public will be notified of the results through reports to the District Governing Board.

## Community Engagement District Develops Action Plan to Satisfy New State Mandates under AB 617

In September 2017, the California State Legislature and Governor agreed to extend Cap and Trade as part of a legislative package that included the appropriation of \$1.5 billion in Cap and Trade funding. The Cap and Trade deal also included the passage of AB 617 (Cristina Garcia, 2017) that requires the state Air Resources Board and air districts to develop and implement additional emissions reporting, monitoring, and reduction plans and measures in an effort to reduce air pollution exposure in impacted communities. The District's new San Joaquin Valley Community Engagement and Protection Program gives the Valley a head start in this process, but it is important that we fulfill these mandates in a way that affords all Valley residents and businesses an opportunity to provide input. The District will work to ensure that AB 617 is implemented appropriately and based on sound science, in a way that brings significant funding resources to the Valley's disadvantaged communities and ensures that the state addresses mobile source impacts beyond the District's regulatory authority.

The legislation sets out an ambitious implementation schedule, and the California Air Resources Board must set the overall direction of the program by October 1, 2018. The local air districts also have specific roles and responsibilities and successful implementation will require strong collaboration.

As 20 of the 30 most disadvantaged communities in California are in the San Joaquin Valley, AB 617 and the recent Cap and Trade extension legislation is expected to bring significant additional funds to the Valley to help reduce emissions and improve public health in disadvantaged communities. Funding AB 617

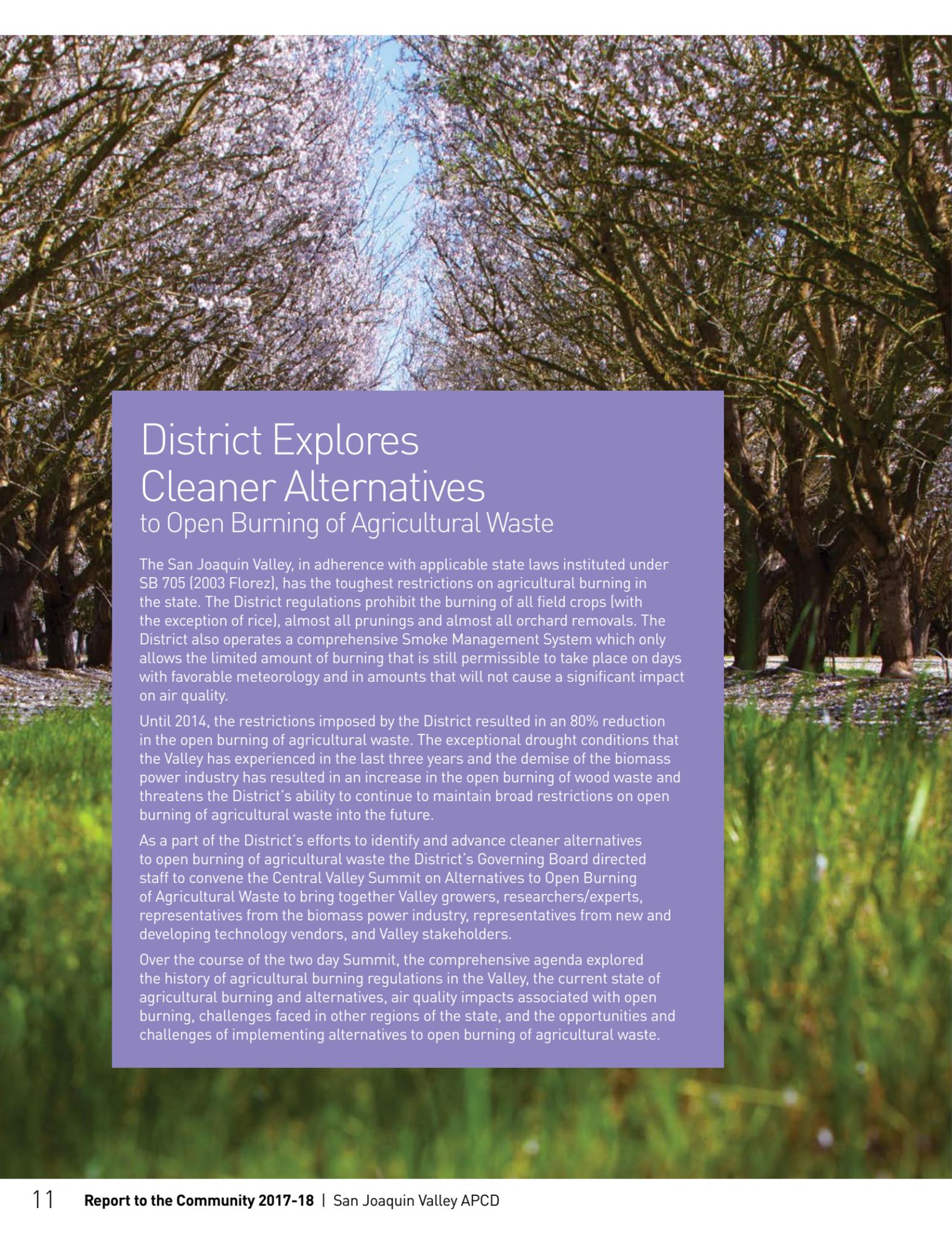
mandates in the Valley's disadvantaged communities will also help the Valley attain federal health-based standards for PM2.5 and ozone. The goals of AB 617 further reinforce the District's mission to work in partnership with Valley communities to develop and implement Valley-centric solutions to its air quality challenges. The District is fully engaging Valley residents and soliciting their input to ensure that the expenditure of these funds reflects the needs and interests of Valley residents. Over the past several years the District has prioritized bringing state and federal dollars to the Valley for voluntary incentive programs. This reflects the ongoing commitment of the District, businesses, farmers, and Valley residents in making clean air investments that improve the quality of life for all. It is critical for the District to engage Valley businesses and other organizations that are willing and able to make the significant investments necessary for successful voluntary incentive programs. This is not always an easy task. Grant recipients are typically required to provide a significant funding match which generally ranges between 30% and 70% of the total project cost and, in some cases, agree to give up equipment with remaining useful life in favor of cleaner equipment. In addition to the financial investment, grant recipients have ongoing responsibilities to provide information to the District through annual reporting, and be responsible for adhering to the terms of the grant programs.

The District's local community organizations play a key role in the development and implementation of the District's Community Engagement and Protection Program. The local community organizations have a direct line of communication to the Valley's disadvantaged communities. The District will be partnering with these organizations to help facilitate community dialogue, input and feedback. The District is providing mini-grants to these organizations to facilitate a series of community meetings in all eight San Joaquin Valley counties.

Per the requirements of AB 617, the District is working with Valley residents and communities to identify locations around the Valley with the highest cumulative exposure burden for criteria pollutants and toxic air contaminants for the deployment of additional community air monitoring and the preparation of community emissions reduction Action Plans. We anticipate CARB making the final decisions regarding community selection by the fall of 2018.

For more information on the San Joaquin Valley Community Engagement and Protection Program visit [www.valleyair.org/community](http://www.valleyair.org/community).





## District Explores Cleaner Alternatives to Open Burning of Agricultural Waste

The San Joaquin Valley, in adherence with applicable state laws instituted under SB 705 (2003 Florez), has the toughest restrictions on agricultural burning in the state. The District regulations prohibit the burning of all field crops (with the exception of rice), almost all prunings and almost all orchard removals. The District also operates a comprehensive Smoke Management System which only allows the limited amount of burning that is still permissible to take place on days with favorable meteorology and in amounts that will not cause a significant impact on air quality.

Until 2014, the restrictions imposed by the District resulted in an 80% reduction in the open burning of agricultural waste. The exceptional drought conditions that the Valley has experienced in the last three years and the demise of the biomass power industry has resulted in an increase in the open burning of wood waste and threatens the District's ability to continue to maintain broad restrictions on open burning of agricultural waste into the future.

As a part of the District's efforts to identify and advance cleaner alternatives to open burning of agricultural waste the District's Governing Board directed staff to convene the Central Valley Summit on Alternatives to Open Burning of Agricultural Waste to bring together Valley growers, researchers/experts, representatives from the biomass power industry, representatives from new and developing technology vendors, and Valley stakeholders.

Over the course of the two day Summit, the comprehensive agenda explored the history of agricultural burning regulations in the Valley, the current state of agricultural burning and alternatives, air quality impacts associated with open burning, challenges faced in other regions of the state, and the opportunities and challenges of implementing alternatives to open burning of agricultural waste.

The major lessons learned from the Summit include:

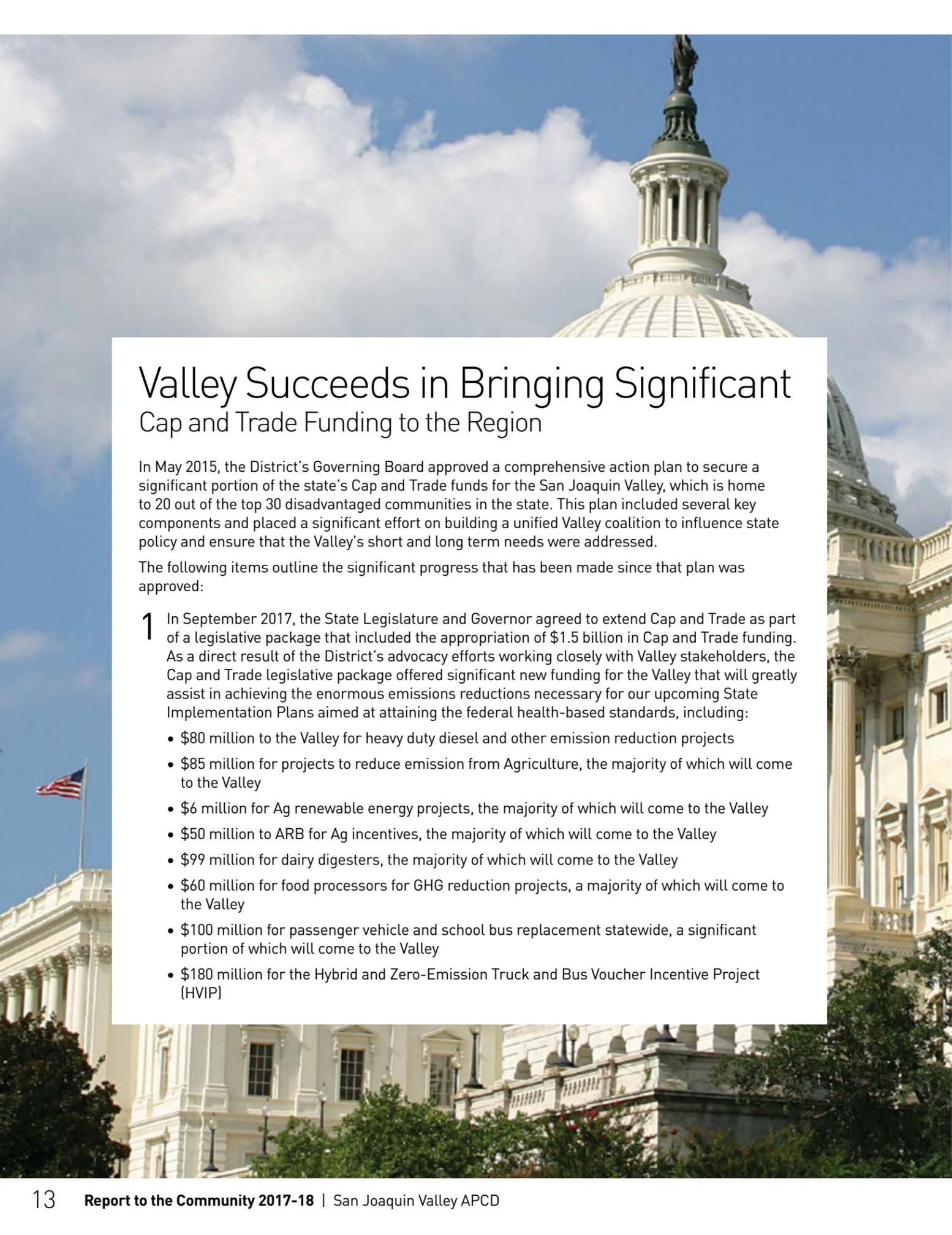
- The need to find cost-effective alternatives to open burning of agricultural waste is mandated by law if the current prohibitions are to be retained
- Air quality impacts from agricultural burning in the Valley are well managed through the District's comprehensive Smoke Management System
- Traditional biomass power plants, by themselves, will not be the long-term solution to addressing the agricultural waste issues in the San Joaquin Valley
- California, as a whole, has a biomass waste disposal issue not just an agricultural waste disposal issue, which spans from agricultural waste to urban waste to tree mortality waste from high hazard zones
- Soil incorporation of agricultural material from orchard removals as an alternative to open burning shows promise but questions remain
- Composting of agricultural material as an alternative to open burning likely not a large scale solution to the agricultural waste issue

- Next generation bioenergy solutions appear to be on the verge of broader deployment
- Air curtain burn boxes may serve as a feasible alternative to reducing emissions from open burning of agricultural waste
- Biochar production as an alternative to open burning of agricultural waste shows promise but questions remain

Building on the lessons learned from the Summit, the District's Governing Board took the following actions aimed at continuing to reduce emissions from the opening burning of agricultural waste while advancing cleaner alternatives:

- Withhold rolling back the District's current agricultural burning prohibitions until further work on exploring and advancing alternatives to open burning is completed
- Continue to implement the District's Smoke Management System safeguards to ensure no adverse air quality impact from authorized agricultural open burning
- Explore the feasibility of utilizing air curtain burn boxes subject to the District's Smoke Management System safeguards as an extension of agricultural operations
- Continue to support state and federal financial assistance to the biomass power industry for the disposal of agricultural waste
- Support technology advancement for emerging cleaner alternatives to the open burning of agricultural waste, with priority given to on-the-farm deployable (minimum or no transportation related emissions) and scalable technologies
- In assessing the feasibility of alternatives to open burning, consider the full life-cycle emissions and impact on air quality





## Valley Succeeds in Bringing Significant Cap and Trade Funding to the Region

In May 2015, the District's Governing Board approved a comprehensive action plan to secure a significant portion of the state's Cap and Trade funds for the San Joaquin Valley, which is home to 20 out of the top 30 disadvantaged communities in the state. This plan included several key components and placed a significant effort on building a unified Valley coalition to influence state policy and ensure that the Valley's short and long term needs were addressed.

The following items outline the significant progress that has been made since that plan was approved:

- 1 In September 2017, the State Legislature and Governor agreed to extend Cap and Trade as part of a legislative package that included the appropriation of \$1.5 billion in Cap and Trade funding. As a direct result of the District's advocacy efforts working closely with Valley stakeholders, the Cap and Trade legislative package offered significant new funding for the Valley that will greatly assist in achieving the enormous emissions reductions necessary for our upcoming State Implementation Plans aimed at attaining the federal health-based standards, including:
  - \$80 million to the Valley for heavy duty diesel and other emission reduction projects
  - \$85 million for projects to reduce emission from Agriculture, the majority of which will come to the Valley
  - \$6 million for Ag renewable energy projects, the majority of which will come to the Valley
  - \$50 million to ARB for Ag incentives, the majority of which will come to the Valley
  - \$99 million for dairy digesters, the majority of which will come to the Valley
  - \$60 million for food processors for GHG reduction projects, a majority of which will come to the Valley
  - \$100 million for passenger vehicle and school bus replacement statewide, a significant portion of which will come to the Valley
  - \$180 million for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)

- 2 The District successfully partnered with several other large air districts in the state on a proposal to the California Air Resources Board (ARB) for Cap and Trade funds to demonstrate advanced zero and near-zero emission technology for up to 43 heavy-duty trucks throughout California. This proposal addressed the need for transformative technology for the heavy-duty truck sector which is the Valley's single largest source of emissions. The proposal was selected for \$23,658,500 in funding and received the maximum award of the entire solicitation. Of this total award, approximately \$2.5 million will come to the Valley to deploy and demonstrate zero and near-zero-emission truck technology.

- 3 In 2016, the District submitted several grant proposals in response to ARB's Zero Emission Truck and Bus Pilot Commercial Deployment Projects competitive grant solicitation under the Low-Carbon Transportation Program. These projects proposed to deploy a variety of commercially available zero-emission truck and bus technologies for use in multiple modes of operation. Three of the District's proposals were selected for a total of \$25,097,400 in funding. In addition, a project submitted by the City of Porterville, for which the District has the lead administrative role, was also selected for funding in the amount of \$9,516,422, for a total of \$34,613,822 in funding coming to the Valley through this grant solicitation.

- 4 The District has played a key role in leading statewide efforts to develop and implement incentive programs aimed at replacing old passenger vehicles with cleaner vehicles. In fact, the District's pilot vehicle replacement program was implemented in partnership with Valley Clean Air Now

(Valley CAN) and served as a model for developing a new statewide Enhanced Fleet Modernization Program (EFMP) program. To date, the District has administered \$8.8 million and has replaced approximately 1,050 old, high-polluting vehicles. Based on this success, the state legislature approved funding for EFMP of up to \$60 million statewide with an anticipated \$25 million coming to the District. The District is launching an online application portal as a companion to the weekend vehicle repair events which will allow interested Valley residents to apply directly to the vehicle replacement program. In addition, the District has rebranded the program, Drive Clean in the San Joaquin to build brand recognition and better describe the program.

- 5 In 2017, the District applied and was awarded \$3 million in Cap and Trade funds for an expanded Ag Tractor Trade-Up Program in the Valley that builds on our earlier success.
- 6 In July 2017, the District submitted two grant proposals in response to ARB's Car Sharing and Clean Mobility Options Pilot Project competitive grant solicitation under the Low-Carbon Transportation Program. These projects proposed to reduce both greenhouse gas and criteria pollutant emissions through the introduction of advanced clean car sharing fleets and other mobility options in the Valley's disadvantaged communities. The District worked extensively with public and private stakeholders to develop the projects and submit the grant applications. ARB informed the District that both proposals were selected for a total of \$2,999,800 which was 38% of the total funding available.



## Healthy Air Living Schools

Over the past 13 years the Healthy Air Living Schools program has evolved from a basic air quality flag program with colored flags to a multifaceted program focused on protecting students from poor air quality using the Real-Time Air Advisory Network (RAAN) which provides schools flexibility to adjust outdoor exercise when the air quality is not good. The program also offers no idling signage to schools, shares air quality education with students and parent groups, and coordinates small teacher mini-grants to engage students in air-friendly, hands-on projects. In 2017, the District implemented a new approach by bringing the program in-house after years of partnering with a third party agency to administer the program.

The District has been assessing the engagement level of schools and school districts throughout the eight counties in the Valley and tracking the information into a customized school tracker program. Through meetings and written communications with school and school district officials, the District has been encouraging school administrators to use RAAN to communicate outdoor air quality information to parents, teachers, students, coaches and administrators. With the Air Quality Flag Program now retired, the District has been working on a pilot project that would allow schools to display outdoor air quality RAAN levels with prototype monitors. Real-time Electronic Air-quality Display (READ) units are being deployed at 20 schools throughout the District and staff will report the pilot's success to the board in the fall of 2018.

### THE NEW APPROACH CALLS FOR:

- An increase in the number of schools in the program and in their scale of engagement
- A more effective engagement of school administrators and greater coordination and communications between school districts and school site personnel
- An active approach with parents to engage schools
- Engagement of all students, including those in middle and high schools
- Schools to retire the Air Quality Flag Program and utilize the more health protective and flexible RAAN alerts
- More communication of the Valley's air quality challenges and air quality progress to students and parents
- Phone calls and text messages to be sent for extraordinary actions such as canceling sports games due to extremely poor outdoor air quality
- Empowerment of students to serve as air quality ambassadors
- Schools to adopt no-idling at school sites

## Real-time Electronic Air-Quality Display

When the District retired its colored Air Quality Flag Program in 2014, it intensified its focus on connecting schools to the Real-Time Air Advisory Network (RAAN) because it is a far more health-protective outreach tool. While the flag program was based on the air quality forecast for the day, RAAN links the public to actual hourly readings from a network of local air monitors. To replace the easy-to-see and understand colored flags, the District developed a prototype Real-time Electronic Air-Quality Display (READ) with a plan to deploy 20 of them in a pilot project in schools throughout the Valley's eight counties. The 24-inch LED monitors connect to the internet and link to RAAN to provide the air quality level for the neighborhood in which it is located. The monitor fetches data every 30-60 seconds ensuring that the display is updated promptly when the hourly data becomes available. The first monitors were installed in schools in early 2018. An assessment of the pilot program will be performed at the end of the school year.

### ENHANCED NEIGHBORHOOD RAAN

The District continues to look for ways to provide accurate and up-to-date air quality information for Valley residents. While the Real-Time Air Advisory Network (RAAN) is a wonderful tool for hourly air quality info, residents currently evaluate outdoor conditions by reviewing data from the closest air-monitoring site to



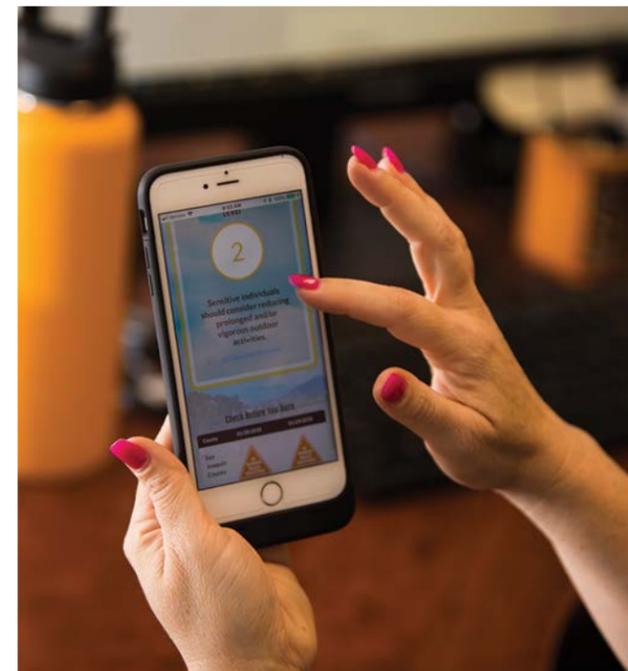
their location. To provide residents with the air quality information for their address, the District developed a first of its kind system for communicating neighborhood-level air quality by dividing the Valley into 4 km x 4 km grid cells (resulting in 3,600 neighborhoods) and taking into account the real-time meteorological conditions in each of the grid cells as well as observed air quality concentrations from the District's air monitoring network. Additionally, RAAN will take into account and make adjustments for unforeseen events that may impact air quality in a particular neighborhood. This enhanced neighborhood RAAN will be released in 2018.

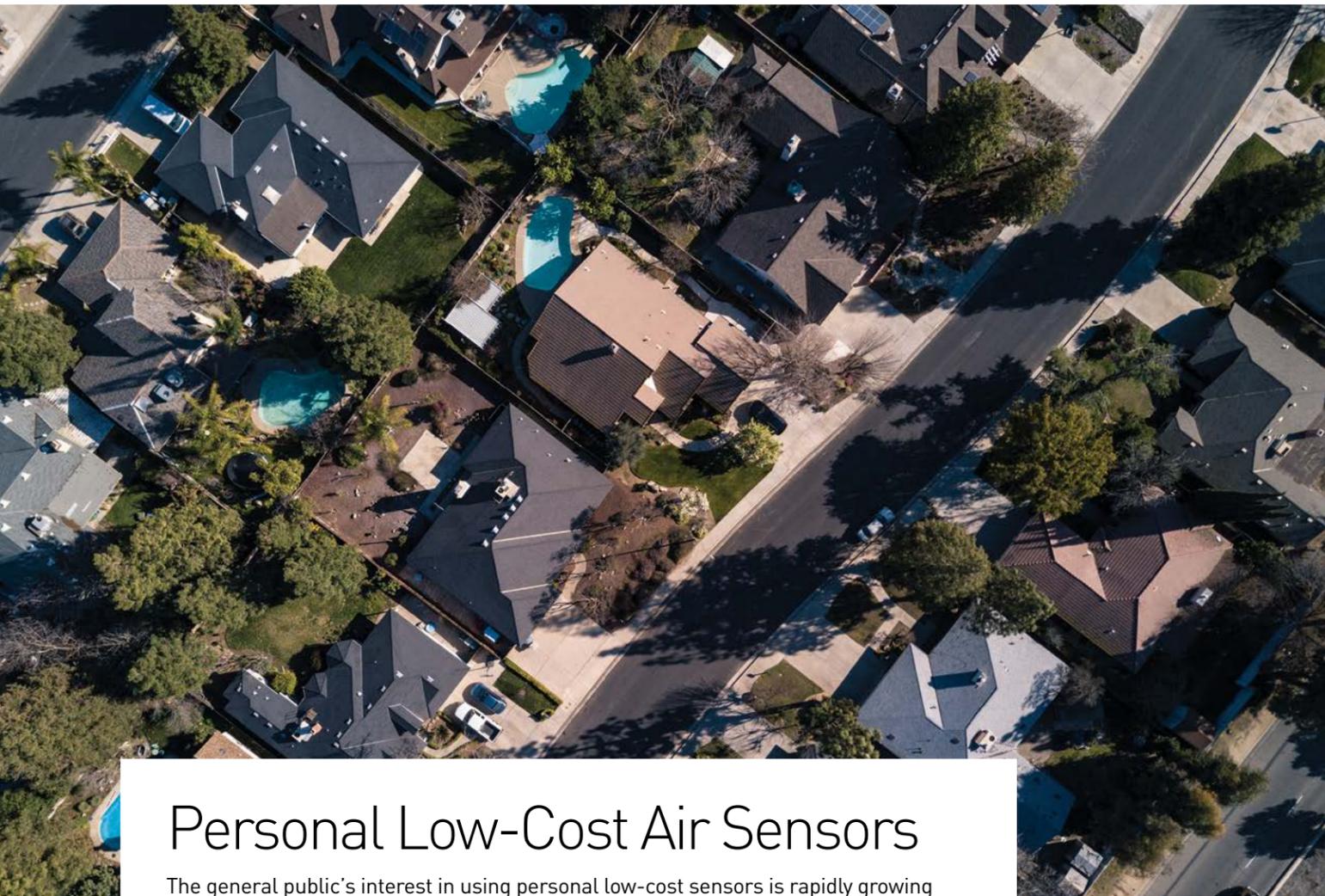


## District Launches New Smartphone App

The District has provided Valley residents with a free smartphone app capable of delivering real-time air quality information, as well as other related information, since 2012. The District is currently reengineering the app in-house and plans to release a brand new version in the spring of 2018 which will serve both iPhone and android devices. The app will provide easy access to RAAN data, notification of whether residential wood burning is allowed during the Check Before You Burn season, and the ability for a user to file an air quality complaint directly to the District, with photos if desired. A new feature of the app will be the users' ability to receive air quality information for their current location utilizing GPS, as well as other location addresses that can all be stored for quick reference. The District is expecting that the usage of the new app will be widespread and will help Valley residents receive timely air quality information that can be used to coordinate outdoor activities during periods of the best air quality.

Search "Valley Air" in the Apple Store/Google Play





## Personal Low-Cost Air Sensors

The general public's interest in using personal low-cost sensors is rapidly growing throughout the nation. Air monitoring sensor technology has been developing at a rapid pace over recent years, increasing the number of analyzers available to the general public to measure ozone, particulate matter, and other pollutants at their own homes or businesses. In addition, these sensor technologies are becoming more affordable, making them more accessible to Valley citizens who wish to conduct personal air monitoring. As the use of low-cost air monitoring sensors by individuals becomes more prevalent, it is important for the District to engage Valley residents interested in using such devices. This engagement can be helpful in assisting Valley residents with proper installation, operation, and interpretation of the data obtained.

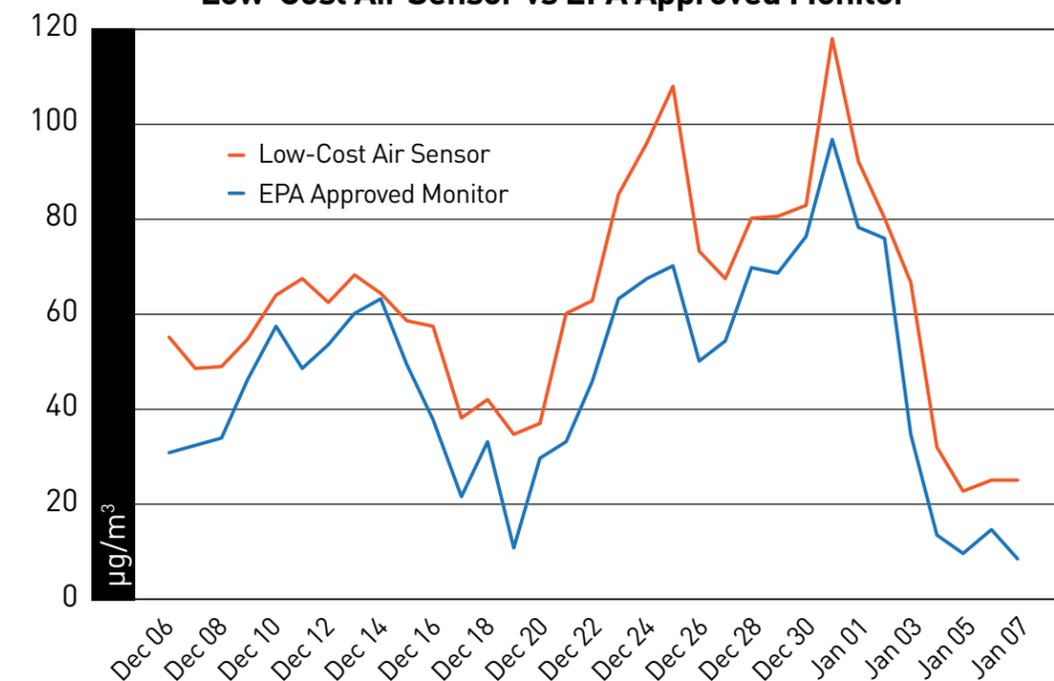
In response to the public's interest in more real-time and localized air quality data, the District has already invested significant resources over the last several years to provide Valley residents with such information. Such resources include the popular RAAN system and the upcoming release of Neighborhood RAAN. Additionally the District and ARB maintain an extensive air monitoring network throughout the Valley. Since the District's air monitoring equipment consists of higher precision components and EPA approved pollutant measurement methodologies, they are designated by the EPA as regulatory and can be compared against the federal standards used to determine whether the Valley is in attainment. Since low-cost sensors are equipped with lower quality components and uncertified measurement methodologies, they do not have the EPA regulatory designation, and therefore their data is not of the high quality necessary to be comparable to the federal standards. Although the technology for low-cost sensors has improved in recent years, the technology, the manner by which these sensors are utilized, and lack of training pose certain limitations. Accuracy of the collected data from many low-cost sensors has been determined to be very poor and can result in readings that are not representative of true conditions.

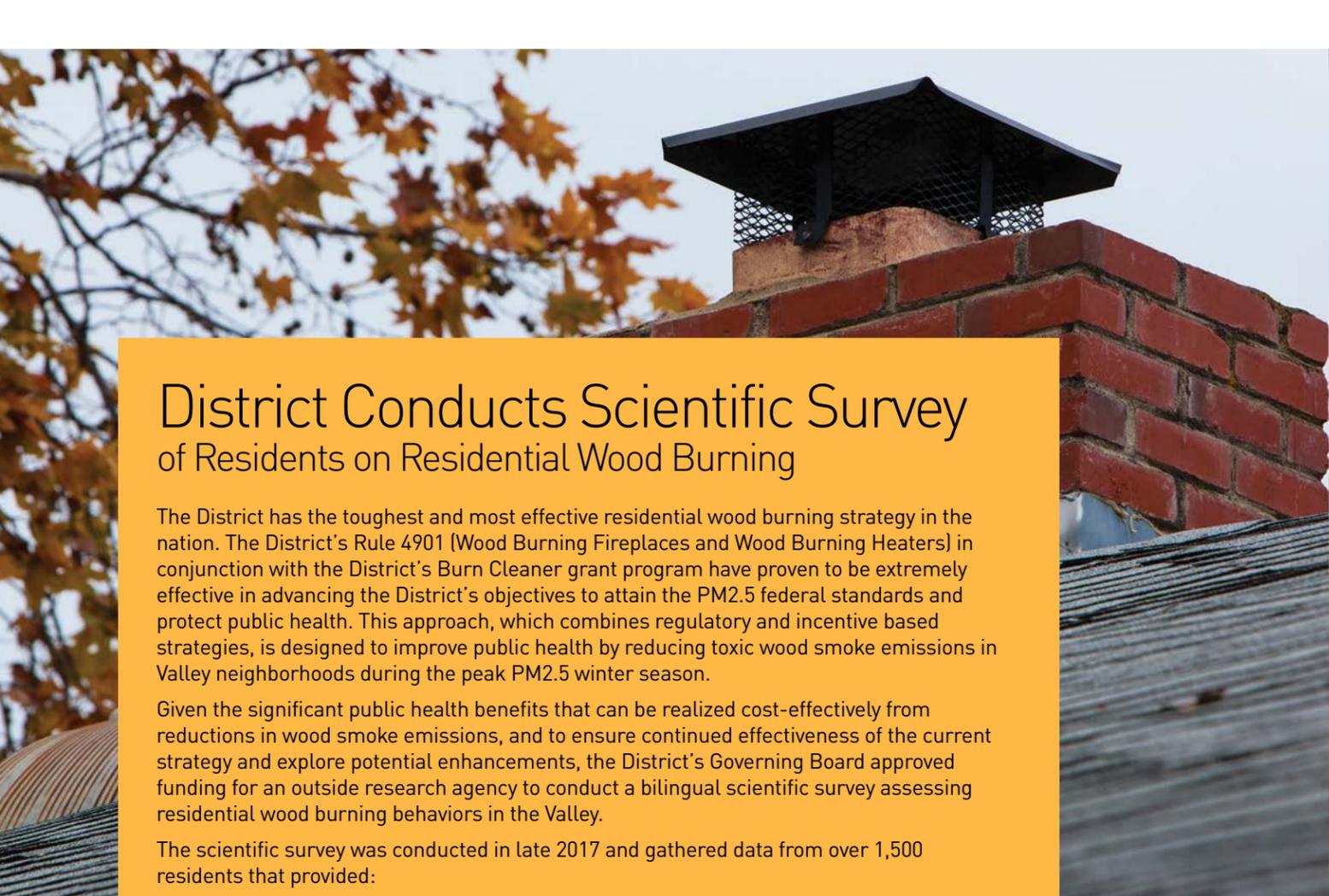
In response to the rapid pace of technology development and public use of low-cost air monitors, the District adopted an action plan to facilitate good citizen science for utilizing personal air sensors in the San Joaquin Valley. The goals of this action plan include offering training material on proper use and placement of such monitors while taking into account shortcomings in providing accurate air quality information on a consistent basis with the following specific elements:

- Work in partnership with other agencies to test the accuracy of various sensor technologies available to the general public
- Collocate personal air quality sensors at various District air monitoring sites to compare accuracy
- Define and share with the public the information that can reliably be ascertained from personal air quality sensors. For instance, for some sensors, the information may only be probative in establishing relative trends in air quality versus providing an accurate absolute measurement of air pollutant concentrations
- Develop educational materials and guidance documents on the proper placement of monitoring equipment, considering the air quality area of interest
- Provide guidance for how data should be interpreted and used, making clear that collected data will not be used in the framework of regulatory monitoring
- Engage in partnerships and oversight with community groups and businesses who wish to use personal air monitoring sensors for monitoring projects
- Provide public education and training disseminating above information to the public through web-based tools and/or public meetings



**Recent PM2.5 Data Comparing Low-Cost Air Sensor vs EPA Approved Monitor**





## District Conducts Scientific Survey of Residents on Residential Wood Burning

The District has the toughest and most effective residential wood burning strategy in the nation. The District's Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters) in conjunction with the District's Burn Cleaner grant program have proven to be extremely effective in advancing the District's objectives to attain the PM2.5 federal standards and protect public health. This approach, which combines regulatory and incentive based strategies, is designed to improve public health by reducing toxic wood smoke emissions in Valley neighborhoods during the peak PM2.5 winter season.

Given the significant public health benefits that can be realized cost-effectively from reductions in wood smoke emissions, and to ensure continued effectiveness of the current strategy and explore potential enhancements, the District's Governing Board approved funding for an outside research agency to conduct a bilingual scientific survey assessing residential wood burning behaviors in the Valley.

The scientific survey was conducted in late 2017 and gathered data from over 1,500 residents that provided:

- Information to guide District's public education and outreach
- Information to gauge participation in the Burn Cleaner incentive program and how public participation could be enhanced
- Information to understand public sentiments and acceptance relating to potential changes to the District's wood burning curtailment regulations
- Enhanced inventory data and understanding of spatial and temporal patterns of wood burning device usage
- Information to gauge current rule effectiveness and compliance rate
- Basic demographics

Survey findings suggest that of Valley residents that engage in wood burning, only 36% are aware of the detrimental health impacts associated with wood smoke. It is reasonable to conclude that with enhanced public education, more Valley residents could be persuaded to refrain from wood burning. The survey findings also suggest that of Valley residents who engage in wood burning, most, by a three-to-one margin, are English speaking and many, by a greater than two-to-one margin, have above-median incomes. Therefore, the following actions were recommended to the Governing Board:

- Increase emphasis on health impacts of wood smoke in Check Before You Burn outreach through messaging within paid advertisements, educational videos, brochures and other outreach collateral.
- Hold community workshops to discuss health impacts of smoke including its cost effectiveness in meeting federal mandates compared to costly regulations imposed on Valley businesses.
- Target a greater share of the outreach toward the Valley's English-speaking population with above-median incomes.

Survey results indicate that the District has made significant gains in educating the public about the Burn Cleaner program over the past few years. Twenty-four percent of the residents surveyed reported that they had heard of the Burn Cleaner incentives program, a statistically significant increase over the 17% reported in 2014. Furthermore, the number of Valley residents willing to switch to a cleaner device has increased from 29% in 2014 to 36%. Despite improvements, smoke from residential wood burning is a significant source of particulate matter in the Valley during the winter. Increasing the turnover of old, polluting wood-burning devices is still a key component of the District's PM2.5 control strategy, so the District must continue to look for ways to increase program participation. More respondents in the Fresno and Bakersfield areas were willing to purchase a clean device with at least a 75% incentive than they were initially without an incentive, indicating that increased, targeted funding in these areas through the hot spots strategy would be highly effective. Therefore, the following actions were recommended to the Governing Board:

- Increase the incentive amount offered in the Valley's hot-spot areas.
- Increase the use of clean burning units through continued regulatory incentives by offering residents who switch to clean burning units more days to use their devices.
- Continue to offer greater financial incentives for natural gas conversion.

With respect to Valley residents' compliance with the District's burn prohibitions, the survey results, although limited in sample size, are in line with the District's observations through extensive field enforcement activities that illustrate high compliance rate. The overwhelming majority of Valley residents (81%) believe that the current rule restrictions are either appropriate or too aggressive. As the District contemplates future changes to the rule, this may indicate that the current high compliance rate may diminish resulting in a negative impact on air quality. However, attaining the latest federal standards is not possible without additional reductions from residential wood burning devices. As public acceptance is a key factor in achieving the desired compliance rate and resulting emission reductions, for the changes to be effective, incorporating all of the following components in the program is imperative:

- Meaningful financial incentives for upgrading to cleaner units.
- Maintaining regulatory incentives for Valley residents who switch to clean units.
- Strong public education regarding adverse health effects of wood smoke.
- Strong public education highlighting the effectiveness and low cost associated with residential wood burning curtailment regulations as compared to alternative regulations with great direct or indirect cost to Valley businesses and residents.
- Continue strong enforcement.

In addition to the above policy recommendations, the District will also use the survey results to guide the District's ongoing work on updating and refining the emissions inventory for residential wood burning devices.



## Local Implementation of New State Oil and Gas Regulation

In March 2017, the California Air Resources Board (CARB) adopted a new regulation to reduce methane emissions from oil and gas production operations in California. About 80% of the affected facilities in the state are located within the District and are already subject to District rules that require VOC emission reductions from equipment used in the oil and gas industry.

Through the state’s rule development process, it became a widely held consensus that the state lacked the necessary resources and expertise to effectively implement this new regulation. By contrast, all parties recognized the District’s expertise in this area and its extensive permitting and enforcement infrastructure that has been in place for decades. All parties, including CARB and the Valley’s oil and gas industry, agreed that administration of the program by the District would provide for more effective and expeditious implementation at lower cost for both the District and the affected facilities.

In December 2017, the Governing Board approved a Memorandum of Agreement with CARB to authorize the District to implement this regulation on behalf of the state and adopted Rule 2260, Registration Requirements for Equipment Subject to California’s Oil and Gas Regulation. Under Rule 2260, facilities with equipment subject to the state regulation are required to apply for a registration from the District. The state is expected to reimburse the District for its costs of implementing the new state regulation.

## District Implements More Health Protective Air Toxics Program While Reducing Fees for Affected Businesses

Last year the District became the first region in the state to implement new risk-management guidelines aimed at providing greater health protection for children without imposing unreasonable restrictions on the permitting of affected facilities. This action was taken in response to the new Guidelines on Preparation of the Health Risk Assessments from the Office of Environmental Health Hazard Assessment, which are used in a number of tasks the District performs to reduce the risks of toxic air pollution to Valley residents. The District implements local, state and federal air toxic control regulations, maintains an inventory of toxic air contaminant emissions from Valley sources, and assures that those emissions, and any proposed increases in air toxics emissions from new or modified sources, do not cause a significant risk to the residents of the Valley.

Many facilities that emit air toxics are required under the state’s Air Toxics Hot Spots regulation to prepare District-approved Toxic Emission Inventory Plans and Toxic Emission Inventory Reports in order to provide site-specific inventories of air emissions of toxic substances, and are required to reduce air toxic emissions if the facility is found to pose a high risk. While there are no longer any high risk facilities in the

Valley under the Hot Spots program, the calculated cancer risk under the revised health risk assessment guidelines is higher than calculated under previous guidance. Therefore, the health risk from facilities subject to the Hot Spots program must be reassessed. Facility reassessments began in 2017, with the bulk of the work yet to come as a part of a multi-year process identified in the regulation. To date, no high risk facilities have been identified using these new, more health-protective guidelines.

Benefiting from a myriad of efficiency and streamlining measures, the District was actually able to fulfill program mandates while reducing fees for affected facilities. The District invested significantly in upfront streamlining of program administration and implementation processes, reducing both the District’s and the regulated businesses’ costs of implementation, and in August 2017, the District Governing Board adopted an amendment to Rule 3110 to reduce the fees paid by Valley businesses subject to the Air Toxic Hot Spots Program. The rule amendment resulted in a 30% reduction in fees charged to facilities over the multi-year cycle of the program, compared to the fees that would have been collected under the previous version of the rule.

## Amendments to Indirect Source Review

The Governing Board adopted amendments to District Rule 9510, Indirect Source Review, the only rule of its kind in the State of California and throughout the nation. Indirect sources are buildings or facilities, such as new residential housing or shopping center developments, that attract mobile sources of emissions but may not directly emit air pollution. The purpose of this rule is to reduce the growth in both NOx and PM10 emissions from mobile and area sources associated with construction and operation of the projects, by encouraging clean air designs to be incorporated into the development project, or, if insufficient emissions reductions can be designed into the project, by paying a mitigation fee that will be used to fund off-site emissions reduction projects. The District’s ISR staff analyzes project applications to assess the potential indirect emissions created, quantifies the mitigation proposed and assesses whether a mitigation

fee will be necessary. Each year, the District publishes a web report of ISR activity, and the emission reductions generated by the program.

Under the amended rule, large projects will be subject to the regulation even when a lead agency chooses to process the project as non-discretionary under the California Environmental Quality Act (CEQA). The amended rule does not change the original intent of the regulation, but eliminates a potential loophole in the rule to ensure that the air quality impact mitigation requirements of the ISR rule are applied consistently throughout the San Joaquin Valley. “Grandfathered Projects” and previously exempt large development projects that received a building permit, conditional use permit, or other similar approval by March 21, 2018, remain exempt from the rule.

# EJAG Work Lauded by the District

The Environmental Justice Advisory Group (EJAG) will soon be celebrating its 10th year of service. Since its inception, membership and meeting attendance have steadily increased as well as participation from the community.

In 2015 the Governing Board voted to change the reporting structure of the EJAG to allow direct reporting to the District Governing Board while maintaining ongoing communication with the Citizen's Advisory Committee. This change was approved as a pilot and the Executive Director/APCO was directed to return with an evaluation and potential recommendations for any necessary changes or enhancements to the EJAG reporting structure moving forward.

Last year, based on the review of EJAG's activities in this area, and in consultation with CAC members, the Executive Director/APCO found that EJAG's performance with respect to advocacy for resources for the Valley's disadvantaged communities has been satisfactory.

Following this performance review, the Board took action to adopt the new reporting structure permanently with the direction to EJAG to place a greater focus on advocating at the state and federal level for reductions in mobile source emissions.

Key EJAG activities in this area include the following:

- EJAG provided a Letter of Support to EPA in support of District's application for \$10 million Federal Air Shed Grant.
- EJAG sent a letter to the State Air Resources Board to support allocating Cap and Trade revenues to fund the replacement of diesel trucks with advanced near-zero emission technologies including clean natural gas trucks, the expansion of fleets with new alternative fuel or other near-zero emission vehicles, and the installation of natural gas fueling infrastructure in the Valley.
- EJAG has been effective in facilitating statewide nonprofit organizations specifically Coalition for Clean Air to advocate in support of the District's efforts to secure funding for pollution reduction projects.

To learn more about the District's Environmental Justice Strategy or find a list of meeting dates, agendas and minutes, visit [www.valleyair.org/EJAG](http://www.valleyair.org/EJAG).



76 EV CHARGERS were installed across the Valley with over \$660,000

668 TRACTORS were replaced for a total of nearly \$50 MILLION



1,991 CLEAN AIR VEHICLES were added to the Valley with over \$5 MILLION

## Public & Private Investment Reaches \$2 Billion for Incentive-Based Emission Reduction Projects

In the past 10 years, public and private investments in clean air projects through voluntary incentive grants have dramatically increased. This reflects the ongoing commitment of the District, businesses, farmers, and Valley residents in making clean-air investments that improve the quality of life for all.

Grants recipients are typically required to provide significant matching funds. For 2017, more than **\$290 MILLION** in District and private funding was invested in clean air projects that reduced more than **9,100 TONS** of emissions in the Valley air basin.

The District funded 2,317 CLEANER WOOD and GAS STOVES & INSERTS with nearly \$4 MILLION



3,700 REPAIR VOUCHERS were issued with more than \$2 MILLION



More than \$18 MILLION was used to replace 455 HEAVY DUTY DIESEL TRUCKS



# Drive Clean in the San Joaquin

In order to reduce emissions from passenger vehicles operating throughout the Valley, the District has offered several options for Valley residents. These options provide program participants incentives to repair their high emitting vehicles through Tune In Tune Up weekend events or replace their older high emitting vehicles with newer, cleaner and more fuel efficient models through the Enhanced Fleet Modernization Program and rebates to residents who purchase or lease zero or near-zero emission vehicles through the Drive Clean! rebate program.

In 2017, the District rebranded these passenger vehicle incentive options into the Drive Clean in the San Joaquin program. Under the umbrella of the Drive Clean in the San Joaquin, the District will work to differentiate the various options available and provide clear guidance for potential participants as to which program is right for their particular situation. District staff is developing a new landing page on the District website with information on these programs and an interactive guide to help potential customers decide which program will work best.

## DRIVE CLEAN IN THE SAN JOAQUIN REPAIR PROGRAM

The Drive Clean in the San Joaquin vehicle repair program is operated through Tune In Tune Up weekend events in partnership with Valley Clean Air Now, which has a long history of successfully implementing this program and excels at reaching residents in disadvantaged communities who otherwise may not be able to afford costly vehicle repairs. Reaching this key demographic is essential as the emission reductions are most needed in low-income communities, which are historically home to the greatest percentage of high-emitting vehicles.

At a Tune In Tune Up weekend event participating vehicles are tested to determine the likelihood of that vehicle failing the required biennial smog test. Owners of vehicles that fail this initial screening are provided a voucher that is redeemable at participating smog shops for up to \$650 in emissions-related repairs plus the cost of smog checks and diagnostic time. Once the vehicle is repaired a confirmatory smog test is conducted which can then be used for vehicle re-registration purposes. In 2017, over 3,600 vehicles were repaired through the Tune In Tune Up program.

### 2017 Event Schedule

1/21	Turlock	2/4	Madera	2/25	Stockton
3/18	Bakersfield	3/25	Fresno	4/8	Merced
5/6	Lemoore	5/20	Stockton	6/17	Bakersfield
7/29	Tulare	8/5	Stockton	8/19	Lemoore
8/26	Fresno	9/16	Turlock	9/30	Porterville
10/14	Merced	10/28	Lemoore	11/11	Madera
12/2	Bakersfield				



## DRIVE CLEAN IN THE SAN JOAQUIN REPLACEMENT PROGRAM

Through the Drive Clean in the San Joaquin vehicle replacement program older high emitting vehicles are replaced with new, cleaner and more fuel-efficient models. Depending on income levels, residential status in a disadvantaged community and the type of vehicle purchased, incentives for these programs range from \$2,500 - \$9,500. The higher incentives available through this program are provided for participants who purchase plug-in hybrid or battery electric vehicles. In 2017, over 325 high polluting vehicles were replaced with newer, cleaner, and more fuel-efficient models. To date, participation in the Drive Clean in the San Joaquin vehicle replacement program has been exclusively through attending a weekend Tune In Tune Up event. In 2018, the District will be offering Valley residents the opportunity to apply directly to the District through an online application program which will be designed for participants to easily submit documents required to complete their application and track their progress through the program. In combination with the weekend event process the direct application method should result in a significant increase in the number of vehicles replaced in the District.

## DRIVE CLEAN IN THE SAN JOAQUIN REBATE PROGRAM

In May 2014, the District adopted a comprehensive action plan promoting the use of clean passenger-vehicle technology. A central focus in this plan was to increase the adoption of electric and other advanced vehicle technology in the Valley where feasible by identifying the Valley's level of readiness for such technology and addressing the barriers to adoption. Through the development of the San Joaquin Valley Plug-in Electric Vehicle Readiness Plan, the District recognized that a one-size-fits-all approach will not work in the Valley because of the region's unique geography and its disproportionately higher population of disadvantaged communities in comparison to the rest of the state. By providing significant incentives for Valley residents to purchase or lease these clean vehicles, the District is eliminating one of the key barriers toward greater acceptance and adoption of this technology: the up-front cost. The District's Drive Clean in the San Joaquin rebate program provides Valley residents up to \$3,000 toward the cost of purchasing or leasing plug-in electric vehicles, plug-in hybrid vehicles and other alternative fuel vehicles. The District's rebates, coupled with various other state and federal rebates and tax incentives, provide Valley residents with the most beneficial suite of incentives for clean passenger vehicles in the entire state. This program continued to be extremely well received by the public in 2017 with more than 1,900 rebates issued in the Valley.

# Incentives

## PUBLIC BENEFIT GRANTS PROGRAM

Approved by the Governing Board in 2011, the Public Benefit Grants Program funds a wide variety of clean-air, public benefit projects that directly benefit Valley residents. Eligible applicants are public agencies and public educational institutions within the geographical boundaries of the Valley air basin. The program has three components: New Alternative Fuel Vehicle Purchase, Enhanced Transportation Strategies and Alternative Fuel Infrastructure. In 2017, the District awarded over \$2.5 million for almost 170 plug-in hybrid, plug-in electric and compressed natural gas vehicles for the New Alternative Fuel Vehicle Purchase component. To better serve local public agencies, the District has redefined the Enhanced Transportation Strategies component as the *Community Improvement Projects that Reduce Vehicular Use and Emissions* component. This component was redefined for project eligibility to more closely align with similar state and federal funding programs. Funding provided under this component will give local public agencies the necessary leverage for their projects to be competitive for these state and federal programs. The goal of this component is to transform communities to increase the use of zero- and near-zero transportation options.

## BURN CLEANER PROGRAM

Since 2009, the District has offered incentives through its Burn Cleaner program for the change-out of old, high-polluting open-hearth fireplaces or uncertified devices with new cleaner, certified units. The program has provided the resources necessary for thousands of Valley residents to make positive changes in their residential wood-burning practices and is a significant part of the District's overall strategy to reduce harmful wood-smoke emissions that directly and adversely impact the health of residents in the Valley. Given the potential high cost to replace older units, the program includes a specific focus on low-income residents by providing higher incentives and expanded eligibility criteria that make the purchase of a new, cleaner unit more economically feasible. In 2017, the District awarded almost 2,300 vouchers totaling approximately \$3.8 million.



## CLEAN GREEN YARD MACHINES PROGRAM

Old gas-fueled lawn mowers generate significant emissions in comparison to their electric counterparts. Valley residents are directly exposed to these harmful emissions since lawn mowers are often used in applications within residential neighborhoods. Since 2001, the District has provided incentives to Valley residents to replace their old gas-fueled lawn mowers with new electric units through its Clean Green Yard Machines program. The program has been widely popular and has given thousands of Valley residents the opportunity to get involved and be a part of the solution to improve the region's air quality. In 2017, the District has helped replace 390 old gas-fueled lawn mowers with electric mowers for over \$84,000.

## CHARGE UP! PROGRAM

To support the growing number of clean plug-in electric vehicles and plug-in hybrid electric vehicles in the San Joaquin Valley, the District launched its Charge Up! program on June 1, 2015 to fund the purchase and installation of publicly accessible electric vehicle chargers. The program offers Valley businesses and public agencies up to \$6,000 for a Level 2 charger and up to \$25,000 for a Level 3/DC fast charger. The goal of this program is to further strengthen the Valley's electric vehicle charging network to ensure the technology's sustainability in the region and ease "range anxiety" that concern many existing and potential electric vehicle owners. Through the program, the District strives to build a robust charging network throughout the San Joaquin Valley which will support the Governor's goal of 1.5 million electric vehicles in California by 2025. In 2017, the District awarded more than \$660,000 in incentives for the installation of 76 Level 2 and Level 3 electric vehicle chargers. Recently approved enhancements to the Charge Up! program include shifting the program implementation to a voucher-based system to enhance the program's efficiency, and allowing workplace charging as an eligible funding category to address significant demand in the area. These enhancements are expected to help Valley entities take advantage of current and future funding opportunities provided by the California Energy Commission, the California Air Resources Board, and utility companies by aligning program processes and allowing Valley entities to stack incentives to minimize out-of-pocket costs.

# Incentives

## LOCOMOTIVE REPLACEMENT

The District Governing Board approved two locomotive projects that will have significant emission reduction impacts for the San Joaquin Valley. The first project allocated up to \$2.5 million to replace two old, high-polluting passenger locomotives with new, Tier 4 locomotives for the Altamont Corridor Expressway (ACE), linking destinations in the San Joaquin Valley and the Bay Area, in partnership with the Bay Area Air Quality Management District and San Joaquin Rail Commission. The second project allocated up to \$1.8 million, to replace two old, high-polluting short-haul locomotives with new, Tier 4 locomotives that operate within disadvantaged communities in the vicinity of the Port of Stockton. In addition, the District executed contracts for the replacement of 13 locomotives totaling over \$25 million in Prop 1B incentive funds. These locomotives, operating at various locations throughout the Valley are required to be replaced with Tier 4 engines, which will significantly reduce emissions from this equipment.

## HEAVY-DUTY TRUCK REPLACEMENT

The District's Truck Voucher Program (TVP) has successfully obligated over \$73 million to replace more than 1,822 Valley-based heavy-duty trucks with new, cleaner heavy-duty trucks. The TVP operates as a partnership with Valley truck owners and dealerships to replace old high polluting heavy-duty trucks with new low emission heavy-duty trucks.

In 2017, the District opened a second competitive solicitation for truck replacement projects for Year 5 of the Proposition 1B Goods Movement Emission Reduction Program. The Year 5 solicitations resulted in \$17 million in District executed contracts in Prop 1B funds for truck replacement projects.



## Technology Advancement Program Supports Air Quality Innovation

Achieving attainment of EPA's increasingly stringent ambient air quality standards will require significant additional emissions reductions and the development and deployment of transformative zero and near-zero emissions technology over the coming decades, particularly in the mobile source sector. Through the Technology Advancement Program (TAP), the District has been actively working with technology providers, other agencies, and Valley stakeholders to identify and support the next generation of transformative technologies necessary to achieve the District's clean air goals. In the past year, the District has worked closely with:

- Clean Air Technology Initiative, a collaborative workgroup formed with EPA Region 9, the state Air Resources Board, South Coast Air Quality Management District and other agencies
- California/Federal Dairy Digester Working Group, a partnership of state, federal and local agencies that has the common goal of identifying and removing barriers to the wide adoption of dairy digester systems in California
- California Department of Food and Agriculture (CDFA) research and development program for dairy digester technologies and alternate manure management practice programs

Since inception, TAP has opened four rounds of funding and received over 137 proposals for clean-technology projects. The District has selected 35 of these projects for funding totaling \$12.6 million.

The funding provided through TAP has allowed innovative companies to put into operation many new demonstration projects, including California's first zero-emission transport refrigeration unit (TRU) this past year. TRUs are refrigeration units mounted on trucks (that are traditionally powered by high-polluting small diesel engines) to provide the needed cooling to transport chilled products. This project involved the development, testing, and demonstration of a zero-emission solar and electric-powered TRU to replace conventional diesel-driven TRUs. Testing from the new Challenge Dairy Products delivery truck indicated a dramatic decrease in harmful emissions of nitrogen

oxides, particulate matter, and carbon dioxide compared to the typical diesel-powered TRU. This innovative TAP system is also expected to reduce operation and maintenance cost by 90%.

In 2017, the District also leveraged \$1 million in District match funding towards a \$16 million dollar project to demonstrate the first-of-its-kind high efficiency opposed piston diesel engine technology capable of meeting the near-zero 0.02 g/bhp-hr NOx emissions standard. This will be the first demonstration in the U.S. of a high efficiency and low-NOx engine powertrain vehicle in Class 8 applications. If successfully commercialized, this near-zero diesel engine technology will provide significant fuel savings while taking advantage of existing diesel fueling infrastructure, which has been a significant challenge in the broad deployment of other zero and near-zero technologies in long-haul applications that make up a large portion of the Valley's emissions.

Past TAP project successes have also led to new industry projects including a demonstration project with Philip Verwey Farms, a dairy in Hanford, which converted several elements of its feeding operation from diesel power to electricity. The project was successful in demonstrating that diesel emissions could be significantly reduced at dairies and other animal feeding operations throughout the District in a cost effective manner and subsequently throughout the Valley. As a result, the District worked closely with the agricultural industry and technology providers, to develop the Dairy Feed Mixing Electrification Program and allocated \$4 million to expand the installation of electric feed mixing equipment and further reduce diesel emissions from mobile equipment at Valley dairies and other confined animal feeding operations.

Additionally, the District's close collaboration with CDFA has resulted in \$35.2 million in grant funding to 18 dairy digester projects across the Valley, resulting in an expansion of this renewable energy resource without new emissions.

In 2018, the District will be conducting a Request for Proposal to solicit and support additional clean technology projects suited to the Valley's needs.



## Sharing the STAR Culture Service, Teamwork, Attitude and Respect

### SHARING THE DISTRICT'S EXPERIENCE

The District's STAR work culture has enabled the District to excel in the fields of customer service, continuous improvement and employee satisfaction. At the request of Valley elected officials and other stakeholders, the District has developed materials that are being shared with other agencies and organizations that wish to implement a similar work culture.

### BRINGING THE BEST PRIVATE SECTOR BUSINESS PRACTICES INTO GOVERNMENT

There are government agencies that implement effective business practices seen primarily in the private sector that lead to efficiency, productivity, innovation, and exceptional customer service on an ongoing basis. The San Joaquin Valley Air Pollution Control District has long been committed to establishing and maintaining a work culture that values and rewards efficiency, productivity, competition, innovation, and exceptional customer service as the bottom line.

## EXCELLENCE in Government

- Outstanding customer service
- Great productivity and efficiency
- Doing more with less - Reducing cost and eliminating waste
- Innovation and creativity
- Entrepreneurial with competitive spirit - Be the first and the best
- Motivated and engaged employees

Excellence in government is accomplished through a management philosophy that places a greater focus and emphasis on attitude and positive behavior while setting high expectations and striving for excellence in quality of work and productivity. Achieving and maintaining a work culture like this requires day-to-day attention and ongoing commitment and effort from all levels within the organization.

Successful implementation requires that the following beliefs, convictions and commitments be ingrained in the organization's DNA:

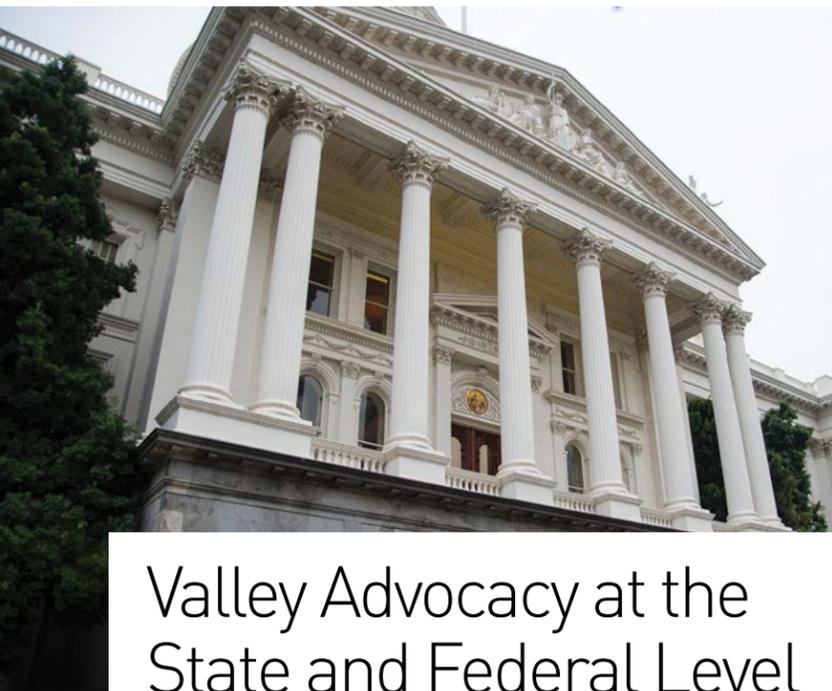
- Unshakable belief at all levels of leadership that employee welfare and well-being is essential to an agency's achievement of excellence
- Embrace change and have the entrepreneurial and risk-taking spirit to seek change
- Make delivery of great customer service to internal and external customers the top priority for the organization
- Always strive to be the best and the first in everything in which the agency endeavors
- Place a higher value on positive attitude and initiative over technical expertise in hiring and promotional decisions

Once the organization has transformed to a point of complete acceptance of the above beliefs, convictions and commitments; success demands daily follow-through with a myriad of actions to build, strengthen and maintain the culture and monitor results.

- Work constantly through actions and words to demonstrate to employees that you value their welfare and well-being
- Communicate expectations clearly and routinely
- Use employee recognition to reward good behavior and to communicate expectations
- Build an environment where employees take pride in working for the agency
- Create a safe environment for employees to offer suggestions for change/improvement
- Follow through with addressing the employee suggestions in a timely manner
- Train employees and provide the necessary tools to meet and exceed expectations
- Hold employees accountable
- Infuse constant energy to keep it fresh
- Make it an intrinsic part of each employee's job
- Create an environment where employees are not put in silos and see themselves working for the agency as a whole – not for an individual department or division
- Provide freedom and encouragement to constructively critique the work of others
- Serve as a role model

If interested in learning about the District's STAR work culture the District now has literature and a video that can be obtained upon request.





## Valley Advocacy at the State and Federal Level

The District's 2017 legislative activities were extremely productive. At the state level, as a direct result of the District's advocacy efforts working closely with Valley stakeholders, the Cap and Trade legislative package includes significant new funding for the Valley that will greatly assist in achieving the enormous emissions reductions necessary for our upcoming State Implementation Plans aimed at attaining the federal health-based standards.

The District successfully argued that the public health needs in disadvantaged communities such as those in the Valley must be a top priority for the state. The deal that was reached goes a long way toward fulfilling these policy objectives guaranteeing that the District receives a fair share of revenues. The following provisions in the adopted budget legislation package of AB 109 and AB 134 are particularly beneficial to the Valley:

- \$250 million for Carl Moyer projects and clean trucks that meet Prop 1B guidelines, distributed as follows:
  - › South Coast AQMD (43%), \$107.5 million
  - › San Joaquin Valley APCD (32%), \$80 million
  - › Bay Area AQMD (20%), \$50 million
  - › Other districts (5%), \$12.5 million
- \$85 million for projects to reduce emissions from agriculture, the majority of which will come to the Valley
- \$6 million for ag renewable energy projects, the majority of which will come to the Valley
- \$50 million to ARB for ag incentives, the majority of which will come to the Valley
- \$99 million for dairy digesters, the majority of which will come to the Valley

- \$60 million for food processors for GHG reduction projects, a majority of which will come to the Valley
- \$100 million for Enhanced Fleet Modernization Program (EFMP) and EFMP Plus-Up, school bus replacement, and low-income Clean Vehicle Rebate Project. The Valley contains 20 of the 30 most disadvantaged communities. This funding is targeted at those communities.
- \$180 million for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). This is a statewide program that the Valley traditionally takes advantage of.
- \$27 million for air districts to implement AB 617. The District will receive \$8.4 million of these funds.

At the federal level, the District was successful in securing funding for incentive-based programs under Diesel Emissions Reduction Act (DERA), Targeted Air Shed, and Natural Resources Conservation Service (NRCS). The District was also successful in the U.S. House of Representatives with passage of legislation prohibiting imposition of federal sanctions on local regions where their inability to attain federal standards is due to pollution from sources outside their regulatory authority.

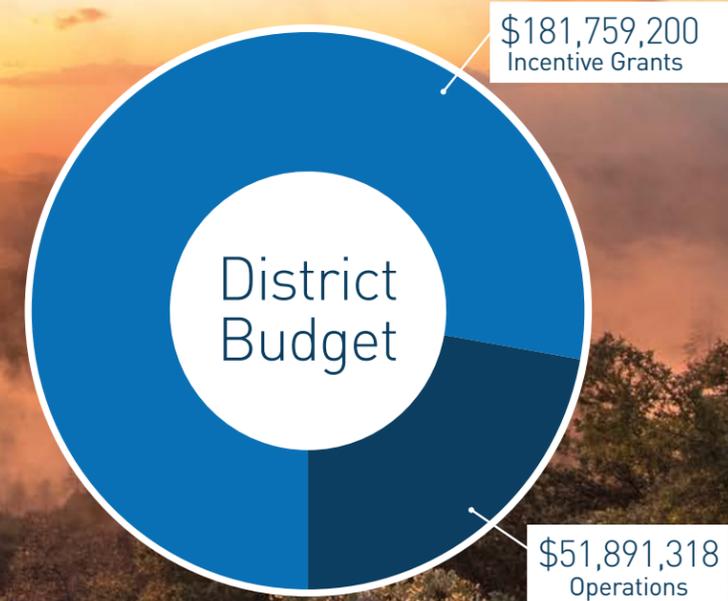
In the coming year, the District will continue to advocate that significant resources be provided to the Valley in support of the District's clean air strategies in the upcoming state and federal legislative sessions. Additionally, given the new EPA Administration's commitment to cooperative federalism, the District will be focused on working with EPA to bring about common sense administrative solutions to help the Valley meet the federal health-based standards under the Clean Air Act.

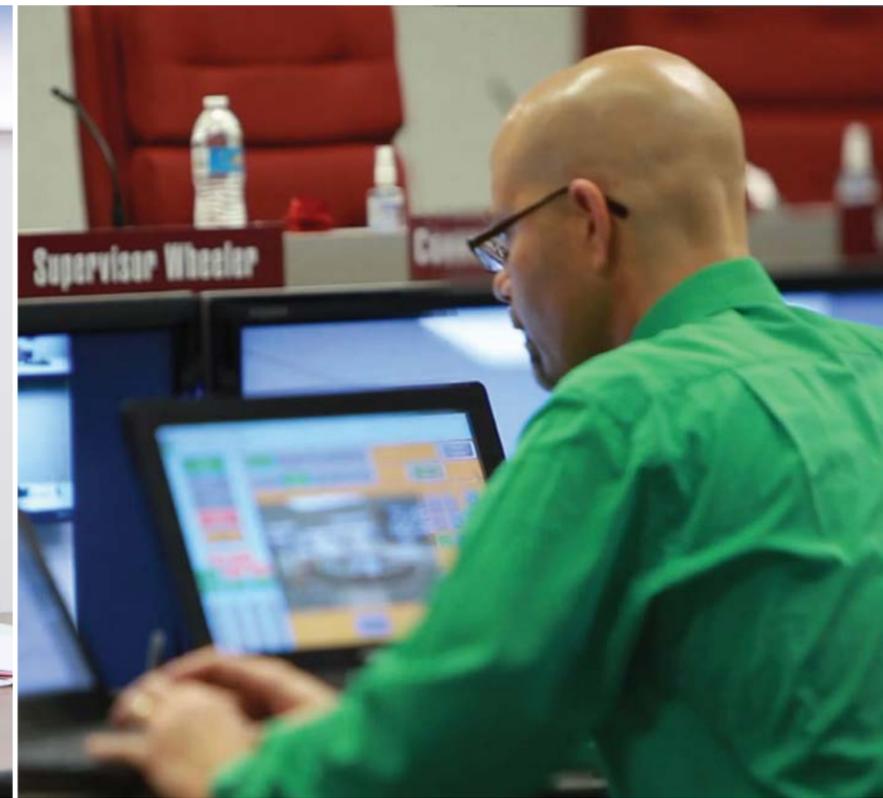
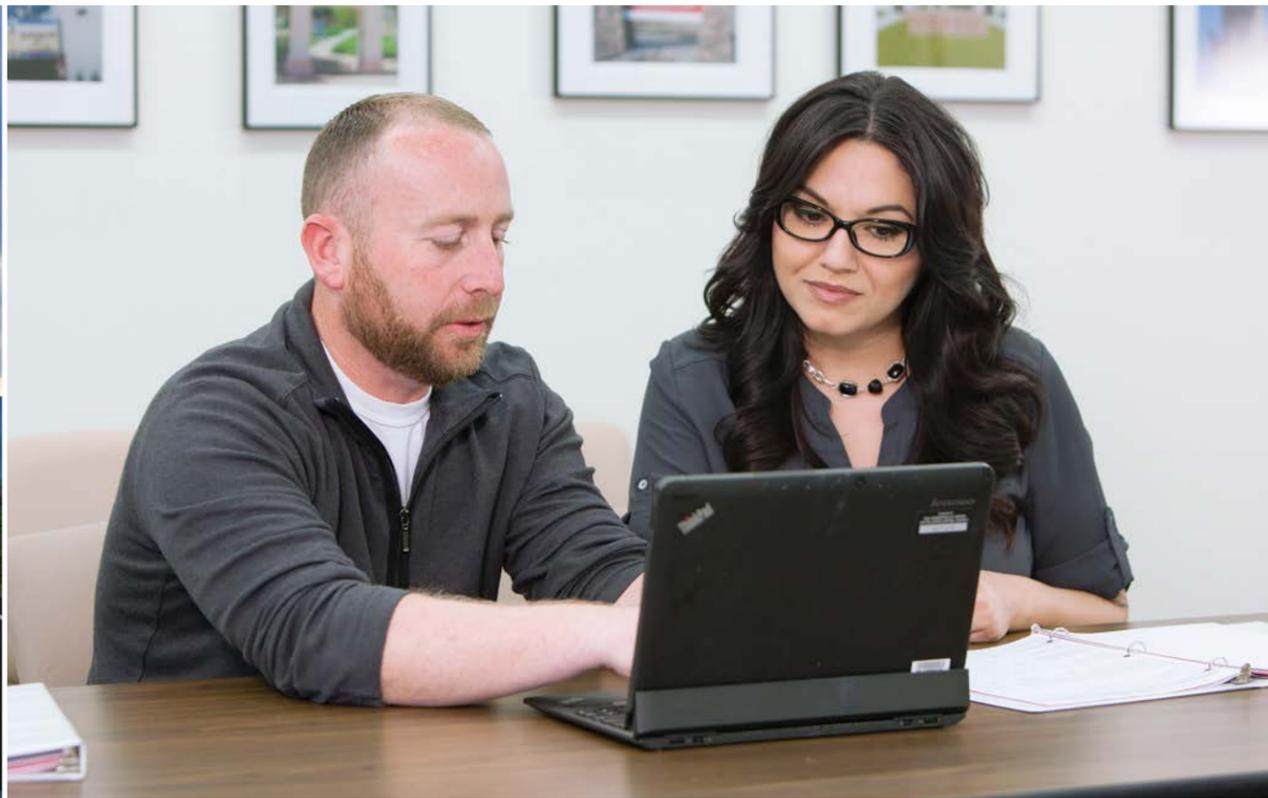
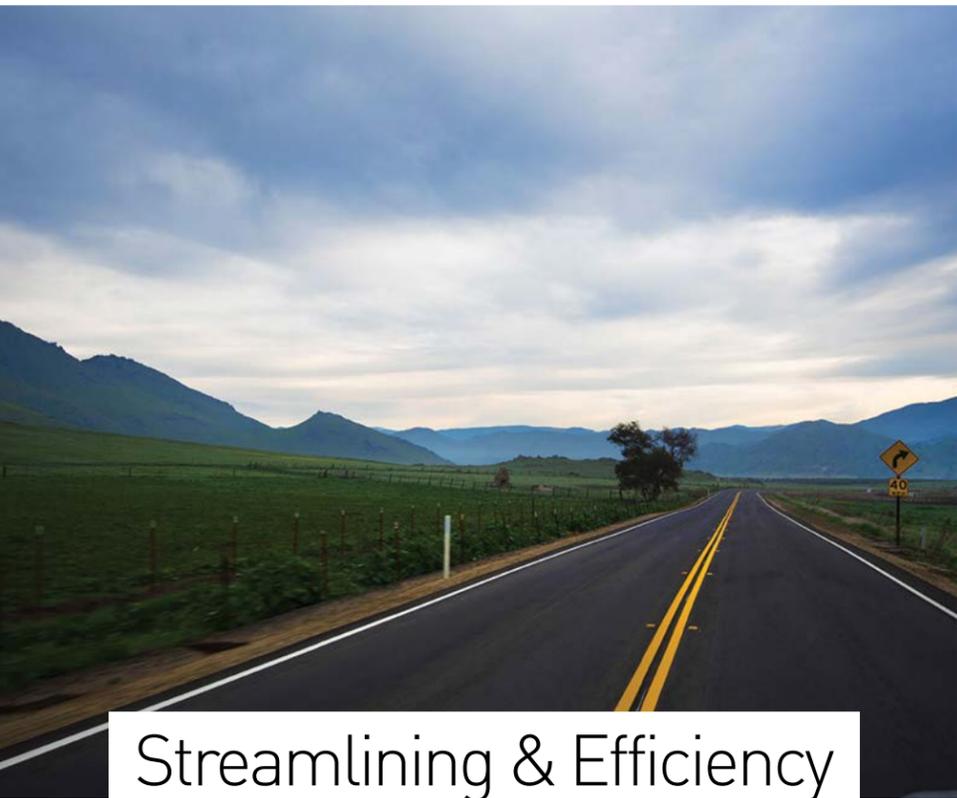
## Overview of the District's Operations

Codified in the District's Core Values, accountability is one of the most important aspects of all of the District's operations, goals and strategies. The District is accountable to the public for every dollar spent and every regulation adopted. It is accountable for demonstrating quantifiable progress toward clean air, and it is accountable for conducting day-to-day business in the most effective, efficient and innovative ways possible.

The District's track record demonstrates these values. It is given the highest marks by auditors and other agencies. It consistently sets a high bar for air quality improvements that other air management agencies emulate. It also sets the gold standard for customer service.

In that spirit, the District offers you the following operational information about how it is cleaning the air, saving money and implementing continuous improvement in all of its undertakings, continuing the tradition of excellence that the Valley's stakeholders have come to expect.





## Streamlining & Efficiency

Effective and efficient use of public funds is a core value of the District, so the District continually looks for opportunities to increase efficiency and minimize costs. The District implemented the following enhancements and streamlining measures during recent fiscal years:

### **HUMAN RESOURCE MANAGEMENT PROGRAM**

**SOFTWARE** One of the benefits of having the District custom create the Human Resource Management Program is that changes or additions can be made in real time. The software allows for maximum efficiency and effectiveness in managing personnel data. This past year, we were able to make additions and changes that allowed for better tracking and reporting of CPR certification, employment authorization, and insurance premium invoices which require changes during open enrollment as well as throughout the year. Because adjustments can be made anytime in-house, staff is not limited by programmatic deficiencies. Additionally, the human resource program works in conjunction with the labor management software and District budget program which were also custom-created. Together, all three custom programs allow the District to maximize staff time and resources when trouble-shooting issues, developing the zero-based budget and reviewing historical records.

**NEW GRANTS MANAGEMENT PROGRAM** The District is in final stages of the design and implementation of a new and improved Grants Management software for managing and processing all District grants and incentives. This cutting edge program is expected to launch in early 2018 and the improved features of this new program will streamline the District incentives application and claim processing and will provide more timely and accurate information and reports.

**ELECTRONIC PAYMENTS AND DISBURSEMENTS** The Finance department has fully implemented the option to receive and submit online electronic funds via e-checks, debit, and credit cards. The enhanced District online portal allows permitted facilities to view their current outstanding invoices, submit a payment and receive their payment confirmation instantly. This new portal also provides further streamlining for the District's billing and accounts receivable and payable functions.

**TASK AND ASSET MANAGEMENT PROGRAM** The District is in the process of implementing software to catalog and track warehouse parts inventory, fixed assets at air monitoring stations, and regular maintenance and calibration tasks needing to be completed to properly maintain the air monitoring network. This software will allow staff to catalog and organize all spare parts being housed in storage, and be able to track when inventory is low so that replacement parts can be ordered in a timely manner. This software will assist in streamlining repair and maintenance tasks, and reduce potential data loss by ensuring that parts will not run out when they are needed most.

**IMPROVED AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE ISSUANCE PROCESSES** The District has continued to develop and improve internal procedures related to the issuance of Authority to Construct (ATC) permits and Permits to Operate (PTOs). These efforts have allowed the District to further streamline the permit application evaluation process and to eliminate unnecessary administrative steps. These streamlining efforts combined with the continued development of policies, guidelines, and templates have allowed the District to reduce the amount of time necessary to issue ATCs and PTOs.

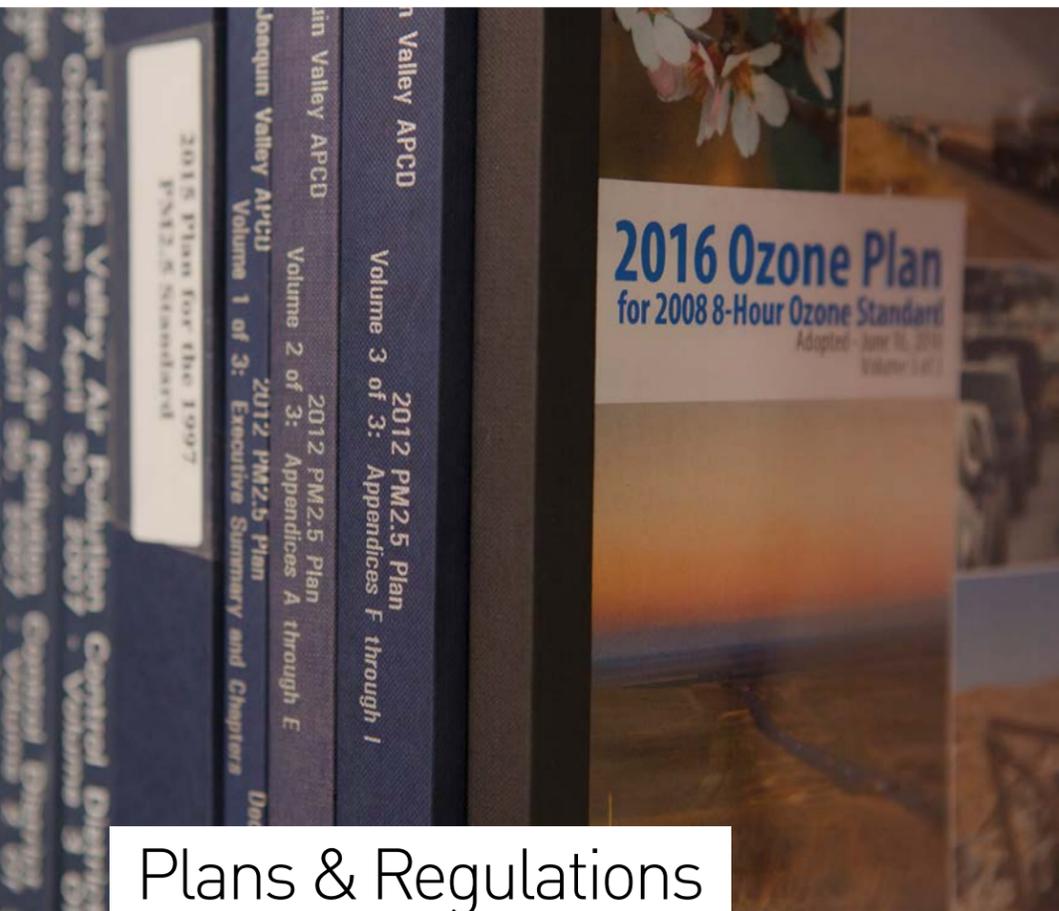
The District has also streamlined the issuance of revised or renewed PTOs for facilities subject to Title V permitting requirements. In cooperation with the U.S. EPA, the District has developed and implemented procedures designed to improve the overall process and to expedite the issuance of Title V revised permits. By increasing its efficiency in this area, the District has also been able to significantly increase in the number of renewed Title V PTOs in 2017.

**STREAMLINED IMPLEMENTATION OF NEW STATE OIL AND GAS REGULATION** In December 2017, the District adopted Rule 2260, Registration Requirements for Equipment Subject to California's Oil and Gas Regulation (see page 21). To minimize duplicative permitting and administrative requirements, and allow for full compliance with the requirements of this new state regulation without imposing any additional local

requirements, the District is utilizing a registration program in lieu of a traditional permitting approach. Using a registration program in lieu of permitting will avoid the unintended consequence of triggering local and federal New Source Review requirements.

Although the new mandates will increase staff hours, combining these activities with current District mandates, such as field inspections, pre-inspection preparation, travel time, updating inspection tracking databases, and writing inspection reports, is expected to result in cost savings in implementing the State Oil and Gas Regulation.

**AB 2588 ASSESSMENT STREAMLINING** On March 6, 2015, the California's Office of Environmental Health Hazard Assessment (OEHHA) revised its Risk Assessment Guidelines to provide enhanced protection of children, and the public overall. As a result of these changes, the District's health risk assessment processes and policies were updated accordingly and implemented on July 1, 2015. This implementation included incorporating the revised guideline into the District's implementation of the AB 2588 "Hot Spots" Program. Since calculated cancer risk under the new methodology is higher than previous estimates, the health risk from air toxics facilities subject to the AB 2588 Air Toxics "Hot Spots" program must be reassessed. The District is implementing a number of streamlining measures in order to handle these Hot Spots reassessments while also reducing fees to stakeholders.



## Plans & Regulations

### AIR QUALITY PLANS

The U.S. Environmental Protection Agency (EPA) periodically reviews and establishes health-based national ambient air quality standards (also referred to as NAAQS) for ozone, particulates, and other criteria air pollutants guided by the Clean Air Act. The District has adopted several air quality attainment plans over the years that identify measures needed in the Valley to attain EPA's increasingly stringent NAAQS. Leaving no stone unturned, the District has implemented these plans and adopted over 600 rules that have resulted in significant emissions reductions.

The District's plans include emissions inventories that identify sources of air pollutants, evaluations for feasibility of implementing potential opportunities to reduce emissions, sophisticated computer modeling to estimate future levels of pollution, and a strategy for how air pollution will be further reduced. District plans also include innovative alternative strategies for accelerating attainment through non-regulatory measures. Examples include incentive programs; technology advancement programs; the District's legislative platform; community outreach and education programs; strategies that support energy efficiency, eco-driving, green purchasing and contracting, and urban heat island mitigation efforts; plus encouraging cleaner methods of generating electrical energy and mechanical power.

In addition to the many attainment plans that the District has already developed and implemented, the District is mandated under the federal Clean Air Act to develop and adopt a number of new particulate matter attainment plans for the following standards:

- 1997 annual PM2.5 standard of 15 µg/m<sup>3</sup>
- 2006 24-hour PM2.5 standard of 35 µg/m<sup>3</sup>
- 2012 annual PM2.5 standard of 12 µg/m<sup>3</sup>

In 2017, the District continued its extensive effort to develop a PM2.5 attainment strategy for the above air quality standards through a robust public process (please see page 5 for more details). Although significant progress has been made, work remains to finalize an attainment strategy that will get the Valley into attainment of the PM2.5 standards by the statutory deadlines. All of this work will be conducted through a robust open public process with additional workshops to follow. The District will bring a plan to its Governing Board later this year that satisfies all applicable federal requirements.

### REGULATIONS

The District has demonstrated leadership in developing and implementing groundbreaking regulatory strategies to reduce emissions. For over twenty years, the District has implemented several generations of emissions control measures for the stationary and area sources under its regulatory jurisdiction. These control measures represent the nation's toughest air pollution regulations and have greatly contributed to reducing ozone and particulate matter concentrations in the Valley.

Tough and innovative rules, such as those for indirect source review, residential wood burning, glass manufacturing, and agricultural burning, have set benchmarks for California and the nation. Despite the significant progress under these regulations, greatly aided by the efforts and financial investments of Valley businesses and residents, the District continues to adopt and modify rules to achieve ongoing emissions reductions and advance our progress toward clean air.

2017 Emission Reductions			
	Plan Commitments	Reductions Achieved	Performance
<b>NOx</b>	9.48 tons per day	18.60 tons per day	96% above target
<b>VOC</b>	40.46 tons per day	47.32 tons per day	17% above target
<b>SOx</b>	0.83 tons per day	4.85 tons per day	484% above target
<b>PM2.5</b>	7.60 tons per day	13.93 tons per day of PM equivalent	Exceeding reductions by 83.3% through PM precursors



## Permitting

**WORKING WITH BUSINESS** The District works cooperatively with Valley businesses and assists them in complying with the Valley's air pollution regulations, which are some of the most stringent in the nation. To date, the District administers permits and registrations for more than 42,000 stationary sources of air contaminants at more than 14,000 facilities in the Valley.

**AUTHORITIES TO CONSTRUCT & PERMITS TO OPERATE** Stationary sources of air pollution, from dry cleaners and auto body shops to power plants and oil refineries, must obtain air permits from the District before constructing or operating. The permitting process involves two major steps:

1. The applicant must first apply for an Authority to Construct (ATC) permit. The application review process is an important opportunity for all interested parties—the project proponent, the District, and the interested public—to assess a project's compliance with federal, state, and local air pollution regulations prior to beginning construction. To obtain an air permit in the Valley the Air District requires the best available air pollution control equipment as well as mitigation of emission increases.
2. Once the applicant has properly installed the equipment authorized under the ATC permit and successfully completed an initial compliance inspection as well as any required emissions testing, when applicable, a Permit to Operate is issued.

**FEDERALLY MANDATED OPERATING PERMITS (TITLE V)** As of 2017, the District has issued Title V permits to more than 240 facilities considered to be "major sources" of air pollution. Federal law requires major sources to obtain Title V permits, which are designed to expand public and EPA participation in the permitting process for the largest emitters of air contaminants.

**CONSERVATION MANAGEMENT PRACTICES (CMP) PLANS** The District is responsible for enforcing and updating nearly 6,000 CMP plans designed to reduce air pollution emissions from agricultural operations.

**EMISSIONS INVENTORY** Each year, the District collects emissions and process data from more than 5,000 facilities and other information sources, calculates each facility's annual emissions, and reports the emissions to the California Air Resources Board. This emissions inventory then acts as a cornerstone of the District's efforts to reduce air pollution through attainment plans and emission control strategies.

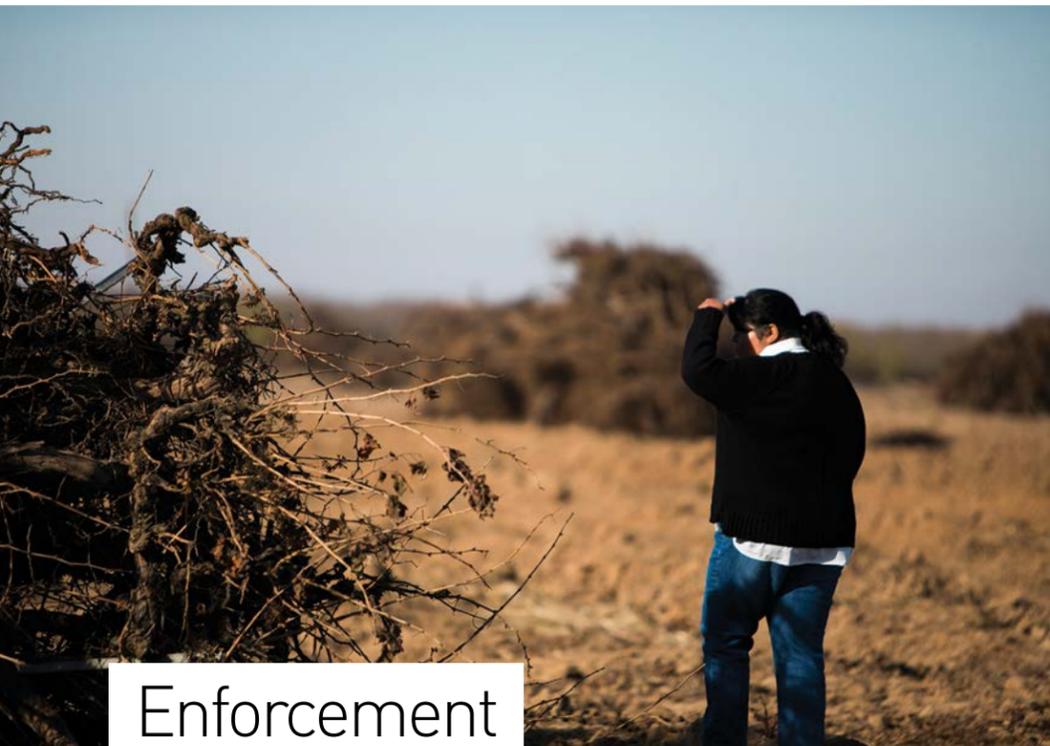
**REGIONAL GREENHOUSE GAS EMISSIONS INVENTORIES** District staff has developed protocols and processes for preparing inventories of GHG emissions from local government operations and communities throughout the Valley's counties. These inventories are very important to cities and counties as they develop planning documents and climate change action plans. The District also offers a consistent, high quality, and low-cost emission inventory preparation service to agencies in need.

**CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)** CEQA is the state law that requires projects' environmental impacts to be assessed and disclosed to the public, and that significant impacts be mitigated to a less than significant level when feasible. District staff carefully reviews land developers' project proposals, new stationary source permits, and attainment plans and rules, for compliance with CEQA requirements. Consistent with its commitment to continuous improvement and exceptional customer service, the District has implemented enhancements to its public notification system to allow members of the public to automatically receive CEQA project-specific information upon request. The District is currently developing web-based tools to assist land use agencies and developers with implementing CEQA requirements.

**SMALL BUSINESS ASSISTANCE (SBA)** Exceptional customer service is not only one of the District's core values; it is ingrained in our work culture. A great example of this is the District's SBA program, whose mission is to provide dedicated assistance to Valley businesses who lack the resources or expertise needed to efficiently obtain air permits or otherwise comply with District requirements. Our SBA staff provides expert advice on technology options, application processes, cost efficient methods to comply with District requirements, as well as many other air quality issues. Interested parties can contact the District SBA staff through hotline telephone numbers in the Northern, Central, and Southern regions of the Valley.

### PERMITTING by the Numbers 2017

2,481	Authority to Construct permits issued
1,720	New Permits to Operate issued
203	Permit-Exempt Equipment Registrations issued
18	New Title V permits issued to 1 facility
3,023	Title V permit renewals issued to 60 facilities
1,197	Title V permit modifications
469	Conservation Management Practices plans issued
286	Emission Reduction Credit certificates issued or transferred
740	Toxic air contaminant risk-management reviews performed
5,378	Annual emissions inventory statements and surveys processed
2,544	California Environmental Quality Act (CEQA) review requests processed
656	CEQA comment letters sent
189	CEQA documents prepared
318	Indirect Source Review applications approved
319	Facilities subject to the Employer Trip Reduction Implementation Plans Rule
274	Employer Trip Reduction Implementation Plans (eTRIP)



## Enforcement

Compliance with federal, state and local air quality rules and regulations is ensured by operating a robust inspection program along with a full range of educational and compliance assistance activities.

**INSPECTIONS** The District routinely conducts detailed inspections and audits equipment at new and existing facilities to ensure compliance with applicable rules and regulations. Source categories include petroleum and chemical refining, oil production, gasoline dispensing, dry cleaning, power plants, manufacturing and agriculture. Other emission-producing activities are inspected, such as asbestos demolitions and renovations, construction, residential wood burning, agricultural burning, hazard-reduction burning and idling diesel trucks.

**AIR POLLUTION COMPLAINTS** The District responds to approximately 3,000 air pollution complaints from the public each year. These complaints are often the initial indicator of air quality issues in a community. As such, the District places the highest priority on responding to complaints and operates an on-call program to ensure timely response to complaints, even during non-business hours.

**SOURCE TESTING AND MONITORING** The District monitors emissions from facilities using a variety of methods including vans outfitted with specialized monitoring equipment, hand-held portable emissions analyzers and leak detectors, and staff certified to read visible emissions. When non-compliance is suspected, an immediate test can often lead to timely corrective action. In addition to compliance and enforcement work, the District also performs testing and monitoring in support of permitting, rule development, planning, emission inventory and technology advancement efforts.

**COMPLIANCE ASSISTANCE AND EDUCATION** The District provides a full range of educational and compliance assistance activities to proactively aid facilities and individuals in complying with air quality rules and regulations. This assistance and education is provided through training classes, certification programs, bulletins, email blasts, workshops and one-on-one meetings.

**ENFORCEMENT ACTIONS** When violations of rules and regulations are discovered, the District delivers an appropriate level of enforcement action to ensure an expeditious return to compliance, and assesses monetary penalties to deter future violations. Disputed cases are generally handled in-house and settled through a mutual settlement process. On the rare occasion that a case cannot be settled, the case may be transferred to District Counsel for more formal action. In 2017, the District processed more than 2,100 issued notices, transferred 242 cases to District Counsel, and collected more than \$6.8 million in settlements.

**HEARING BOARDS** The Hearing Boards are quasi-judicial panels that act independently of the District. They are authorized by state law to provide temporary relief from District rules and regulations if strict conditions prescribed under the California Health and Safety Code are met. Any excess emissions associated with the temporary relief granted by the Hearing Boards represent only a very small fraction of the Valley's total emission inventory and cannot, by law, be likely to interfere with the attainment and maintenance of health-based air quality standards or cause a public nuisance. In 2017, 98 variance petitions were heard at 54 hearings.

### CONSERVATION MANAGEMENT PRACTICE PLANS (CMP)

The District is responsible for regulating and updating more than 4,805 CMP plans designed to decrease air pollution emissions from agricultural operations.

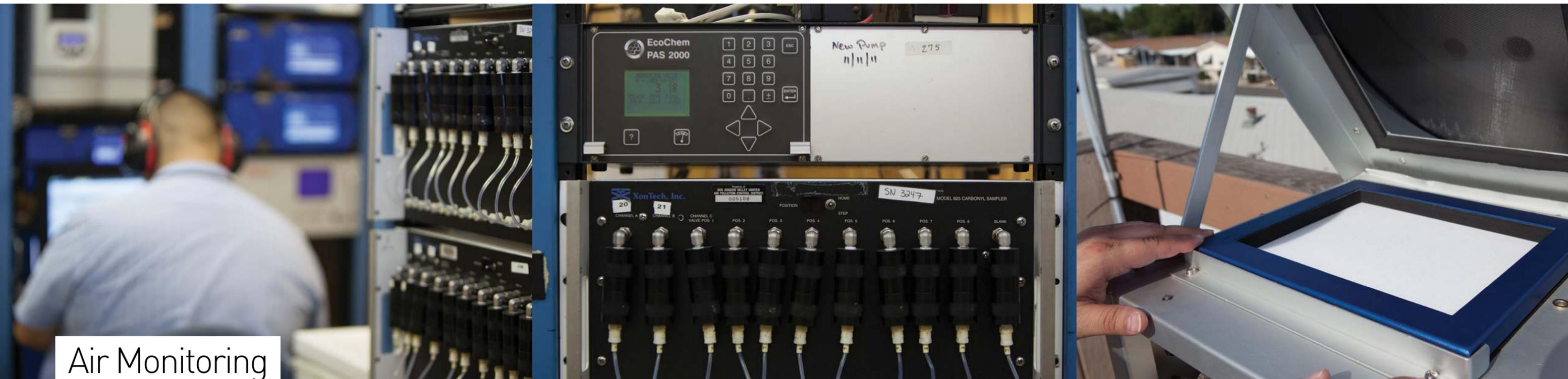
### EMPLOYER-BASED TRIP REDUCTION (eTRIP)

The District developed this innovative regulation that requires large businesses to develop strategies to promote and encourage carpooling and alternative transportation for their employees. To date, there are over 274 employers who have submitted and implemented eTRIP plans at 319 worksites. Valley employers have also developed, with the help of District staff, four new innovative eTRIP measures designed to encourage their employees to further reduce VMTs.

As an employer subject to the eTRIP rule, the District has been a role model for other facilities subject to the eTRIP rule. In fact, the District has implemented significantly more measures than required by the rule, significantly reducing VMTs. This experience has been critical in giving District staff valuable insight to provide the best possible customer service to help other employers implementing the rule requirements.

### COMPLIANCE by the Numbers 2017

<b>32,800</b>	Units inspected
<b>3,076</b>	Public complaints investigated
<b>1,863</b>	Open burn sites inspected
<b>3,389</b>	Incentive funding units (i.e. trucks, engines) inspected
<b>1,118</b>	Asbestos projects reviewed and inspected
<b>319</b>	Employer worksites subject to the Employer Trip Reduction Implementation Plans (eTRIP) Rule



## Air Monitoring

The District operates an extensive network of air quality monitors to support its mission of improving air quality and protecting public health. Using air quality readings from its real-time monitors, the District generates a daily Air Quality Index (AQI) forecast for each Valley county and hourly Real-time Air Advisory Network (RAAN) notices for schools and Valley residents. The District also rigorously analyzes collected air quality data to help chart the future path to ozone and PM2.5 attainment.

Leveraging recent advancements in technology, the District will continue to expand the use of automated monitoring equipment and remote connection systems for remote diagnostics and monitoring equipment repairs. These advancements have and will further increase efficiency and reduce travel to distant monitoring stations, and will continue to streamline quality control processes tremendously over the next year.

Monitoring equipment used to measure VOCs during the summer ozone season was recently updated to allow remote control and connectivity to the equipment from the District's office. This has greatly reduced required travel time to prepare the equipment needed for this special monitoring to occur during the summer months. The District is also developing and testing a device that automatically changes the filters used for gas instruments throughout its network, which is expected to significantly reduce travel time to remote sites.

In addition, during this past year the District expanded its deployment of new particulate matter monitoring equipment throughout the network, which are able to measure both PM10 and PM2.5 simultaneously within the same instrument in real-time. This deployment has allowed the District to retire aging PM equipment in the network and consolidate its monitoring activities into fewer pieces of equipment, creating more efficiency within the air monitoring program.

The District is also in the process of establishing its second near-roadway air monitoring station, which will be located in Bakersfield and is slated to come online later this year. The District's first near-road air monitoring station has already been in operation for a few years and is located in Fresno. These near-road stations are being established in response to new federal mandates to measure nitrogen dioxide emissions near heavily trafficked roadways in the San Joaquin Valley.

**AIRVISION DATA MANAGEMENT SYSTEM** In 2017 the District continued its full usage of its new air quality data management system (DMS), called AirVision, which has brought numerous benefits to the in-depth process of validating and ensuring quality control of the data being collected in the air monitoring network. This new system has continued to bring improvements to the District's processes in the following areas:

- Automation of quality assurance/quality control (QA/QC) data analysis using data validation protocols with suspect data warnings. Significant time was spent manually performing QA/QC data analysis as the existing DMS did not include the capability to automate

portions of the process. The new DMS has allowed the District to remove the manual strip chart recorders, which has eliminated maintenance and manual QA/QC data analysis needs.

- Increased control and automation of station tasks (QC checks, calibrations, etc.) which has provided the ability to monitor the health parameters of instruments throughout the network, allowing for staff to be more proactive in maintenance tasks before a serious failure occurs.
- Allow for a quicker acquisition of air monitoring data from the latest hour throughout the network, allowing the District to provide data to the public in a more efficient manner through RAAN.
- The AirVision data acquisition system (DAS) accepts a digital signal from the analyzers in the network, as opposed to only analog with the previous system, which has improved the accuracy of the data being reported to the public and the EPA from the District's air monitoring network.

**MODELING CENTER** In addition to the many attainment plans that the District has already developed and implemented, the District is also mandated under the federal Clean Air Act to develop and adopt several new particulate matter plans over the next year for inclusion in the State Implementation Plan (SIP). In the context of the District's air quality plans and strategy development, modeling is necessary to provide estimates for the quantities of emission reductions necessary to attain the federal air quality standards. These models are also highly valuable for estimating

the contribution of ozone and PM precursor emissions from outside the District. To support this important work, the District has designed, installed, and instituted the state-of-the-art San Joaquin Valley Air Quality Modeling Center. Through investment in extensive processing power, data storage capacity, and dedicated staff resources, the District's San Joaquin Valley Air Quality Modeling Center is one of the most advanced and powerful atmospheric photochemical pollutant modeling systems in the nation.

Air quality modeling uses highly complex computer programs, sophisticated computer hardware, and large databases to predict ambient pollution concentrations given future emission inventory and meteorological scenarios. These models bring together the science of emissions generation, meteorological transport, and atmospheric photochemistry in a "computerized laboratory" that can simulate air quality concentrations in the San Joaquin Valley. Many of the inputs and algorithms in these models were derived from the cutting-edge research performed through the San Joaquin Valleywide Air Pollution Study Agency.

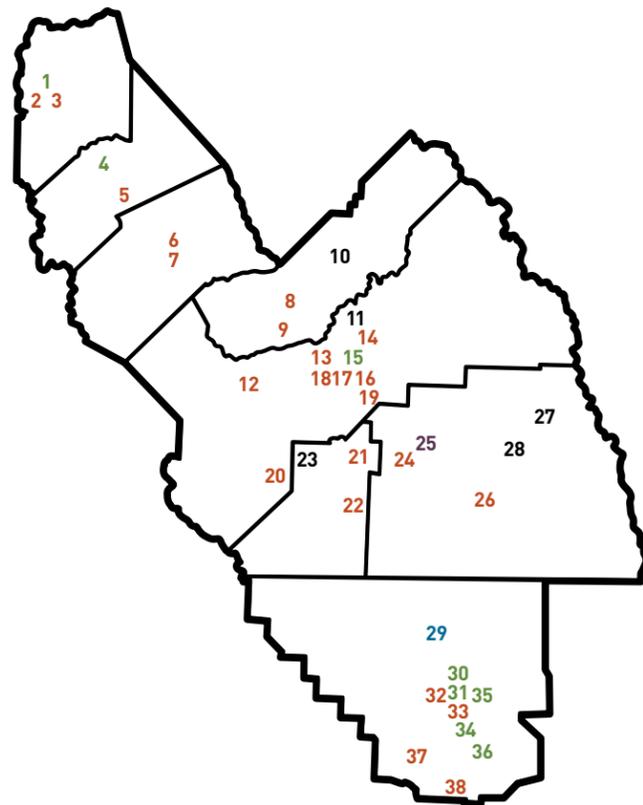
The District will also be utilizing the modeling center to continue to develop and launch an updated version of RAAN that provides Valley residents real-time air quality information on a neighborhood by neighborhood level. The District has also made available and will continue to update the Web-based Archived Air Quality (WAAQ) System, which provides the public access to historical air quality information on a neighborhood by neighborhood level.



Air Monitoring Sites



Administration



**SAN JOAQUIN COUNTY**

- 1 Stockton-Hazelton: G,M,P,F,T
- 2 Tracy-Airport: G,M,P,F
- 3 Manteca: P,F,M

**STANISLAUS COUNTY**

- 4 Modesto-14th St: G,M,P,F
- 5 Turlock: G,M,P,F

**MERCED COUNTY**

- 6 Merced-M St: P,F
- 7 Merced-Coffee: G,F,M

**MADERA COUNTY**

- 8 Madera City: G,P,F,M
- 9 Madera-Pump Yard: G,M

**FRESNO COUNTY**

- Other<sup>1</sup>: Monache Tribe/Foothill Yokut Indians
- 10 Picayune Rancheria: G,F,P,M
- 11 Table Mountain AMS: G,F,P,M
- 12 Tranquillity: G,F,M
- 13 Fresno-Sky Park: G,M
- 14 Clovis: G,M,P,F
- 15 Fresno-Garland: G,M,P,F,T,N,L
- 16 Fresno-Pacific: F
- 17 Fresno-Drummond: G,P,M
- 18 Fresno-Foundry Park Ave: G,M
- 19 Partier: G, M
- 20 Huron: F, M

**MONITORING OPERATION**

- Sites operated by the District
- Sites operated by the District & CARB
- Sites operated by CARB
- Sites operated by other agencies: 1-Tribal, 2-National Park Service
- + Air Monitoring Station (AMS)

**KINGS COUNTY**

- 21 Hanford: G, F,M,P
- 22 Corcoran: F,M,P
- Other<sup>1</sup>: Tachi Yokut Tribe

**TULARE COUNTY**

- 23 Santa Rosa Rancheria: G,M,P
- 24 Visalia Airport: M
- 25 Visalia-Church St: G,F,M,P
- 26 Porterville: G,F,M

**Other<sup>2</sup>**

- 27 Lower Kaweah: A,G,M
- 28 Ash Mountain: A,G,M,F

**KERN COUNTY**

- 29 Shafter: G,M
- 30 Oildale: G,M,P
- 31 Bakersf-Golden/M St: F,P
- 32 Bakersf-Calif Ave: A,G,M,P,F,T
- 33 Bakersf-Muni: G,M
- 34 Bakersfield-Airport (Planz): F
- 35 Edison: G,M
- 36 Arvin-Di-Giorgio: G,M
- 37 Maricopa: G,M
- 38 Lebec: F,M

**MONITORING DESIGNATIONS**

- A Acid Deposition
- F Fine Particulate (PM2.5)
- G Gaseous
- M Meteorological
- P Particulate (PM10)
- N National Core
- T Toxins
- L Lead

The Administrative Services Division is responsible for all fiscal functions, grant administration, and a variety of general services related functions of the District. The fiscal functions include preparation and control of the District's budget; responsibility for accounting and auditing all District revenues and expenditures; preparation of financial statements and incentive reports plus other grant financial management, including state and federal grant reporting. The incentive grant team is responsible for the development, implementation, and on-going administration of a variety of incentive grant programs. The general services functions of the Administrative Services Department include responsibility for facilities management, fleet maintenance, purchasing, and risk management.

Financial Excellence Earns National Award

Once again, the District was awarded the Government Finance Officers' Association of the United States and Canada (GFOA) Certificate of Achievement for Excellence in Financial Reporting for its Comprehensive Annual Financial Report (CAFR).

GFOA is an internationally recognized organization that offers guidance and support to local and state government budget and finance professionals throughout the United States and Canada. In July, GFOA presented the "Certificate of Achievement for Excellence in Financial Reporting," the GFOA's highest form of recognition in governmental accounting and financial reporting, to the District for its fiscal year 2015-16 CAFR.

Receiving this award represents a significant recognition by an expert independent authority of the District's commitment to meeting the highest principles of governmental reporting and transparency to the public, and excellence in exercising fiduciary responsibilities.



## Information Technology Systems

The District's Information Technology team continued its diligent work in providing the latest technology to assist the public in doing business with the District and help improve the quality of life for Valley residents. In 2017, the District made multiple improvements to its technology infrastructure including upgrades to its Electronic Document Management System (EDMS) and Data Acquisition System (DAS) as well as several other key projects noted below. Additionally, staff designed and built a Real-Time Electronic Air-Quality Display (READ) to provide schools a new tool to display real time air quality information and developed its first in-house smartphone app to give the public easy access to air quality data. Learn about these projects on page 16.

### ELECTRONIC DATA MANAGEMENT SYSTEM

**UPGRADE** The District's electronic data management system (EDMS) just received an overhaul. The District successfully migrated millions of its electronic documents from SIRE to OnBase, the new EDMS software. This migration provided the District staff an efficient and upgraded software with additional integration of its internal processes to the new system. As part of the upgrade, the District also migrated to a two-tier virtual platform with expanded processing speed that made the overall system more reliable and faster.

### MODEL-VIEW-CONTROLLER (MVC) IMPLEMENTATION

The District is always looking for opportunities to do things better and faster and this year, the team embarked on a plan to incorporate the MVC framework into its programming practices. MVC is a software architectural pattern commonly used for developing user interfaces that divides an application into three interconnected parts. This framework helps write an efficient, repeatable, and clean software code, which is easy to maintain and saves initial development time.

### TEST ENVIRONMENT AND TECHNOLOGY UPGRADES

Production infrastructure plays a vital role in the District's ability to provide services to the public. One example is the District's website, which is available 24/7 on District servers. In order for staff to learn and increase their knowledge base, the team created a test environment by repurposing existing server equipment and software. This allowed staff to test major system changes before deploying them to the actual production systems and prepare for any unintended changes. This testing platform was a low cost solution to provide a valuable training and testing environment. In addition, the District updated its Data Management System and continued upgrading Windows OS and database software on the remaining infrastructure servers.

## Outreach & Communications

The District's Outreach and Communications Department is comprised of a talented group of professionals with expertise in public relations, media, graphics, web design, audio-video production and event organization. Innovative, creative and effective, the OC team strives to provide clear communications to educate the public, local businesses and media about the District's mission, message and outreach campaigns.

The Outreach team invests a lot of time providing vital air quality information to a variety of entities through presentations, event collaboration, school outreach, oral and written communication, health fairs, clubs and public events about outdoor air quality. These appearances are vital outreach tools for the OC staff to build lasting relationships with Valley communities.

**PRESS RELEASES, INTERVIEWS AND MEDIA APPEARANCES** Effectively and accurately representing the District's position on virtually any subject or policy, with polish and professionalism, the OC team skillfully delivers public information through radio, TV and webcast appearances. In both English and Spanish, the staff contributes commentary for press releases and other materials that frequently are featured in the Valley's largest, most-read publications and websites.

Over the past year, the District coordinated multiple regional press events to showcase successful clean air projects, including the launch of the country's largest rural deployment of solar electric vehicle (EV) charging stations. In partnership with the Fresno County Rural Transit Agency, the California Energy Commission, CALSTART and CalTrans, the District helped fund the installation of 13 transportable solar EV Level 2 Dual Port charging stations, known as Electric Vehicle Autonomous Renewable Chargers (EV ARC). In May of 2017, these EV ARCs were made available to the public and provided much-needed public charging access and dedicated charging ports for city transit systems and utility vehicles throughout each of Fresno County's rural cities.

Additionally in October of 2017, the District held a large press event to highlight California's first zero-emissions transport refrigeration unit (TRU), which was the product of the Technology Advancement Program. In conjunction with eNow Inc., Great Dane-Johnson Refrigerated Truck Bodies, Emerson, Challenge Dairy Products, Inc., and EPA Region 9, the District supported the development, testing and demonstration of the zero-emissions, solar-and electric-powered TRU to replace a conventional diesel-driven one. Testing from the prototype TRU indicated a dramatic decrease in harmful emissions of nitrogen oxides, particulate matter and carbon dioxide compared to the diesel-powered TRUs.

### OC by the Numbers 2017

201	Media Calls
1320	Public Calls
36	News Releases
70	Presentations/ Outreach Events

## Outreach & Communications *(cont.)*

**WILDFIRE OUTREACH** Multiple wildfires during the summer months severely impacted the Valley's air quality. Among the wildfires, smoke from the Whittier Fire in Santa Barbara County, the Alamo Fire in San Luis Obispo County and the Garza Fire in Fresno County impacted air quality in Madera, Fresno, Kings, Tulare and the valley portion of Kern County. Residents in the foothill and mountain areas of Tulare and Kern counties were also affected by smoke from the Schaeffer Fire in Tulare County. The air basin also saw Valley-wide impacts from the devastating Thomas Fire in southern California in December.

During these episodes, the District issued several health caution notifications and worked to let residents know that in addition to RAAN alerts, if they see ash or smell smoke they should treat air quality as unhealthy and stay indoors. In addition, the District continues to maintain its wildfire notification page ([www.valleyair.org/wildfires](http://www.valleyair.org/wildfires)) to warn the public of potential smoke impacts and provide links to multiple land management agencies that share frequent wildfire updates.

**YOUTH AND SCHOOL OUTREACH** After years of contracting with a partner agency, Healthy Air Living Schools was brought back in-house in 2017. District staff members are refocusing efforts to connect or reconnect with schools and school districts and help them move toward the more health-protective Real-Time Air Advisory Network (RAAN) system. School personnel can use RAAN with the Real-Time Outdoor Activity Risk (ROAR) guidelines when deciding outdoor activities for students. In addition, free No Idling signs are available in English and Spanish and are helpful in reminding parents that idling while waiting to pick up their students adds harmful pollution. To read more about Healthy Air Living Schools, see page 15.

The free Healthy Air Living Kids' Calendar continues to be a big hit with schools, nonprofits, health organizations and businesses. Hundreds of artworks were submitted by students throughout the Valley, and 14 winning entries were selected.

Healthy Air Heroes activity kits remain popular with teachers and parents. The free, educational booklets contain coloring pages, stickers, word scramble and other kid-friendly activities for students in grades kindergarten through sixth.

**WINTER OUTREACH** The Check Before You Burn program remains successful at curbing the build-up of harmful fine particle pollution in the Valley during the winter months. The annual program, which runs from November 1 through the end of February, lets residents know daily whether or not they can light their wood-burning devices.

Valley residents willing to replace dirty residential wood-burning devices with certified, cleaner ones or gas devices can take advantage of the District's Burn Cleaner incentive program. In 2017, more than 200 days were declared No Burning Unless Registered. Residents with certified wood-burning devices were able to use their units on these days.

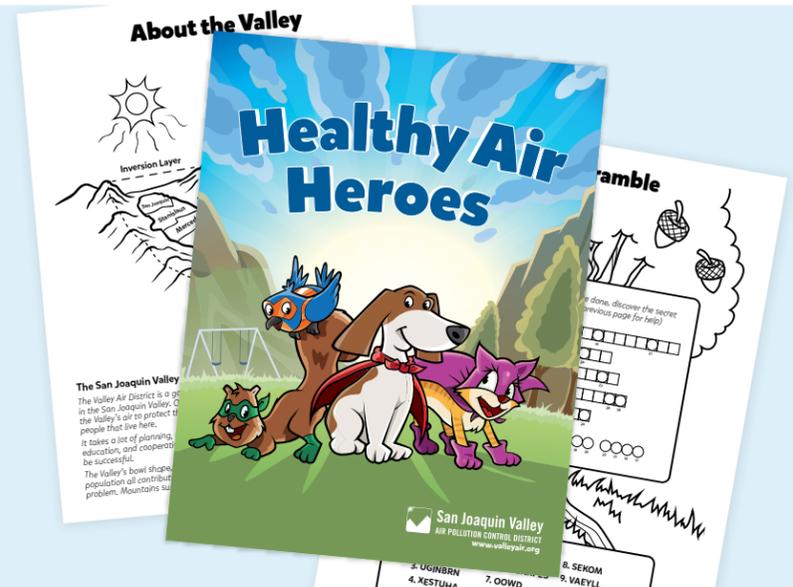
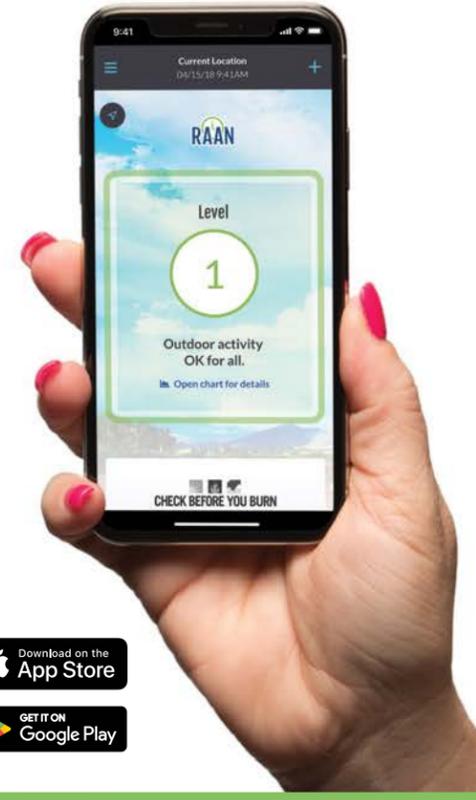


## Know the Air Quality. Right Here, Right Now.

Download the Valley Air App!

Keep track of current air quality in your favorite neighborhoods via the official app of the Valley Air District

Receive hourly air quality data provided by the Real-Time Air Advisory Network (RAAN).



# Sources of Pollution

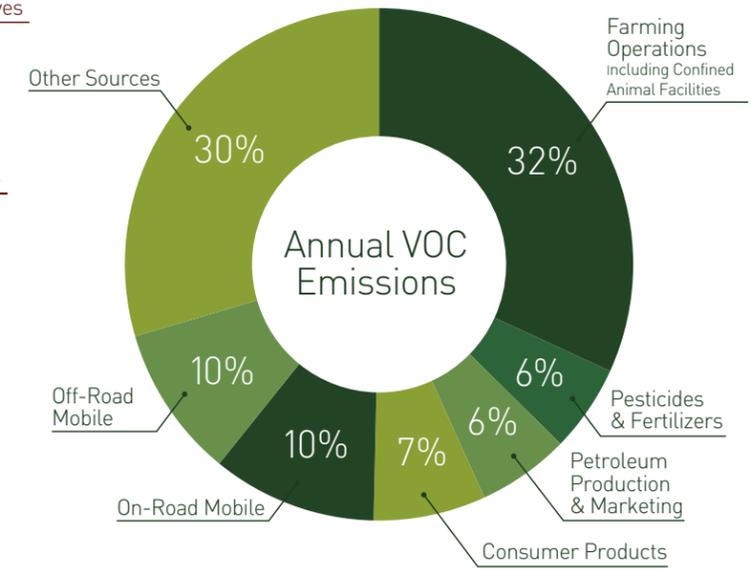
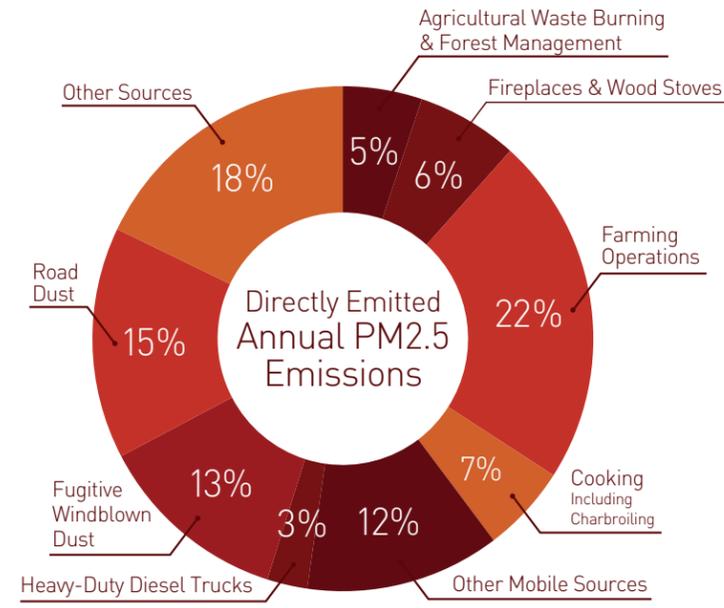
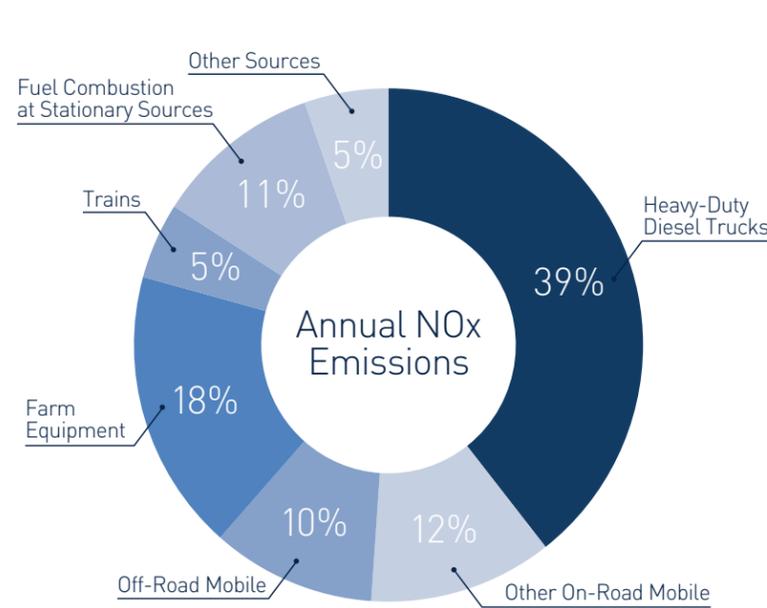
Each year, the District collects emissions and process data from more than 5,000 facilities and other information sources, calculates each facility's annual emissions, and reports the emissions to the California Air Resources Board. This emissions inventory is used to calculate total Valley emissions and acts as a cornerstone of the District's efforts to reduce air pollution through attainment plans and emission control strategies.

Despite major improvements in air quality, the Valley still faces significant challenges in meeting the federal, health-based, 8-hour ozone and PM2.5 standards. These challenges are the result of the Valley's unique geography, topography and climate, which create ideal conditions for forming and trapping air pollution.

Ozone is the major component of the Valley's summertime "smog," and it affects human health and vegetation. Ozone is not emitted directly into the air, but is created by photochemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight.

Particulate matter (PM) consists of tiny particles of solids or liquids (except pure water) that are suspended in the atmosphere. Particulate matter includes PM2.5 (particles less than 2.5 micrometers in diameter) and PM10 (particles less than 10 micrometers in diameter). PM can be emitted directly (primary PM, such as dust or soot), and can form in the atmosphere through photochemical reactions or gaseous precursors (secondary PM). Much of the Valley's ambient PM10 and PM2.5 is secondary PM, formed in atmospheric reactions of NOx.

In the San Joaquin Valley, due to our climate and the chemical composition of air pollutants, NOx is the primary culprit in the formation of both ozone and PM2.5. More detailed information on emissions is provided in the District's air quality plans, available at [www.valleyair.org](http://www.valleyair.org).





## Giving Back

In 2017, District employees across the regions used their time off to provide assistance to multiple Valley organizations during District-sanctioned projects. This effort is now a highly anticipated annual tradition for employees and a great opportunity to provide direct support to the communities the District serves.

Throughout the District, staff enjoyed several great community projects this year, including:

- Collecting and filling 82 backpacks full of school supplies to share with the Habitat for Humanity Neighborhood Revitalization Program
- Creating over 430 meal boxes for the Community Food Bank's Holiday Meal Box Volunteer Program
- Donating over 96 pints of blood to the Central California Blood Center, saving 288 lives
- Donating over 500 used and new books to The Reading Heart local book donation program
- Collecting personal items to create 111 "Care Kits" for the Poverello House to distribute to homeless individuals in the Central Valley
- Making and dispersing burritos for the Bakersfield Burrito Project, which touches the lives of more than 200 homeless or disadvantaged residents weekly by providing free burritos, snacks, water and gently used clothing
- Raising funds for the Kern Bridges Youth Home to help provides responsive solutions and trauma-informed care to Kern County's vulnerable children
- Participating in and volunteering at the League of Dreams Autism walk. The League of Dreams is an adaptive sports league for athletes with physical and developmental disabilities.



## On the Radar

Through decades of investment and sacrifice by Valley businesses and residents, the pollution from industries, businesses, farms and vehicles continues to be at historically low levels, and today Valley residents are experiencing the cleanest air on record.

However, the District continues to face ever-tightening federal standards under the Clean Air Act which must be met. For the last two years, the District conducted a lengthy public process to develop a plan to bring our region into attainment of the latest PM2.5 standards. Once the plan is adopted, the District will quickly shift to the implementation phase which will include engaging all stakeholders on the development of a number of new air quality initiatives that build on the successful measures already in place. These initiatives will include ambitious regulatory and incentive-based strategies that aim to bring about additional reductions from a broad range of stationary and mobile sources addressing everything from residential wood burning to heavy-duty trucks traveling through the Valley. As this plan takes shape, the District will continue to seek commitments from the state and federal government for those pollution sources under their authority, and advocate to bring additional dollars to the Valley to assist in securing emission reductions as early as possible.

In addition, tough mandates are coming to the District through the state's implementation of AB 617 (Cristina Garcia, 2017). The District's Community-Level Targeted Strategy that was adopted by the District prior to AB 617 gives the Valley a head start in this process. This strategy and a host of other initiatives have now been incorporated in the District's new San Joaquin Valley Community Engagement and Protection Program enabling the District to fulfill these mandates. As the state Air Resources Board finalizes the necessary guidelines and regulations for AB 617 implementation, the District will be actively engaged to ensure all Valley residents and businesses are afforded ample opportunity to provide input and to ensure that AB 617 is implemented appropriately based on sound science, is packaged with necessary funding resources to the Valley's disadvantaged communities, fully considers socioeconomic impacts, and ensures that the state addresses mobile source emissions that are beyond the District's regulatory authority.

The District will continue to advocate for the Valley in the upcoming state and federal legislative sessions to ensure that significant resources are directed to the Valley to support the District's clean air strategies. Finally, given the new EPA Administration's commitment to cooperative federalism, the District will be focused on working with EPA to bring about common sense administrative solutions to help us meet the federal health-based standards under the Clean Air Act.





**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT

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[www.valleyair.org](http://www.valleyair.org) | [www.healthyairliving.com](http://www.healthyairliving.com)

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