

# Coachella Valley Water District's application for AMWA's Gold Award for Exceptional Utility Performance

Submitted May 31, 2016

## Utility Profile

Coachella Valley Water District (CVWD) provides potable water for drinking and other domestic purposes to about 110,000 homes and businesses, and sanitation services — resulting in the creation of non-potable recycled water for irrigation use — to 95,000 connections in a service area that extends for 1,000 square miles.

CVWD's water source for domestic accounts is groundwater obtained from an aquifer with a capacity of at least 39 million acre-feet (maf). Agriculture irrigates predominantly with imported Colorado River water (canal water), provided by CVWD, and privately-pumped groundwater. Golf courses and several other landscapes use CVWD's recycled water, canal water, a blend of both of these non-potable water sources and/or groundwater.

CVWD uses State Water Project (SWP) water, which is exchanged for Colorado

River water, for groundwater replenishment.

CVWD is located in the arid Colorado Desert with rainfall that averages about three inches per year.

CVWD is responsible for managing Coachella Valley's groundwater basin and does so utilizing the Coachella Valley Water Management Plan (CVWMP), a frequently updated 35-year blue print for protecting and preserving groundwater through more efficient water use and other forms of conservation, increased use of alternate sources such as recycled and canal water, and groundwater replenishment with SWP water and Colorado River water.

CVWD is a retail provider of potable and non-potable water and wastewater services.

CVWD is a stand-alone utility, a California Special District, recognized by the state Legislature in 1918.

CVWD is governed by a five-member Board of Directors (Board), which meets twice monthly at alternating locations in different areas of an expansive service area; this increases public accessibility for its participation. Directors are elected to four-year terms by registered voters within the divisions in which they live and seek to represent.

CVWD serves a population of approximately 318,000 people across (predominately) Riverside, Imperial and San Diego counties in Southern California.

CVWD's FY 2015-16 operating budget is \$221 m; the capital improvement budget is \$108.5 m, and the projected five-year Capital Improvement Program (CIP) totals \$701 m.

CVWD also provides:

- Operation and maintenance of a 123-mile open canal and 485-mile underground irrigation delivery system.
- Agricultural drainage that protects 37,500 acres of highly productive farmland by reducing salinity in the soil.
- Regional stormwater protection for 600 square miles.
- Proactive presentations at local schools — kindergarten through high school — promoting canal safety and conservation annually to tens of thousands of school-age children. This is in addition to an aggressive public

education program promoting conservation throughout Coachella Valley.

## Mission Statement

**To meet the water-related needs of the people through dedicated employees, providing high quality water at a reasonable cost.**

Assessed property values within CVWD's boundaries in 2015 exceeded \$53 billion (b).

CVWD and Metropolitan Water District of Southern California are the only California water districts with entitlements to both Colorado River water and SWP water.

## Strategic Business Planning

Initiated in 2014, Strategic Business Planning defines issues of critical importance to CVWD's success. Its Board adopted strategic plans in June 2014 and June 2015. Guided by the *Ten Attributes of Effectively Managed Water Sector Utilities*, and with consultant facilitation, CVWD's management and more than 50 key staff members and Board members embarked on a multi-year plan to develop and implement initiatives designed to ensure CVWD achieves its goals. Five workshops conducted over five months led to creation of the initiatives.

The Strategic Plan covers six distinctive Strategic Goals, each of which addresses several Effective Utility Management (EUM) attributes, shown below in italics. The goal areas were selected to ensure CVWD's ability to continue to provide a highly reliable supply of water and services to its customers that meet all applicable and foreseeable future regulations, by utilizing a highly skilled workforce, at the most competitive market prices.

- **Employee and Workforce Development** ensures that competitive salaries and benefits are maintained, succession is well planned and institutional knowledge is preserved and managed. (*Employee and Leadership Development, Operational Resiliency*)
- **Financial Stability** follows industry-recognized rate-making practices to maintain organizational fiscal health while ensuring integrity and transparency in the financial process. (*Financial Viability, Operational Optimization, Stakeholder Understanding and Support*)
- **Water Supply Sustainability** is possible through the enactment of more aggressive conservation, expansion of the non-potable water program, updating and compliance with the CVWMP and protection of the water supply and its optimized usage. (*Water Resources Adequacy, Community Sustainability, Operational Resiliency*)
- **Exceptional Customer Service** leads to an optimized customer experience, improved internal communications and an efficient collection of customer feedback and input. (*Customer Satisfaction, Employee and Leadership Development*)
- **Water Quality and Environmental Leadership** features continued compliance with all water quality regulations, performance of effective environmental resource management and optimized energy usage. (*Product Quality, Operational Resiliency, Stakeholder Understanding and Support, Water Resources Adequacy*)
- **Infrastructure Investment and Management** involves development of an asset management and capital improvement programs, preventative maintenance program, irrigation infrastructure repair and replacement program and effective management of other physical assets. (*Water Resources Adequacy, Community Sustainability, Operational Optimization*)

More than 40 initiatives were proposed in support of Strategic Goals, and eventually reduced to approximately 30 (projects identified with **bold type** throughout this application); those not selected will be revisited at a later date. Each initiative has a project coordinator and project sponsor responsible for ensuring meaningful progress.

Progress is measured using the SMART (specific, measurable, attainable, realistic, timely) matrix, reported quarterly to the Board. Many initiatives are associated with several EUM attribute.

### Measurements

A key to success for CVWD is the ability to exhibit resilience in its ability to provide the various water services to customers in the most reliable, sustainable, cost effective manner.

Selected measurements are listed below, and cover core business needs. The metrics provided in the EUM guidance provide a good foundation for the measurements (see Appendix B) and are being used to track progress.

- **Water demand:** potable and non-potable, agricultural and groundwater replenishment.
- **Water supply:** groundwater production (to address the state's water conservation mandate), Sustainable Groundwater Management Act (SGMA) requirements, SWP water and Colorado River water deliveries and non-potable water.
- **Water replenishment:** statistics from all valley groundwater replenishment sites.
- **Water quality:** drinking water and wastewater discharge requirements (regulatory compliance).
- **Valve exercising and meter replacement:** impacts on water conservation and financial stability.
- **Survey participation** (including AWWA benchmarking and AMWA utility surveys): to gauge how CVWD measures up to other water/wastewater agencies.
- **EMU attributes:** measuring a majority of suggested parameters in various operational areas.

### Continual Improvement Management Framework

- **D**etermining the most meaningful EUM metrics for CVWD's use is ongoing, so the management framework is always evolving.
- Implementation of an employee suggestion box provides direct feedback from staff. Immediate and significant employee participation features questions answered quickly and posted on bulletin boards at several locations. Input ranges from questions regarding how CVWD is complying with state-mandated conservation requirements to inquiries regarding CVWD's Board and its terms limits.
- The Strategic Initiative Tracker provides accountability to the Board on the Strategic Plan.
- Consultants help CVWD obtain third-party feedback on developing plans and implementing improvements. Plans include the CVWMP, the Coachella Valley Urban Water Management Plan, the Cost-of-Service Study and the Source of Supply Study.
- The better communications being developed starts with administration.
- Weekly general manager-led staff meetings provide information across departments regarding activities that often have district-wide impacts.

- Departmental tailgate meetings hosted weekly reinforce safety (OSHA-reportable injuries in 2014 were down 58% compared to 2010: See the chart in the Employment and Leadership Development attribute section) and other messages.
- Interdepartmental meetings are based on recommendations developed during the strategic planning process.

### Product Quality

Historically, groundwater pumped within CVWD’s boundaries required minimal treatment (chlorination) to ensure compliance with drinking water regulations; the exception being five wells where water is treated through ion-exchange for arsenic removal. The recently enacted California-specific maximum contaminant level for Chromium 6 (Cr6), set at 10 parts per billion (ppb), however, requires ion exchange to remove this element, which occurs naturally in some areas of the Coachella Valley’s (valley’s) groundwater.

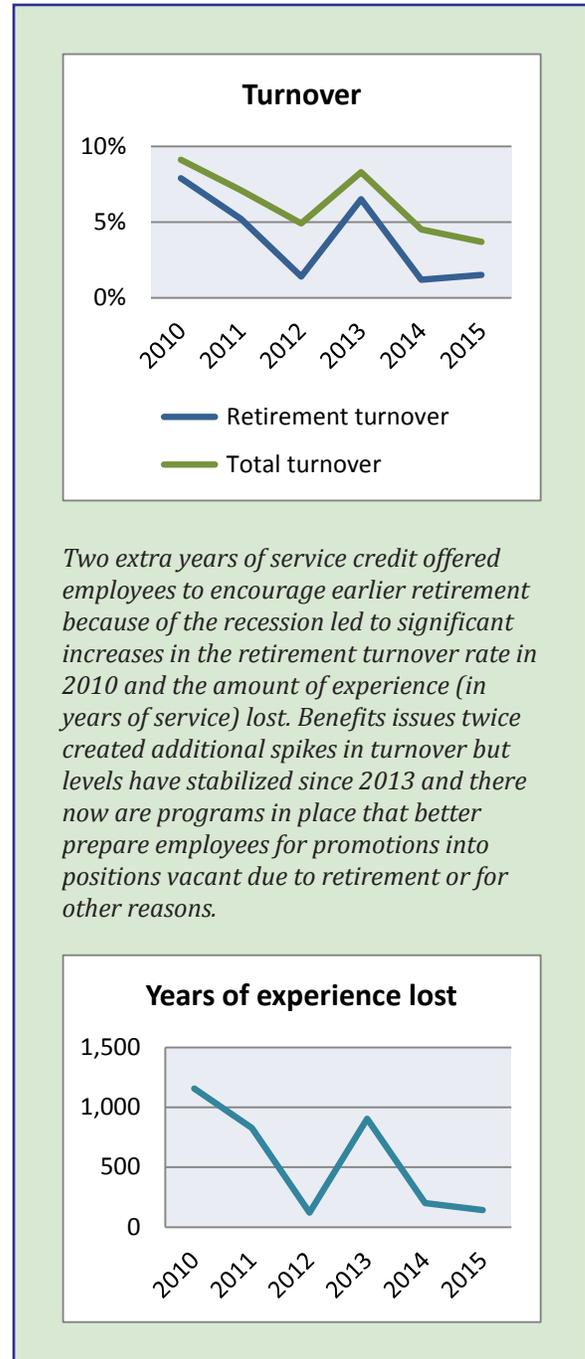
Previously, CVWD’s water treatment experience focused on arsenic removal, in response to the federal Environmental Protection Agency’s (EPA’s) revised maximum contaminant level (MCL) for it. CVWD installed three ion-exchange facilities in the mid-2000s, at a cost of \$13 m, to reduce naturally occurring arsenic levels in the water in the previously mentioned five wells in the eastern valley. These facilities were built to meet an arsenic level that is 50% below the federal EPA’s standard in anticipation that California may lower its standard in the future.

In the early 2000s, Cr6 generated national interest, based on the success of the film *Erin Brockovich*, which contributed to the California Department of Public Health (CDPH) setting an Action Level of 20 ppb for Cr6. Recognizing that CVWD may be impacted by a future Cr6 regulation, it obtained experience in Cr6 treatment by monitoring its removal in the arsenic ion-exchange facilities in the eastern valley and participating in various national-level Cr6 treatment studies, including the AWWA Research Foundation.

In April 2014, CDPH finalized the first MCL in the nation for Cr6 at 10 ppb, despite the objections from various stakeholders that the health effects conclusions may not be sound. This MCL was effective on July 1, 2014, impacting more than 30 of CVWD’s 100 wells. Unlike the federal EPA MCL, California did not provide any additional compliance period. Rather than focusing its resources on contesting the new MCL, CVWD directed its efforts to:

- Obtain legislation to provide a reasonable compliance period (5 years) for affected agencies;
- Select and construct the most economical treatment facilities to comply with the MCL for Cr6.

CVWD worked closely with the Association of California Water Agencies (ACWA) in obtaining passage of **SB 385**, which provided the State with the authority to grant public water agencies the desired 5-year compliance period for Cr6. This bill was signed into law on September 4, 2015, and a **compliance plan to meet the Cr6 MCL** was filed by CVWD with the appropriate California agency 26 days later.



Parallel to legislative efforts, CVWD engaged consultant services to select the appropriate technologies at the least possible impact to ratepayers, and to start construction of these facilities as quickly as possible using a construction management at risk model, which guarantees the maximum cost burden to the owner **(who is the owner-CVWD?)**.

It is anticipated construction costs for the preferred alternative (ion-exchange) will be in excess of \$250 m. This will increase customers' domestic water bills by as much as \$50 per month. Customers have been informed throughout the process through workshops, tours, information with their bills and web pages.

Another water quality initiative is the Coachella Valley Groundwater Basin Salt and Nutrient Management Plan, which promotes the use of recycled water through a basin-wide salts/nutrients management framework, instead of making evaluations on a project-by-project basis.

Based on modeling results, the average concentrations of total dissolved solids (TDS) and nitrate in the valley are not expected to exceed the Water Quality Control Plan for Colorado River Basin – Region 7 water quality objective for nitrate or the water quality criterion for TDS, therefore allowing recycled water projects to move forward.

Other water quality initiatives focused on methods to improve the wastewater effluent for beneficial use.

As CVWD moves closer to beneficially using 100 percent of its recycled water, discharges of treated wastewater into storm channels are being reduced or eliminated (a plan **to use effluent from wastewater treatment plant (WRP) 4 for recycling** in the eastern valley is described in *Water Resource Adequacy*). The consultant hired to design Cr6 treatment facilities has been tasked to analyze ways to modify existing arsenic/Cr6 treatment facilities to reduce brine waste streams.

New headworks installation at two wastewater treatment facilities (WRPS) and the installation of new blowers at one facility have improved the quality of wastewater effluent by reducing its nutrient content.

Also underway is a plan to supply only tertiary-treated recycled water, which has fewer restrictions in its use than less treated wastewater, to golf courses and their grounds.

## Customer Satisfaction

Customer input and feedback on CVWD services is vital to understanding where CVWD can focus future resources to improve the customer service experience. Completion of a **Customer Satisfaction Survey**, exploring opportunities for enhanced service and programs, received high priority during development of the Strategic Plan. The information and format for gathering customer viewpoints were decided by a committee made up of staff from several departments. The survey ensures that changes to policies, procedures and services represent the views of a broad customer base.

**A**t a time when negative input would have been understandable, the number of customer input cards with positive feedback went up as a result of CVWD customer service representatives effectively explaining water use restriction and penalties due to the drought and other changes to their water bills.

CVWD provides several mechanisms for customer input and interactions, including those by telephone and in writing. Telephone interactions are handled by knowledgeable customer service representatives (CSRs), who take care of about 10,000 telephone calls monthly (this volume increased to 15,000 calls starting in July 2015 due to the drought). An estimated 90% of calls are answered within 30 seconds, but the wait time can increase to two minutes during especially busy periods, which still meets industry standards. Customers can also use the Interactive Voice Response (IVR) automated telephone service, which has a call-back feature. There were more than 90,000 IVR calls in 2015 and 40,000 customers took advantage of the call-back service.

Customers also respond using cards provided in the CVWD's annual review and at water service counters, which customers can fill out and mail in or hand to a CSR (Note: At a time when negative input would have been understandable, the number of cards with positive feedback went up as a result of CSRs effectively explaining penalties due to the drought and other changes to customer water bills).

All forms of communication from the public are responded to promptly. Customers with disputes are encouraged to fill out account review forms on-line so progress in resolving their issues can be tracked by staff. Disputes are handled the same day whenever possible, which is most of the time.

An effective area of customer communications is a constantly improved website with 200 pages. This enables customers to stay informed, submit questions/suggestions and receive timely responses, usually within 24 hours.

CSRs can remotely log-in when customers are on-line to guide them through use of web page features. CVWD’s Facebook pages provide an additional mechanism for public input.

CVWD personnel are available to the public to answer questions and obtain suggestions at events and activities throughout the region. A CVWD truck that provides drinking water at nonprofit walkathon and other events is especially popular.

Guest speakers are available to make presentations to service clubs and other organizations or special interest groups such as homeowners associations.

Customers can pay their bills in many ways, including in person, by mail, on-line or through an automatic bank account deduction program.

An EchoSign signature feature was utilized 9,000 times in 2015 by people submitting applications for service and other forms electronically. More than 7,000 customers took advantage of electronic bill notification in lieu of receiving mailed copies.

A “wallet” feature on-line enables customers to store information for several credit cards, increasing their payment options.

Developers can submit their plans to build new housing to Development Services and professionals and homeowners can get a review of their desert-friendly landscaping/irrigation plans from Water Services.

The public has the opportunity to address the Board twice monthly during regularly scheduled and special public meetings and workshops at two locations. Public hearings on proposed rate increases and major policy changes (such as drought-related restrictions and penalties) are standard. The public can email Board members directly on CVWD’s website. Members of the Board are active in the community and easily accessible at various events. Their expert testimony often is sought as they frequently participate at seminars and hearings conducted by other government agencies and community groups.

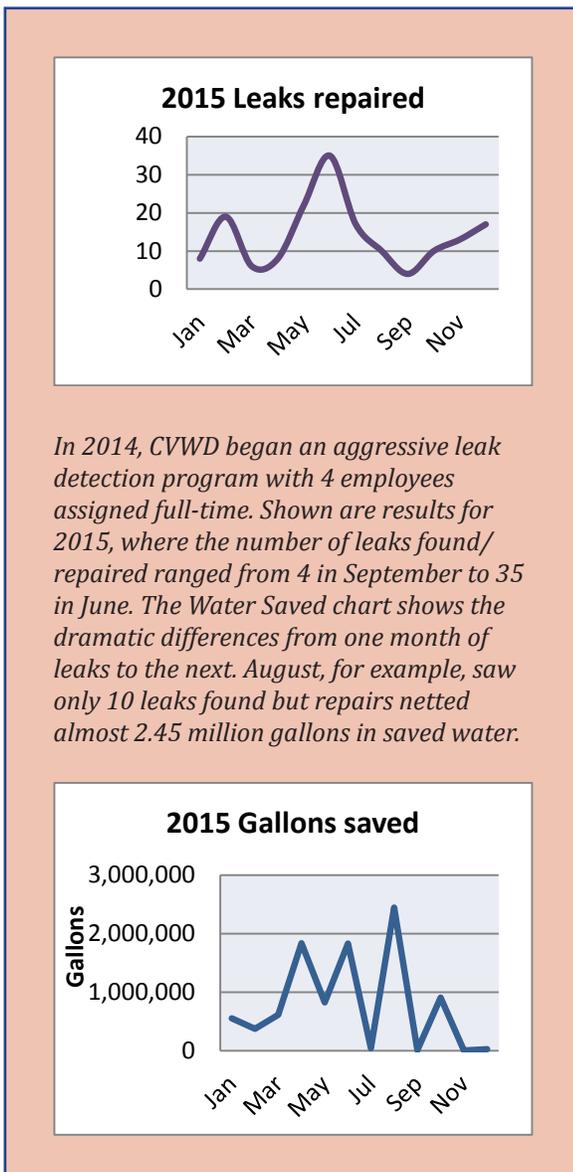
### Employee and Leadership Development

CVWD has historically been among the most desirable places of employment within the region, attracting candidates for its engineering, financial and other professional positions locally and across the country. Entry-level jobs enable area residents to obtain work with considerable opportunities for advancement. Many employees stay with CVWD for significant amounts of time: 30 years of service is not uncommon. Normal annual turnover is low, averaging less than 4%.

In order to avoid layoffs during the last recession, the Board offered two years of service credit for employees eligible for retirement; 43 employees participated; the rate of retirement turnover for fiscal year (FY) 2010 was 7.9%, contributing to an overall turnover rate of 9.1%.

While retirements created many opportunities for advancement, lost was more than 1,150 years of valuable experience. Concerns about changing retirement benefits contributed to greater than average turnover rates in FY 2011 (7.1%, 828 years experience lost) and FY 2013 (8.3%, 904 years experience lost).

Among lessons learned then is that CVWD can better prepare employees to have the qualifications necessary to fill vacancies caused by retirement and other turnover. The **Career Path/Leadership Development Program (CPLP)** was established, an *Employee Workforce and Development* strategic goal for FY 2016. The program assists employees in career planning and preparing for promotions when relevant vacancies occur.



A **Training Needs Assessment**, a 2014 initiative, documented existing training provided to employees and identified the additional training needed for them to expand and grow in their careers. **Succession Planning** to map out advancements to fill future vacancies also was completed that year.

The CPLP enables eligible employees to identify leadership skills they need for advancement, and as a result receive the necessary education, training, certification, licenses and service experience.

Pathways assist employees in obtaining certification in water treatment and water distribution, wastewater collection and wastewater treatment and water service. In addition to the internal training needs assessment, there were determinations regarding which positions should be eligible for the CPLP. Exact training requirements have been assigned specific career paths.

To help ensure that CVWD remains competitive when recruiting external candidates, the **Compensation Project** initiative sought to ensure equitable compensation for employees, supervisors and management that is comparable with peer member agencies. Compensation surveys were completed for employee bargaining groups and changes recommended for the FY 2017 budget.

Another program to increase employee morale is the **Employee Reward and Recognition** initiative, which explores non-financial rewards for employees demonstrating exceptional performance and work-related achievements.

An **Intranet Collaborative Portal** improves communications for employees across all offices, including facilities at Coachella and Palm Desert, five WRPs or in the field. The intranet is also available to employees outside of work because some do not readily have access to computers while on the job. A centralized web location provides employees with extensive information associated with their jobs and related topics. A Collaboration page helps reduce duplication and improves workflows during specific projects or assignments. Additionally, information about benefits is comprehensive, and a myriad of job-related forms can be completed on-line.

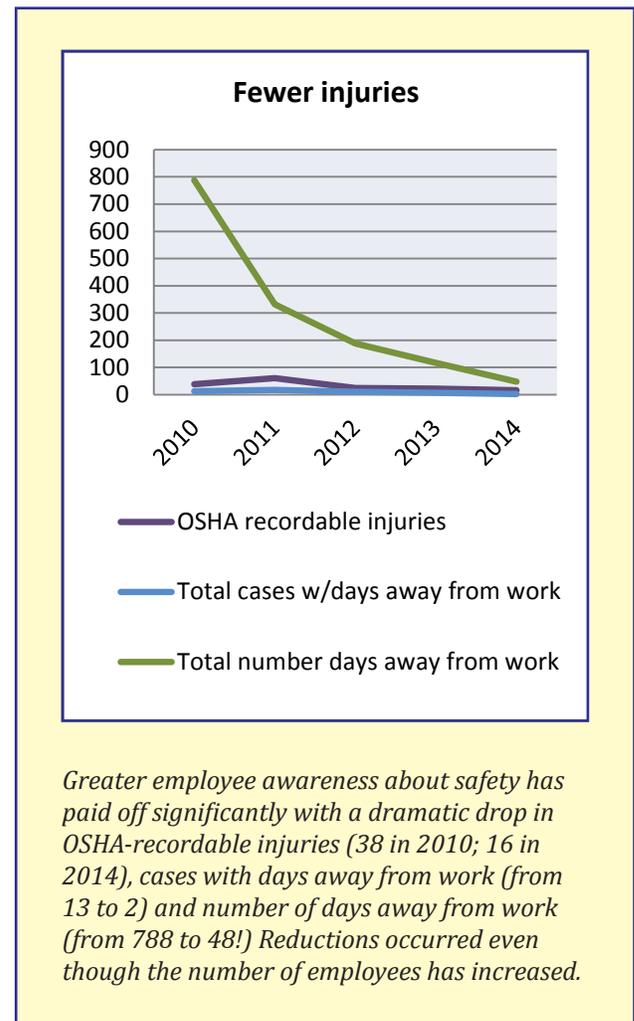
**Interdepartmental “Tailgate” Meetings** (AKA “brown bag” lunches) enable CVWD employees to become familiar with other departments, including their personnel, the services provided and their challenges. Communication opportunities include the availability of internal subject-matter experts who provide presentations on a wide variety of topics; this ensures that all employees deliver more consistent messages to customers and the general public.

Employees receive a monthly four-page newsletter featuring CVWD activities. Updates also are provided on a two-sided flier with biweekly paychecks.

CVWD emphasizes specialized training; in 2015, 11 engineers responsible for overseeing construction projects were given 24 hours of training, which enabled them to pass an exam to become certified construction managers. CVWD received the President’s Special Service Award from the San Diego chapter of the national Construction Management Association of America.

The **creation of fact sheets** initiative improves communications internally by helping employees increase their knowledge about a multitude of water- and district-related issues and possible customer concerns. Customers expect CVWD’s CSRs to be very knowledgeable, for example, and they receive specialized training on topics ranging from Cr6 to the drought and conservation to water-related legal issues.

Because of these and other programs, employees are better skilled, better able to handle familiar and new assignments and better prepared for advancement opportunities in their careers at CVWD. For most who work there, employment at CVWD is more than “just a job.”



## Operational Optimization

Good internal and external communications is a key to ensuring operational optimization. Staff from most CVWD divisions, for example, gathers in FRESTO (Finance, Risk, Engineering, Service, Trades and Support and Operations) meetings monthly to ensure there is a multitude of voices in the decision-making process. Departments are encouraged annually to complete capital improvement program nomination forms. This provides for the identification of projects that enable CVWD to provide more reliable services to its customers.

The **Regulatory Agency Project Review Committee** was created from the Strategic Planning process, and continues to work with staff for federal and state lawmakers to facilitate the process for project implementation, including overcoming regulatory obstacles. Although it was more costly, for example, CVWD assumed full responsibility for one significant flood-control project rather than work with a federal agency because of repeatedly delayed decisions on design and funding.

Automation is important in ensuring continued service delivery of domestic water and sanitation systems.

An employee at a WRP work station for example, can control an entire treatment plant.

Water level controls in more than 60 domestic water reservoirs automatically turn on the pumps at wells when stored water drops to specific levels.

Sanitation lift stations are automated and when high pressure is sensed in a line, indicating a possible blockage, they shut down and notifies appropriate employees.

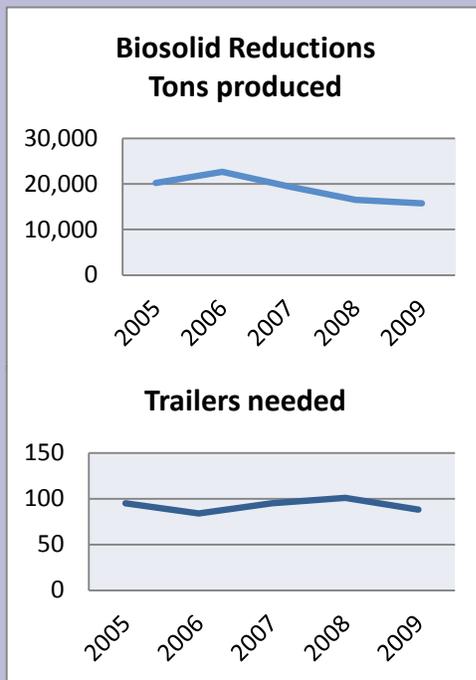
The Supervisory Control and Data Acquisition infrastructure is a key component of CVWD's operations, and recognizing that the system has not been updated since 1980s installation, SCADA is being overhauled with major upgrades to hardware and software to provide reliable service in the future.

Conservation is an important part of the water management strategy, and a leak detection program resulted in significant water savings. Initiated in 2014, four employees are assigned to the program full-time. CVWD's annual water losses on average are slightly above 10%, an acceptable industry standard. staff continually look for opportunities to reduce water losses.

In November 2015, 28 employees received training from the American Water Works Association (AWWA) so they can more effectively perform water loss auditing districtwide. CVWD initiated itemization of its water losses, including the amount of water lost when pumps at well sites begin and end operations, and water losses when hydrants are maintained; run times of the hydrants during testing have been minimized to save water. More accurate water production numbers are a result.

CVWD strives to reduce its carbon footprint in its operations. One innovative way it has accomplished this is through a significant reduction in the number of trucks hauling biosolids away from WRP 10.

CVWD reduced this hauling by increasing the Mean Cell Residence Time (MCRT) process, the amount of time microorganisms spend in the activated sludge, from 5-7 days to 10-15 days. CVWD operations retrofitted all of the activated sludge aeration tanks with new rubber membrane diffusers, which in turn allowed for the increase in MCRT. The number of trucks hauling away biosolids dropped from a range of 930- 950 a year to 640- 680. Annual savings are about \$300,000.



*A change in daily operations at a CVWD wastewater treatment facility reduced the amount of biosolids produced, which in turn led to a significant decrease in the number of trucks needed to haul it away, resulting in annual savings of \$300,000.*

## Financial Viability

Water-related services provided by CVWD — including Domestic Water, Sanitation, Non-potable Water, Irrigation Water, Stormwater and Groundwater Replenishment — are reported as enterprise funds and operating similarly to a business, with rates structured to cover the costs of operations. CVWD is well-positioned financially and able to fully fund operations and maintenance activities as well as investing in capital improvements.

CVWD's fiscal stability can be attributed to steady revenues, a strong reserve policy and prudent financial practices. As a result, CVWD has averted rate increases the past five years, even during challenging economic times.

The Five-Year Capital Improvement Plan (CIP) amounts to over \$701 m. Various funding sources fund the CIP, including unrestricted reserves, grants, restricted funds and a Drinking Water State Revolving Fund loan. The five-year financial forecast projects bond financing, mainly for the domestic water and canal water funds.

The District will be pursuing a **bond rating** late this year (2016).

CVWD has no bonded debt and historically uses the pay-as-you-go method of financing infrastructure and other capital projects. This is the preferred means of financing as reserves are available and in excess of the reserve policy. Occasionally, CVWD utilizes inter-fund borrowing if sufficient excess reserves are available in the lending fund.

	Reserves as a Percentage of Operating Expenses								
	FY 2013 (in 000's)			FY 2014 (in 000's)			FY 2015 (in 000's)		
	Reserves	O&M	%	Reserves	O&M	%	Reserves	O&M	%
<b>Canal</b>	41,328	17,063	242%	39,343	19,313	204%	37,093	20,380	182%
<b>Domestic</b>	74,911	61,331	122%	81,904	66,722	123%	85,989	67,704	127%
<b>Sanitation</b>	124,287	28,408	438%	105,295	29,434	358%	100,817	29,749	339%
<b>Total</b>	240,526	106,802	225%	226,542	115,469	196%	223,899	117,833	190%

*CVWD's financial planning positions the district in a strong financial position with no debt and unrestricted reserves in excess of \$450 million as of the end of June 2015.*

Careful planning helps the Board, staff and public make choices based on rational decision-making rather than reacting to events as they occur. Short-term and long-term financial planning is accomplished through several documents.

CVWD's annual budget serves as a financial, policy, planning and communication device for the upcoming fiscal year. The five-year forecast and the five-year capital improvement plan (CIP) are used to identify CVWD's needs in ways that maximize ratepayer returns. **The Cost of Service Study (COSS)** is another plan currently underway.

The five-year forecast is a model that takes a forward look at the CVWD's revenues and expenses for the purpose of identifying financial trends, shortfalls and issues. Each fund's financial position is forecasted under certain assumptions. The forecast sets the stage for the upcoming budget process, aiding the General Manager and Board in establishing priorities and allocating resources appropriately.

CVWD is completing the **COSS** for the enterprise funds. Rate increases are necessary to fulfill the CIP and cover operating costs during the next five years while maintaining adequate reserve levels. Studies evaluate the cost of providing service and presents rate recommendations for equitable collecting of revenue based on those costs. Rate increases will be recommended to the Board in five-year intervals.

CVWD's reserve policy ensures appropriate levels of working capital in enterprise funds to mitigate current/future risks such as revenue shortfalls and unanticipated expenses, and stable services and fees. Reserves are designated for operations, rate stabilization, capital improvements, emergencies and vehicle replacement.

CVWD is financially strong, with no debt, and total unrestricted reserves in excess of \$450 m as of June 30, 2015. Three of the District's major funds are portrayed in the following graph. In total the canal water, domestic water and sanitation reserves were 190% of operating expenses in FY 2015.

## Infrastructure Stability

One ambitious initiative from Strategic Planning is creation of a district-wide **Asset Management Program (AMP)**. An initial phase involves completion of a comprehensive asset inventory and condition assessment and development of an Asset Management Master Plan (AMMP) with nine functional areas. Best appropriate asset management practices, specific to CVWD, come from completion of Condition Assessment Findings and an Asset Summary Report.

A pilot program, focusing on irrigation, determines effectiveness and answers questions on topics such as planned vs. reactive maintenance: Knowing when it makes more sense to replace an asset - when repair costs exceed 75% of the replacement cost, for example - than to continue to perform maintenance on it.

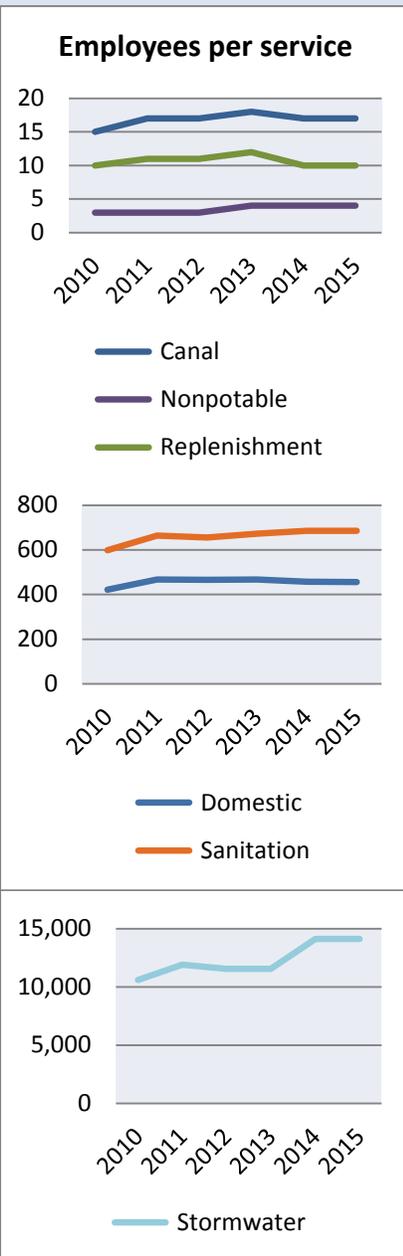
A Computerized Maintenance Management System linked to the Enterprise Financial System (EFS) and Geographic Information System (GIS) provides critical operation and maintenance information, tracks maintenance activity/costs and provides data necessary to make long-term decisions on asset longevity and replacement. More effective decisions are made for the CIP and operations and maintenance budget. All pumps and motors are included in AMMP established protocols.

CVWD began tracking planned versus reactive maintenance in FY 2014 using a computerized work order module and found planned maintenance hours were 41 percent of total maintenance hours, and planned maintenance costs were 44 percent of total maintenance costs. Planned maintenance in general is more desirable financially and with respect to employee work hours. Eight divisions in Trades and Support have their own planned vs. reactive maintenance ratios and specific maintenance procedures. The optimum ratio (and industry standard) is 80% planned vs. 20% reactive maintenance.

CVWD already utilizes an EFS module to manage its fleet of district vehicles operating efficiently.

In the protection of infrastructure, pipelines and reservoirs are among CVWD's most valuable, albeit most expensive to replace, assets. **Cathodic Protection (CP)** is a technique used to control the corrosion of metal surfaces. CP requires connecting to the asset an "anode," which acts as a "sacrificial metal" that is corroded instead of the metal in the water transmission lines or reservoir. Six CP systems protect 30 miles of pipeline at four locations and reservoirs built in 1965 and 1972. Installing CP systems requires 18 months of work to extend the life of the pipelines/reservoirs.

Domestic Water, Sanitation, Non-Potable Water and Irrigation (the newest) **Hydraulic Models** enable staff to analyze the impact of new development and efficiently of these systems.



*Demand for some sources of water has increased significantly in recent years, but the number of CVWD employees assigned to areas of service has gone down or remained the same: nonpotable water, 3 to 4; groundwater replenishment, 10 to 12; domestic water, 422 to 468; sanitation, 599 to 685. Stormwater protection, covering all within 600 square miles, has a much greater number of service recipients per CVWD employee, 10,597 to 14,129.*

Models use computer software to simulate what takes place within infrastructure. The irrigation distribution system is nearly 500 miles of underground pipe and due to water leakage CVWD can be impaired in its ability to meet fluctuating customer demands. A five-year capital improvements projection includes considerable work on the system, including replacement of significant sections of pipe.

When CVWD began domestic water deliveries in the late 1950s and early 1960s it assimilated many existing systems; one of the earliest was the infrastructure serving Salton City. The system suffers a 25 percent loss of water and future water quality issues are associated with well locations. **Preliminary documentation and environmental review steps** have been completed for adding the system to CVWD's primary (Cove) system.

### Operational Resiliency

CVWD has been managing the valley's groundwater basin since 1918, although it and Desert Water Agency have performed replenishment at two facilities dating to the 1970s.

In 2014, California's governor signed into law the Sustainable Groundwater Management Act (SGMA), which has been touted by the state as "For the first time in California history, (SGMA) empowers local agencies to adopt groundwater management plans that are tailored to the resources and needs of their communities."

Changes in state laws regarding the management of groundwater basins mandate CVWD become a **Groundwater Sustainability Agency (GSA)** for Coachella Valley. Ensuring that CVWD does all that is required of it is among the strategic planning initiatives.

CVWD's Board adopted the CVWMP in 2002; it was updated in 2010 and 2014. CVWD is confident the CVWMP meets or exceeds documents needed to become a **GSA** for the valley.

CVWD will modify the CVWMP as necessary, and initiative steps including meeting and coordinating with other local water agencies (some of which have expressed their desire to be GSAs), completing initial documentation necessary to establish a GSA, comparing CVWPM with SGMA requirements, identifying the process necessary to amend the plan if needed and an evaluation of the state Department of Water Resources guidance document regarding a Groundwater Sustainability Plan (GSP).

Becoming a GSA is crucial to CVWD's continued management of groundwater and all other water sources to ensure supplies continue to meet demand. CVWD stands alone as the one agency in the valley capable of managing all local water sources, but welcomes participation by other districts.

Two of the three replenishment facilities in the valley were built within the last 15 years and the oldest, first in operation in 1973, recently underwent \$10 m in redesign and reconstruction.

New wells and reservoirs are built as needed for domestic water service; WRPs are expanded to handle increases in sanitation demands; and the infrastructure needed to delivery recycled and imported water is enhanced as needed.

**A Comprehensive Inspection Program for the (canal water) Irrigation and Drainage System** enables CVWD to prioritize maintenance activities and related CIP. Information also is used in the hydraulic model for the system and the AMP, both of which are described elsewhere. Underground irrigation pipe and the system for agricultural drainage is described as "nearing the end of its useful life" with an apparent increase in pipe failures.

The demand for canal water remains constant, however, and will increase as CVWD weans growers from the use of groundwater in a region known as Oasis. More than 30,000 AF of additional canal water will be sold there, further reducing demand for groundwater. Because of the inspection program, about 10,000 feet of pipe is scrutinized, 2,500 feet per fiscal quarter, along with soil and material testing. Data is incorporated into an updated GIS map of the system.

That GIS system is used to develop an annual crop report, which gathers data on crops by type, irrigation method (flood vs. drip) and acreage to identify possible opportunities for conservation.

A comprehensive Water Risk Assessment is performed every three years and covers domestic water distribution, domestic water treatment, the (non-potable) irrigation system, water testing for regulatory purposes, transmission infrastructure, surface water, groundwater, wastewater collection and treatment, occupational safety, water loss control, infrastructure damage prevention, regulatory compliance, public safety and awareness and contractor safety review and evaluation. Scores of topics cover every category and result in a 50-page report with field observations and suggestions.

Risk Management Plans (RMPs) are registered with the federal Environmental Protection Agency and detail the description, quantity, location and dangers of the hazardous materials at each district facility. Sites with petroleum products are regulated by the Code of Federal Regulations and have Spill Prevention Controls and Countermeasure Plans.

CVWD also is a participant in the State Accidental Release Prevention Program, administered by the state Environmental Protection Agency; the plan describes CVWD's response to an accidental spill of any hazardous material it may own. In addition, there are Hazardous Material Emergency Business Plan permits for all chemicals, petroleum products and hazardous wastes on file with the county for 86 sites.

There are 67 air permits from the South Coast Air Quality Management District to regulate and restrict diesel engine usage for stationary and emergency backup generators.

California routinely has earthquake preparedness drills and CVWD participates through operation of its Emergency Operations Center (EOC), including the simulated response to mock incidents such as broken pipelines and ruptured reservoirs.

There is at least one EOC drill annually. Fault lines are found throughout the valley, which recently was the epicenter of one of the state's mock "Big One" earthquake drills.

The Emergency Response Plan (ERP) is updated annually; staff meets every other month for review and discussion. About 490 district employees have received some training in the Standard Emergency Management System (SEMS), the National Incident Management System (NIMS) and the Incident Command System (ICS) for managing multijurisdictional responses to emergencies in California. The State is required to use local government entities to be eligible for reimbursement of response-related costs under California's disaster assistance programs. Training is required by the State's Emergency Services Act. California's government codes identify CVWD's employees as disaster service workers, and they are expected to assist in responding to a natural disaster.

Safety is paramount at CVWD with about 200 employees trained in CPR/First Aid/AED; 19 are trained Community Emergency Response Team members; 24 trained floor wardens are responders for small fires, small urban rescue, triage and any emergency evacuation procedures (with frequent drills at district facilities).

CVWD is a member of the California Water/Wastewater Agency Response Network (CaWARN) and participates in a statewide mutual aid agreement with other agencies and has responded to requests in proximity to CVWD facilities.

Backup generators are maintained and ready for immediate operation at well sites, booster stations and everywhere where power is needed to continue services in the event of power outages for any reason.

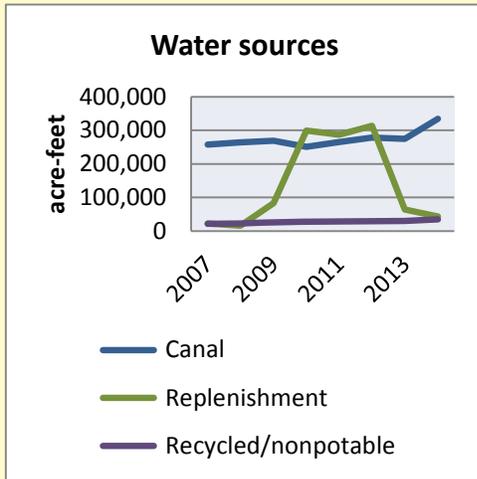
A Vulnerability Assessment was completed in FY 2002 and several of its recommendations have been implemented.

### Community Sustainability

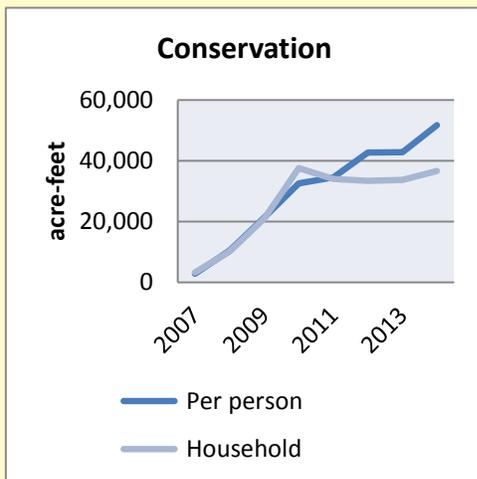
Maintaining groundwater levels represents perhaps the single most important responsibility of CVWD for community sustainability.

Lowered groundwater levels can create permanently lost storage capacity in the aquifer, damaging the ability of CVWD and other water purveyors in the valley to meet current and future demand for water. This adversely impacts valley growth and local development and damages the economy.

The economy is based primarily upon two industries that are both heavily dependent on a reliable supply of water, agriculture and recreation, which has its foundation in golf.



Four sources of water are utilized to protect and preserve Coachella Valley's groundwater. Approximately 300,000 AF of Colorado River (canal) water is delivered annually, used by agriculture for 75% of its irrigation needs. Golf courses are the main user of recycled and other non-potable water and the number of courses irrigating with this source is increasing significantly. State Water Project water is used only for groundwater replenishment, although the amount delivered fluctuates significantly from one year to the next. Water saved due to conservation is increasing consistently, especially in recent years.



CVWD has protected potable groundwater by providing agriculture with imported Colorado River water since the late 1940s and by providing the golf industry with recycled and other non-potable water that has resulted in a dramatic switch from groundwater in the past decade with many more conversions in the works. Wherever possible, non-potable water is used for non-potable purposes in lieu of groundwater.

Conservation efforts go beyond water usage. **Energy Efficiency** is closely monitored for all facilities. More than 400 monthly utility bills are sent to an outside bill processing firm that pays the bills *and* analyzes the invoices to ensure proper utility rates and identifies inefficient energy facilities. In addition, CVWD's 100 active wells are aggressively monitored for changes in specific capacity and motor/pump efficiency.

Through Southern California Edison (SCE) CVWD participates in an off-peak pumping program for wells and boosters. CVWD also allows SCE to shut down wells during peak periods as is needed in the utility's operations. The installation of high speed turbo blowers for aeration at wastewater treatment facilities saved energy and resulted in \$280,000 of incentive from SCE? Need to check later whether this occurred. The blowers are gearless (they need no oil) and there is no friction; this reduces maintenance costs and drops energy consumption considerably.

Certain projects ensure the continued efficient operation of WRP's and the stormwater channel.

**The Coachella Valley Multiple Species Habitat Conservation and Natural Community Conservation Plan “aims to conserve over 240,000 acres of open space and protect 27 plant and animal species. By providing comprehensive compliance with federal and state endangered species laws, the Plan not only safeguards the desert’s natural heritage for future generations, it allows for more timely construction of roads and other infrastructure that is essential to improving quality of life in the Coachella Valley.”**

**Removing tamarisk from 40 acres of land at its WRP 7**, for example, is an Initiative in the East Indio Hills Conservation Area, associated with CVWD's participation in the Coachella Valley Multiple Species Habitat Conservation and Natural Community Conservation Plan.

Tamarisk is an invasive, non-native species of tree known for its high consumption of water and adverse impact on natural habitat, wiping out vast areas of native vegetation such as Honey mesquite. The removal plan was submitted to the California Department of Fish and Wildlife for review and coordination of the restoration work, which includes a biological survey and nesting bird management plan. A restoration feasibility study by the Coachella Valley Conservation Commission determines whether mesquite should be planted at the site. If planting is feasible CVWD will restore habitat in this area along with enhancement of 600 acres of habitat for the Palm Springs Round-tailed ground squirrel.

The **Garfield Street Constructed Habitat Project** initiative is another CVWD project associated with the CVMSHCP and represents its mitigation for environmental impacts from operating and maintaining the Coachella Valley Stormwater Channel, ensuring its continued efficient operation without outside interference. The channel is the eastern portion of the primary flood control waterway for the entire region.

Channel maintenance is crucial to CVWD's ability to ensure it is in the best condition possible for protection of lives and property. CVWD also works to ensure agricultural drains feeding into the channel are open, but these actions impact the channel's natural habitat. The project involves CVWD's creation of 140 acres of natural habitat it will maintain using Colorado River water.

CVWD also was a cofounder of and continues to be active in the Salton Sea Authority, a joint-powers agency seeking innovative solutions to the sea's increasing salinity and decreasing amount of water. A receding shoreline creates concerns about air quality but many projects are underway or shovel-ready.

### **Water Resource Adequacy**

Coachella Valley Water Management Plan (CVWMP), an evolving, updated 35-year blueprint to ensure groundwater basin sustainability, directs District actions to ensure that adequate supplies of appropriate sources of water are available for the beneficial use of types of customers.

To ensure that CVWD's supply of Colorado River water was protected from a variety of natural and man-made potential threats, CVWD aggressively participated in negotiations, drafting and adoption of the Quantification Settlement Agreement in 2003. The QSA is a blueprint to ensure California uses only its legal entitlement to Colorado River water. The QSA is a plethora of agreements that among other things quantified CVWD's entitlement to Colorado River water, increased its entitlement to SWP water, provided for purchase of additional Colorado River water from Imperial Irrigation District at below-market costs and mitigated for the various environmental impacts of the water transfers.

California's historic drought led Governor Edmund G. Brown Jr. in April 2015 to mandate a 25% reduction in urban water use. The State Water Resources Control Board (SWRCB) set a conservation target of 36% for CVWD based on 2013 water use.

CVWD acted quickly and its **Domestic Water Conservation Program** focuses on meeting state mandates for water use reductions and curbing waste. The CVWMP calls for a 20% reduction in domestic water use by 2020, consistent with an earlier State conservation target.

CVWD's Board adopted the SWRCB's water use restrictions and some of its own, and initially took an innovative approach using drought penalties to promote conservation instead of some of the additional restrictions. Domestic water customers had water budgets in place because of tiered rates, so they were told to keep water use at 64% or less of the outdoor portion of those budgets or face penalties. Penalties were tiered to hit the egregious water wasters hardest, and went into effect on July 1, 2015.

To help customers reduce their water use the Board approved considerable funding for conservation programs. The FY 2016 budget has \$6.2 m in it for conservation rebate and incentive programs. Conservation programs are listed on the attached *Appendix C, Conservation*.

**Golf Course Conservation** underwent meaningful expansion in early 2015 when CVWD began offering some financial incentives to courses to replace turf with desert-friendly landscaping. Eligible courses received \$15,000 per acre of grass permanently removed, up to seven acres per course. Total rebates totaling \$1.3 m in grant money went to 19 courses. Additional grants are expected to fund more turf rebates, lake liner replacements and sprinkler nozzle replacements. To date, 113 AF of grass has been removed from golf courses and replaced with desert-friendly, drought-tolerant landscaping through the grant program. The CVWMP calls for a 10% reduction in water use by existing golf courses.

The valley is home to the equivalent of 120 18-hole golf courses, which use 17 percent of all water consumed annually. Courses are increasingly receptive to water conservation as the drought has brought media attention and public scrutiny of their consumption. CVWD helped with formation of the Golf and Water Task Force in late 2013 and the task force meets monthly.

**Agricultural Water Conservation** received a needed boost when CVWD was the recipient in 2015 of a \$1m grant, administered by the federal Bureau of Reclamation and funded by other water agencies, to provide rebates for the conversion of permanent crops from flood to drip irrigation. Only growers using Colorado River water are eligible for the rebates and a portion of the conserved water will remain in Lake Mead. The balance, however, will be

used for groundwater replenishment. Converting from flood to drip irrigation results in a 30% reduction in water use. The CVWMP calls for a 14% reduction in water consumption by agriculture.

Expanded **use of recycled water** in lieu of groundwater for non-potable purposes is a component of the CVWMP and one District Strategic Initiative involves **petitioning the state to allow it to provide an addition 5 m gallons a day of recycled water from a fourth WRP for beneficial reuse in the eastern valley**, which may include the irrigation of dates, citrus, grapes and other crops in addition to landscaped areas; this is instead of discharging wastewater after it is treated into the stormwater channel.

Protection of local and imported water sources is enhanced by membership and participation in many organizations, including ACWA (District Board members routinely fill leadership positions within the association), State Water Contractors, the Colorado River Water Users Association and Colorado River Board of California to name a few. CVWD is active in discussions among the states with entitlement to Colorado River water regarding distribution of water in severe drought in a way that benefits all entities without jeopardizing existing water rights.

### Stakeholder Understanding and Support

The breadth and extent of services it provides does not prevent CVWD from maintaining meaningful relationship with its customers and partnership with the local community. Stakeholder involvement in CVWD's policies and procedures is consistent and considerable, with efforts underway to make it even easier for them to provide comments and suggestions.

The Golf and Water Task Force is comprised of representatives of the golf industry and CVWD staff to discuss conservation and other water issues. The group assisted in securing a state grant for a turf buyback program and in the development of the program criteria and other future rebate programs.

The Agriculture and Water Advisory Group, formed in 2015, is comprised of representatives of the agricultural industry and CVWD staff to discuss conservation issue and pursue grant funding for future conservation programs.

CVWD engaged in significant legislative and public education campaigns regarding Cr6, with tours and workshops available to the public, which also got several written and website updates. Legislative outreach included one-on-one meetings with local legislators, letters to committee members and the gathering of community support for legislative issues.

This outreach effort was awarded ACWA's inaugural legislative outreach Compelling Case Award in 2015.

A committee of community leaders provided feedback and its recommendations before CVWD changed its division boundaries and prepared a ballot measure limiting votes for Board candidates to registered voters within the division for which each candidate sought to represent.

Representatives from agriculture, golf, local cities, the county and a local Indian tribe are among those who serve on an advisory committee that reviews what CVWD charges those who pump more than 25 AF of groundwater annually from the eastern valley to recover at least some of those costs.

CVWD's Board conducts workshops, open to the public, regarding potential rate increases for several services, including domestic water, sanitation, canal water and the RAC. Public hearings during regular Board meetings follow before any rate hikes are approved.

The **Mass Notification System** Initiative utilizes text and emails to enable CVWD immediately to notify customers of important information, including:

- Water quality for drinking water, including boil notices;
- Updates on the drought, water-use restrictions, drought penalties and related subjects;
- Leaks/breaks in pipes or other outages that affect the delivery of water and water-related services;
- Conservation tips and district-funded rebates and related programs;
- Rate adjustments, including proposed increases and upcoming public hearings.

Customers have an easier opportunity to interact with CVWD through the **Citizens' Reporting App**. From mobile devices they are able to report water waste, providing specifics and photographs; the app also gives CVWD the corresponding GPS coordinates, enabling staff to respond more efficiently while reducing calls to Customer Service.

A Tiered Rate Advisory Committee (TRAC) comprised of community leaders representing some of the service area's largest water users and stakeholders such as golf and homeowners associations was created prior to implementation of the new tiered rate structure in 2009.

TRAC members received a condensed course on tiered rates, CVWD's primary objectives and the proposed rate structure. Committee members were quick to support the idea and actually recommended a slightly stricter rate structure. Night and day public workshops followed with printed informational and response forms. While there was some initial skepticism, eventually support was overwhelming.

Outreach continued with presentations to cities, school districts, community councils and homeowner's associations. One-on-one meetings were scheduled where necessary to garner additional support.

## Thank You

This concludes the text of our application. Thank you for your consideration. Please see the attached appendices and other support materials.