



# Water Management

## Water Agencies are a Crucial Component in Efficient Water Management

The San Luis & Delta-Mendota Water Authority is a joint powers authority serving 28 member agencies, 26 of which contract with the United States Bureau of Reclamation for water supply from the Central Valley Project (CVP). The Authority delivers water to the most diverse set of member agencies in California. The member agencies provide water to approximately 1.2 million acres of highly productive farmland, 2 million California residents, and millions of waterfowl dependent upon the nearly 200,000 acres of managed wetlands within this area of the Pacific Flyway. The Authority is governed by a 19-member Board of Directors and serves two important roles: (1) To act as the operations and maintenance entity for the Delta Division and south of Delta CVP facilities that the Authority's member agencies depend on for the delivery of their water supply, and (2) To provide unified representation on common interests of Authority members.



SLCC Junction Weir Automated Flood Gate



### Agriculture

Water moved through Authority facilities serves the San Joaquin Valley's irrigated agriculture industry, which is one of the most water efficient agricultural industries in the nation. Currently approximately 1.2 million acres of highly-productive farmland receives water through the Authority. These farms use high-tech irrigation practices to grow more than 60 high-value crops that make California the leading agricultural state in the nation. From fruits and vegetables, nut crops, dairy, beef, and fiber, our farmers manage water as efficiently as possible to make an enormous contribution to the domestic and export value of agriculture.

### Municipal and Industrial

California's Silicon Valley is the leading technology center in the nation. Home to some of the world's top companies, this region depends on reliable water supplies to energize these successful businesses and communities. The Silicon Valley depends on local, state, and federal water supplies, with federal supplies moving through infrastructure operated and maintained by the Authority. Additionally, partnerships between Authority member agencies and local governments increase the quality and reliability of water supplies for disadvantaged communities in the San Joaquin Valley.

### Environment

California's San Joaquin Valley is rich in wildlife diversity and habitat. It hosts over 300 species of birds and many other species of wildlife including Tule elk, mule deer, mountain lion, bobcat, coyote and many species of reptile and amphibians. This area contains one of the largest riparian forests in California, located at the San Joaquin National Wildlife Refuge. The Grasslands Ecological Area, in Merced County, includes the largest contiguous freshwater wetland in the western United States. Millions of migratory waterfowl and shorebirds overwinter here, making it one of the most important habitats in the Americas. Local partnerships between

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agricultural and environmental water managers help improve water supply reliability for both farms and wildlife areas.

In addition to sustainable water management practices, the Authority and its member agencies have taken a leadership role in renewable energy development and generation of more than 2.4 gigawatts, helping California to meet its SB 100 goal of 100 percent renewable energy by 2045.

## System Modernizations by the San Luis & Delta-Mendota Water Authority Save Nearly 17 Billion Gallons of Water Annually

In 2008, the San Luis & Delta-Mendota Water Authority contracted with Cal Poly's Irrigation Training & Research Center (ITRC) to conduct a Rapid Appraisal Process to identify ways to improve water management and reduce water loss, specifically through improved flow measurement. This report led the Authority to systematically upgrade its facilities by installing upgraded flow meters at the Jones and O'Neill Pumping Plants and water delivery points along the Delta-Mendota Canal, resulting in 52,000 acre-feet (or 16.9 billion gallons) of water supplies being more efficiently used each year.

## Westlands Water District's Careful Approach to Water Distribution and Efficiencies in Water Use

Westlands Water District offers low-interest loans to water users within its service area for the lease/purchase of more efficient irrigation system equipment. As a result of this and similar programs, the use of water-saving initiatives such as precision drip irrigation, micro-sprinkler irrigation, and regulated deficit irrigation has increased 55 percent over the last 30 years. Today, more than 90 percent of Westlands irrigated lands are served by efficient drip irrigation systems, an investment of over \$500 million.

## Del Puerto Water District's Innovative Water Recycling Project Brought Together Cities, Farms, and Environmentalists to Benefit All

*Del Puerto Water District* and the cities of Modesto, Turlock and Ceres came up with an innovative recycling project that got the attention – and support – of Defenders of Wildlife, the Audubon Society and the California Waterfowl Association. By making use of tertiary treated urban recycled water, the North Valley Regional Recycled Water Program (NVRWP) will provide more reliable water supply to farms and wildlife refuges, and reduce groundwater pumping and reliance on the Delta.

## James Irrigation District Recharged More Than 11 Billion Gallons of Groundwater in 2017 Alone

Years before the state passed historic groundwater legislation, *James Irrigation District* saw the need to preserve and recharge its groundwater aquifers. Over the past 15 years it has constructed

In your home, you decide whether to install low-flow devices, what kinds of plants to have, or how often to do laundry. Californians take these and other water-efficiency decisions seriously because our water footprint affects everyone else.

The *San Luis & Delta-Mendota Water Authority* and its member agencies make water-efficiency decisions each year that impact the use of a trillions gallons of water provided to farms, homes, businesses, and wildlife refuges.

The Authority and its members have made significant advancements in water conservation by using innovative techniques and the latest technology to get the most out of every drop.

over 320 acres of groundwater recharge facilities. In 2017, the district was able to capture flood flows and recharge over 34,000 acre-feet of water into the aquifer throughout that year.

## Local Cooperation Among 3 Water Districts Lead to Water-Saving Solutions of 10 Billion Gallons Annually

*Central California Irrigation District* joined with *San Luis Water District* and *Grassland Water District* in a partnership that found ways to add flexibility to water operations. They came up with a 3-part project that combined diverting flood waters, making better use of evaporating water, and better utilizing storage.

As part of a 10-year improvement plan, the *Central California Irrigation District* recently finished the \$4.5 million East Ditch regulating reservoir and will complete the \$5 million Poso Reservoir in early 2019. These projects will help improve management of water resources for irrigation, groundwater recharge, drought resiliency, and wildlife refuges.

*Grassland* and *San Luis Water District* are also working together to capture and recirculate refuge water that was previously lost, improving the efficient use of water that is managed by the districts.

## A Decade of Research + A Wide Variety of Tools Saves West Stanislaus Irrigation District More Than 6 Billion Gallons of Water in 2017

*West Stanislaus Irrigation District* did not wait for a drought to launch extensive water-saving measures. Since 2009, WSID has





Del Puerto WD Recycled Water Connection



Los Banos Creek Weir and Diversion Construction

been planning and implementing water and energy conservation projects combining the latest in technology with upgraded infrastructure as well as working with individual growers to make their farms more efficient. More than 18,140 acres have now installed pressurized systems using micro-spray, solid set sprinklers, surface drip and subsurface drip irrigation systems.

### Through Creative Long-Term Programs that Brought Together Urban, Business and Farm Water Users, the Santa Clara Valley Water District Saves More than 22 Billion Gallons of Water in 2016

*Santa Clara Valley Water District (Valley Water)* proactively worked with its users – urban, business and farms – to creatively tackle water conservation with a variety of programs designed to make participation easy. Landscape conversion rebates, upgrading commercial facilities, and online tools to help farmers achieve 80% or more efficiency are some of the programs that have led to huge water savings throughout Santa Clara County.

### The Technology Used to Recycle Water is Becoming More Advanced, Making it a More Widely-Usable Source

Recycled water has been used in Santa Clara County since the 1970s. Recycled water is used for a variety of non-drinking purposes such as landscaping, agriculture and industrial uses.

At Valley Water's Silicon Valley Advanced Water Purification Center, purified water is blended with existing recycled water

using high-tech processes (microfiltration, reverse osmosis and ultraviolet light) to produce highly purified water. Water produced at the purification center is expected to match California primary drinking water standards.

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### Columbia Canal Company Has 29 Miles of Canals with Rubber and Concrete Lining, Saving Almost 8 Billion Gallons a Year

*Columbia Canal Company* has now lined all of its canals with rubber or concrete lining, which will keep 24,000 acre-feet in the system that was previously lost to seepage. Prior to self-funding the canal lining projects, water lost through seepage meant canals were only 65 percent efficient. Today that efficiency has reached 90 percent.

In addition, district-funded grants also encouraged farmers to convert to high-efficiency pressurized drip irrigation systems on 85-90 percent of the district's acreage. And by investing in regulating reservoirs and dedicated groundwater recharge ponds, farmers and the district now have roughly 700 acres contributing to managed groundwater recharge.

## The Orestimba Creek Recharge & Recovery Project – a Positively Progressing, Storage Investigation

The *San Joaquin River Exchange Contractors Water Authority* and *Del Puerto Water District* have partnered to explore how the construction of 80 acres of recharge ponds could enhance surface water supplies, drought preparedness and allow for integrative management of surface and groundwater. When complete, project will recharge surface water supplies from the Delta-Mendota Canal and potentially from storm and flood water captured from high flows during storm events. Water will be recovered from strategically located wells to augment other surface supplies or provide alternative supply during drought. Currently, the partners are analyzing results from a 20-acre facility constructed in early 2018. At buildout the project will have an estimated storage capacity of approximately 35,000 acre-feet, or almost 11.5 billion gallons.

## Firebaugh Canal Water District Multi-Million Dollar Infrastructure Investment is Creating More Precise Management Which Increases Water-Efficiency

*Firebaugh Canal Water District* will complete a \$500,000 upgrade of its automated control facilities on two weir structures in early 2019 and is working through its multi-year facilities improvement plan, with a \$2 million canal lining project scheduled for completion in 2019/2020.

## Canal Lining Project Reduces Seepage and Supports New, High-Efficiency Irrigation

*Banta-Carbona Irrigation District* has upgraded facilities with concrete-lined canals and pipelines to help prevent unrecoverable seepage, evaporation, and weed transpiration losses. The District's agricultural water users utilize drip or micro-sprinkler systems on over 65% of the District's acreage resulting in more crop per drop of water applied with less water lost to percolation.

## Partnerships

San Luis & Delta-Mendota Water Authority members cultivate partnerships that improve water supply reliability for the region. These partnerships help solve challenging ecosystem management objectives, deliver additional water supplies for farms, and resolve wastewater discharge concerns between Valley communities and the San Joaquin River. Partnerships between Authority members, water providers, and communities throughout California also help achieve water management goals for many different entities. The partnerships between agricultural, urban and refuge water providers, regional public water agencies and Valley communities, as well as distant water users, provide ways to smooth out the peaks and valleys of water supply from year to year and bring more certainty and better outcomes to water users throughout California.

Examples include *Del Puerto and Grassland Water Districts* partnership with the Cities of Modesto and Turlock to take recycled urban water and deliver it to farms to grow high value crops and to wildlife refuges to provide enhanced habitat for overwintering migratory waterfowl. In addition, *Central California Irrigation District* and *San Luis Canal Company* are collaborating with water users outside of their service areas to reduce groundwater overdraft and improve the reliability of surface water deliveries for all of the parties.

## Farming for Tomorrow

Individual farms are investing in projects to improve the sustainability of farming in the San Joaquin Valley, to preserve important local ecosystems, and to restore degraded habitat. Efforts to preserve wildlife habitat and to protect species is accomplished through work with state and federal wildlife agencies and partnering NGOs. For example, farms within the SLDMWA service area have engaged in partnerships with the Pollinator Partnership to install complex-structure pollinator habitat to provide foraging support and shelter for native pollinators and honey bees.

Producing the finest food products in the world isn't possible without highly trained, dedicated employees who carefully plant, irrigate, harvest, and pack the crops. Today's farm workers are trained in food safety, heat stress prevention, first aid and CPR, and general safety practices that were unheard of a generation ago.

## Location

The San Luis & Delta-Mendota Water Authority's member agencies cover a region roughly 150 miles long and 20 miles wide from the town of Tracy south to Kettleman City along the San Joaquin Valley's Westside, as well as the Santa Clara Valley. The Authority's member agencies deliver water to approximately 1.2 million acres of highly productive farmland, 2 million California residents in Silicon Valley, and millions of waterfowl dependent upon the nearly 200,000 acres of managed wetlands in this area of the Pacific Flyway.



And this is just the beginning. The San Luis & Delta-Mendota Water Authority and its members are constantly looking for new ways to conserve and recycle as well as uncover new sources of water. Together, we're adding billions of gallons of water to California's annual water supply, which is being used to grow food, replace depleted groundwater supplies, preserve wildlife refuges, and free up water for homes and businesses.