



Dublin San Ramon
Services District
Water, wastewater, recycled water

fiscal year 2019

ANNUAL REPORT

strengthening
our infrastructure

July 1, 2018 - June 30, 2019

A MESSAGE from the general manager

Cover photo: An aerial view of a potable water reservoir (foreground) and a recycled water reservoir atop the hills off of Bollinger Canyon Road in the Dougherty Valley. The potable reservoir holds 2.6 million gallons, and the recycled water reservoir holds 450,000 gallons.

This past fiscal year the Dublin San Ramon Services District (DSRSD) focused on strengthening our infrastructure. We are running the newly expanded Jeffrey G. Hansen Water Recycling Plant that now has 70 percent more capacity with the pretreatment system fully operational; we are processing solids in the newly built digester that also provides redundancy to this part of the wastewater treatment process; and we have made several improvements to the way we deliver drinking water (e.g., we're flushing the lines more frequently and recycling that water back to the wastewater treatment plant so we can reuse it).

In addition to strengthening our infrastructure, this year the District made the transition from at-large elections to area-based elections. We had to do so because we received a letter from an attorney representing the Bay Area Voting Rights Initiative demanding DSRSD change its at-large election system to an area-based election system in order to comply with the California Voting Rights Act.

Previously, all five members of the Board of Directors were chosen by constituents from the District's entire service area. Under area-based elections, DSRSD has been divided into five separate election areas, referred to as divisions, and voters residing in each individual geographic division will select one representative to serve on the DSRSD Board. I'd like to thank all our customers on Nextdoor who participated in our poll and selected their favorite map of potential divisions. The Board selected the Scarlet Map, which is shown below. In the 2020 election, Divisions 1, 3, and 5 will select Directors for our Board. Divisions 2 and 4 will select Directors for our Board in 2022.

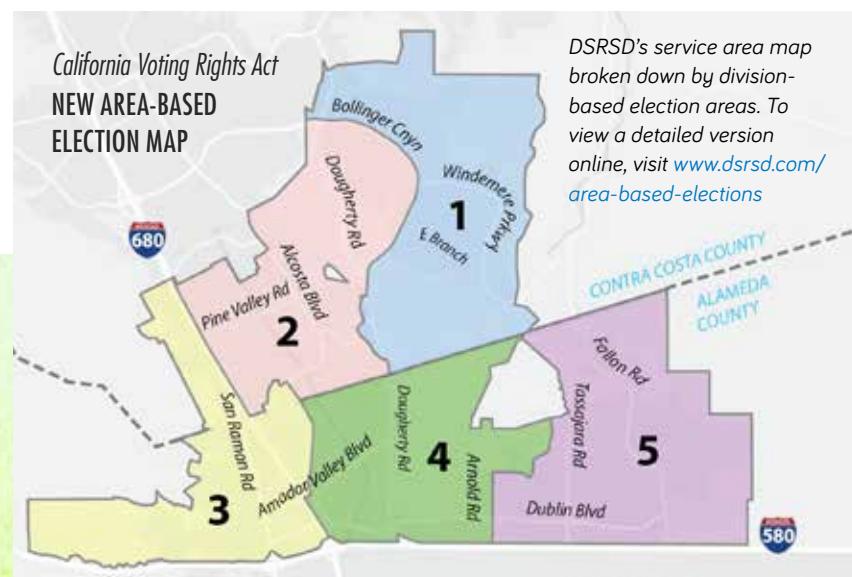
If you might be interested in serving on our Board of Directors, I encourage you to attend our Citizens Water Academy held from 6:00 to 9:00 p.m. on May 20, June 3, and June 17, 2020. During the academy, you'll receive an overview of what the District does (provides water, wastewater, and recycled water services), where our money comes from and where it goes, and the many ways we protect public health and the environment. If three evening sessions is too much of a commitment, but you'd still like to know more about DSRSD, I encourage you to attend one of our quarterly public tours. The schedule can be found on our website at www.dsrsd.com/outreach/tour-request.

For those who don't regularly visit us at our District Office on Dublin Boulevard, you may be unaware that we haven't been working there since November 2018 when a water line burst and filled the building with one to three inches of water and silt. A restoration company has been instrumental in restoring critical documents that were water damaged, and we expect to reopen in April 2020. In the meantime, administrative and engineering staff have been relocated to our Field Operations Facility in Pleasanton, adjacent to our facultative sludge lagoons and dedicated land disposal site.

On behalf of the DSRSD Board of Directors and staff, thank you for allowing us to serve you.



Daniel McIntyre
General Manager

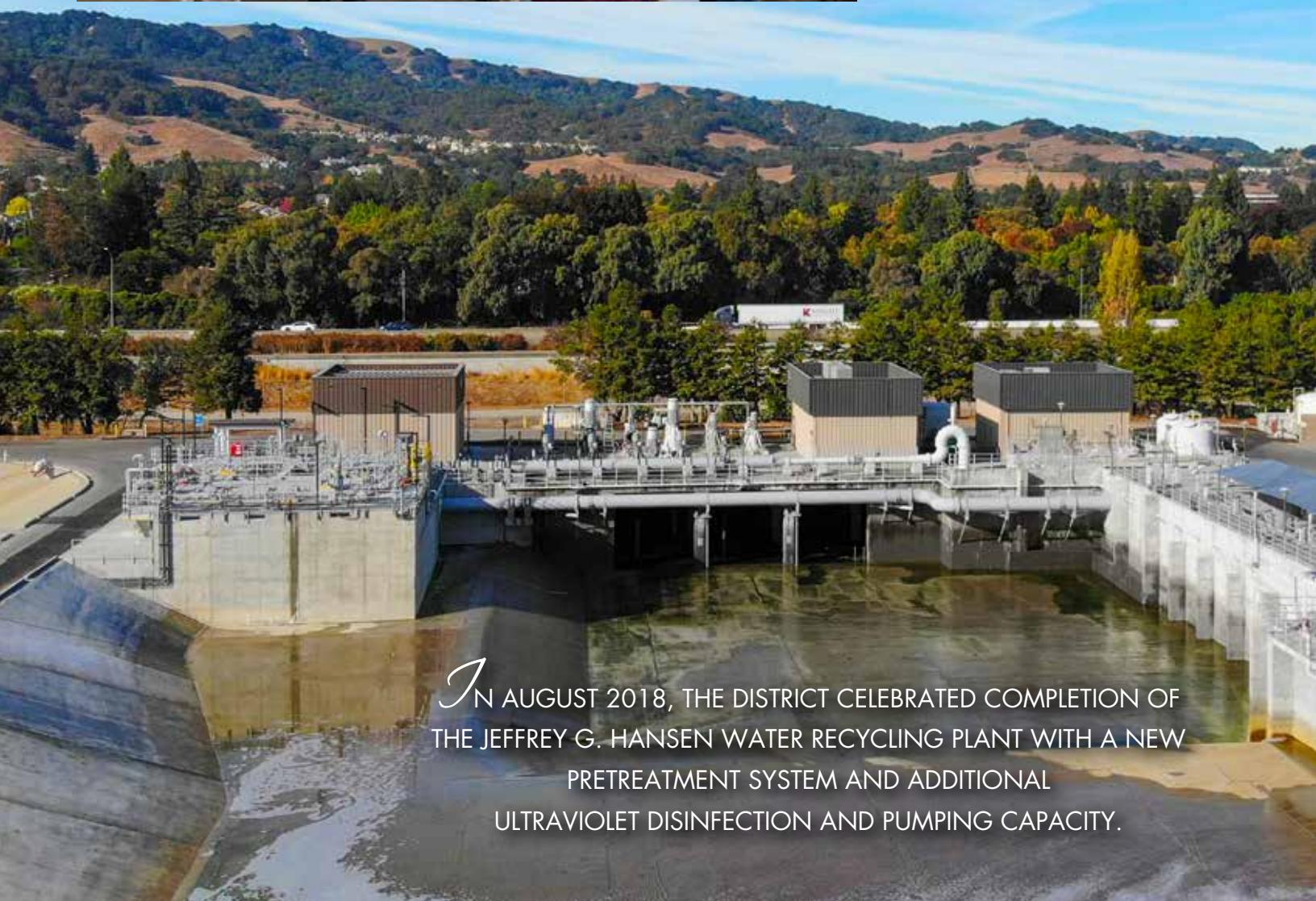


**Dublin San Ramon
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Water, wastewater, recycled water

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Wastewater Treatment Plant Operations Supervisor Levi Fuller, left, describes the recycled water plant's microfiltration system to participants of the 2018 Citizens Water Academy.



IN AUGUST 2018, THE DISTRICT CELEBRATED COMPLETION OF THE JEFFREY G. HANSEN WATER RECYCLING PLANT WITH A NEW PRETREATMENT SYSTEM AND ADDITIONAL ULTRAVIOLET DISINFECTION AND PUMPING CAPACITY.

DSRSD Board of Directors

President Madelyne (Maddi) Misheloff
Vice President Edward (Ed) Duarte
Director Ann Marie Johnson
Director Richard (Rich) Halket
Director Georange Vonheeder-Leopold

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INVESTING in the future

NEW DIGESTER ALLOWS FOR MORE CAPACITY, AND ADDITIONAL RENEWABLE ENERGY PRODUCTION

The District's fourth and final digester, which became operational late in 2018, holds one million gallons of biosolids. Combined with the other three digesters, the District has a total capacity for three million gallons of biosolids.

The digesters process the solids from the wastewater stream and work like anaerobic mechanical stomachs, providing a warm environment where bacteria decompose the organic solids and destroy pathogens. Currently the plant needs digester capacity of 1.5 million to 2 million gallons for reasonable treatment.

On top of providing more capacity, the new digester also allows biosolids to be treated and stabilized for 36 days. Previously, the biosolids were treated for 24 days. Federal regulations require a minimum of 15 days of treatment. The additional digester treatment capacity adds more time to biodegrade the biosolids, further reducing odors and organic contents (so the sludge can be safely used or disposed of). In addition, more methane gas is produced, which the District combines with natural gas to generate electricity to heat and power the plant.

The project includes a fats, oils, and grease receiving station that will further increase biogas production as part of our future energy plan.

The additional digester also allows for taking other digesters out of service for cleaning, inspection, and maintenance while maintaining adequate treatment time for the wastewater that continuously enters the treatment plant an average rate of 10.6 million gallons per day. Typically, it takes about six to eight weeks to shut down, clean, and restart a digester. Digesters need to be cleaned every five to eight years.

The plant is expected to have adequate digester capacity for the next 25 years. At that point, a new digester may not be needed, but the plant may require additional equipment that thickens the solids before they enter the digesters.

PRIMARY TREATMENT PROCESS BEING EXPANDED AND IMPROVED

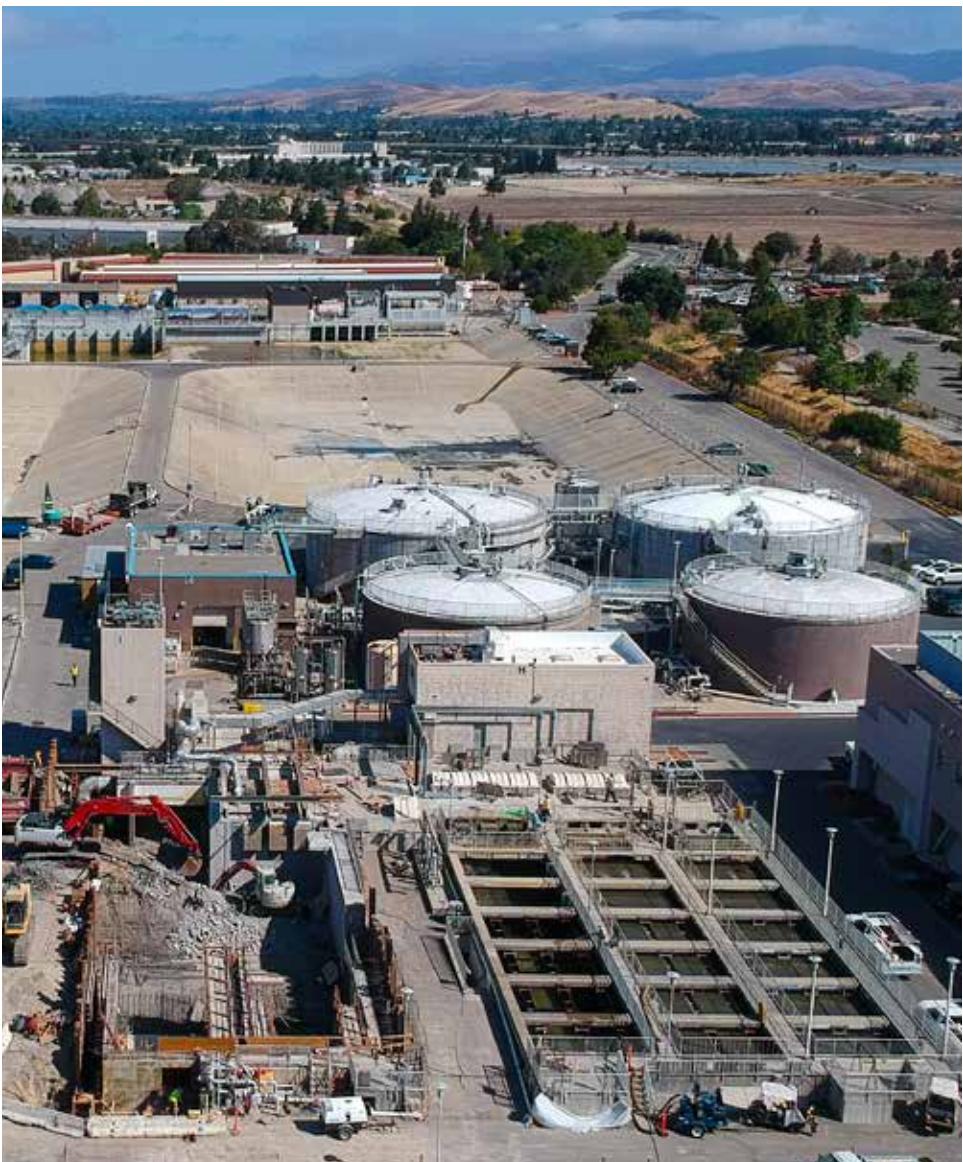
Construction is underway on DSRSD's largest capital improvement project since 2000. The Primary Sedimentation Expansion and Improvements project will increase primary treatment capacity by 33 percent. This \$19 million project broke ground in April 2019 and is anticipated to continue through fall 2021.

The work involves replacing and deepening one of the four primary sedimentation tanks, plus adding a fifth tank. This will allow the tanks to better separate solids and liquids, which will ease stress on the secondary treatment steps and also help the plant produce more biogas (a renewable fuel used to generate electricity to heat and power the plant).

The project also includes adding a grit tank, which will aid removal of sand and gravel to protect equipment and prevent clogged pipes downstream at the plant.

The expansion and improvements will provide needed primary treatment capacity for current and anticipated future wastewater flows per the general plans of the cities of Dublin, San Ramon, and Pleasanton.

Construction on the new fourth and fifth primary tanks photographed in July 2019 (adjacent to red crane, bottom left). The new fourth digester (top right cylindrical tank) became operational late 2018.



Drone photography: Bonifacio Duenas



LOCAL FIFTH GRADERS LEARN ABOUT PROTECTING OUR WATERSHED

Fifth graders at Amador Elementary School in Dublin connected with their local watershed through a program presented by KIDS for the BAY during the 2018-19 school year.

Nearly 120 students participated in the Alamo Creek Watershed Action Program, a series of classroom programs to learn about our local creek watershed and get hands on with subjects such as estuaries, wildlife, and collecting litter from around their own school. The students also ventured on a field trip to Sunol Regional Wilderness to investigate animals at Alameda Creek, which is part of their watershed and leads to the San Francisco Bay.

Students said they felt good knowing they were improving the ecosystem for animals that live in their local watershed, and teachers reported how the information ties into the regular curriculum and has improved scores on science quizzes. Teachers who participated in the program now have the experience to share the curriculum and teach watershed awareness to incoming students.

Inspiring youth to take an active role in protecting their local watershed and keeping it clean is the goal of KIDS for the BAY, an organization that provides environmental education to elementary schools in Alameda and Contra Costa Counties.

WATERSHED PROGRAM FUNDED FROM REPARATIONS FOR PIPE BREAK

The Alamo Creek Watershed Action Program at Amador Elementary School in Dublin was made possible as part of a settlement to the San Francisco Bay Regional Water Quality Control Board regarding an enforcement action against the District.

In September 2017, a water main broke and spilled 61,000 gallons of drinking water into Alamo Creek, which killed approximately 100 small fish. Although the pipe was less than 20 years old and should have lasted at least 75 years, the fact that it broke and spilled into the nearby creek and killed fish was a violation of the Clean Water Act. (The chlorine, used to treat drinking water so it can safely travel through pipes to our customers, can be harmful to fish).

Because of this spill, the District was required to pay a \$72,500 fine to the Regional Water Board. However, the Regional Water Board allowed the District to spend half the penalty fine (\$36,250) to fund the Alamo Creek Watershed Action Program at Amador Elementary. As of May 2019, the program was completed successfully and the District has satisfied its obligations for the Supplemental Environmental Project.

Fifth graders at Amador Elementary School in Dublin pick up trash around their school to keep it out of the storm drains that empty into the San Francisco Bay.

SAN RAMON STUDENT EARNS SCIENCE FAIR PRIZE

The DSRSD Board of Directors presented Harsha Pillarisetti, a student at Windemere Ranch Middle School in Dougherty Valley, the Excellence in Water, Wastewater & Recycled Water Research Award.

His project, "Effect of Intelligent Watering Systems on Plant Growth and Water Consumption," earned first place in the Junior Division at the Contra Costa County Science & Engineering Fair. The Board congratulated Harsha and presented him with a certificate and a \$400 check. The award is sponsored by 11 water and wastewater agencies in Contra Costa County.

The East Bay Municipal Utility District, Contra Costa Water District, and Central Contra Costa Sanitary District also presented awards to students from Lafayette, Concord, and Walnut Creek. Projects covered topics including a magnetic solution to cleaning oil spills, real-time flood path prediction, runoff toxicity, and removing contaminants from fresh water. The students' teachers each received \$100 awards.



Science fair winner Harsha Pillarisetti.

PROTECTING public health and the environment

SPOT SEWER REPAIRS KEEP PIPELINES FUNCTIONING WITH MINIMAL DISRUPTION

Sewer pipes are subject to wear and tear over time, which can result in cracks that let tree roots enter and clog sewer mains. To help keep wastewater pipes in good working order, the District sends a closed-circuit video camera through pipes to inspect sewer conditions.

Once inspections located where repairs were needed, a contractor performed spot sewer main repairs in July and August of 2018. Sewer mains receiving repairs, most made of clay and built between 1960 and 1986, varied from 6 to 12 inches in diameter.

Using cured-in-place technology, a crew patched and reinforced sections of sewer pipes by pulling a liner through the pipes and hardening it with ultraviolet light. The liner stops root intrusion and leaking joints while adding structural strength to the pipeline. Crews plugged the upstream sewer pipe during installation and scheduled repairs during parts of the day when flows are lower.

Performing repairs with this method allowed for minimal disruption to neighboring residents and businesses without the need for excavation.



A contractor crew prepares to lower a sectional liner into the sewer for cured-in-place repairs in Dublin.

Tree roots in search of water can invade sewer lines, which in turn can cause costly, messy backups. The District inspects sewer pipes using closed-circuit video cameras to pinpoint problem areas in the system.



A closed-circuit video image shows a ball of tree roots blocking a sewer pipeline.



Foam is injected into the sewer line to clear pipes clogged by tree roots. The foam also prevents future root intrusion.

ROOT FOAMING SEWER PIPES PREVENTS OVERFLOWS

In addition to grease, tree roots can intrude into sewer pipes and cause sewer backups, which can lead to sewer overflows.

The District works with a contractor to perform preventive maintenance by root foaming sewers in problem areas within the system's more than 200 miles of sewer pipes. A diquat-based herbicide foam with the consistency of heavy shaving cream is injected into sections of sewer line, inserted by a hose from manhole to manhole. This powerful, short-lived herbicide is often used to control water weeds.

The foam adheres to roots in the sewer line, causing the roots to decay, slough away, and be sent

through the sewer system. Field Operations staff notify operators at DSRSD's Regional Wastewater Treatment Facility in advance of root foaming so plant operators are aware of the chemical coming through with the wastewater. Microorganisms used in the activated sludge process are sensitive, therefore operators keep a close eye on the plant when they know the herbicide foam is coming into the system.

The depth of sewer pipes can vary and range from 5 to 20 feet deep, depending on where they are in the system. The foam, which does not harm trees or other above-ground vegetation, prevents root-related backups for three to five years.

WATER-WISE GARDENING WORKSHOP ENCOURAGES REDUCED OUTDOOR WATER USE

DSRSD partnered with water wholesaler Zone 7 Water Agency to offer a workshop about Water-Wise Gardening in the Tri-Valley in August 2018 at the Dublin Library. In California, water conservation is a way of life, especially in the Tri-Valley's arid, dry climate.

More than 50 people attended the workshop, which also featured speakers from Dublin's Armstrong Garden Center and EcoFolia, a sustainable landscape design company. Attendees learned about where the water in the Tri-Valley comes from, sheet mulching to convert lawns to gardens, native and drought tolerant plants, and resources available on the Tri-Valley Water-Wise website.

This fun and informative workshop taught residents about how to conserve outdoor water use by converting their thirsty turf to a sustainable garden with efficient irrigation options. Those in attendance also received materials to help reduce water use at home, including a low flow garden hose nozzle, Bay Nature's *Gardening for Wildlife with Native Plants* magazine, and Sunset Magazine's *Easy Waterwise Gardening*.



Water conservation is a California way of life.



Above: David Roth of Armstrong Garden Center in Dublin speaks about native and drought-tolerant plants for low-water-use gardening.

Right: Senior Instrumentation/Controls Technician Jerry Miller, 2019 DSRSD Employee of the Year, readies the electric carts first thing in the morning at the Regional Wastewater Treatment Facility.

USING MORE ENVIRONMENTALLY FRIENDLY VEHICLES

Protecting the environment by treating wastewater and making recycled water is part of the everyday mission of DSRSD.

Over the last decade, the District has been steadily increasing its commitment to protecting the environment by also transitioning a portion of its fleet to electric vehicles. In 2003, the District purchased a hybrid car still used by DSRSD's Safety Team.

More than 50 staff members in plant operations, electrical, instrumentation and automation, maintenance, laboratory, and support services are stationed at the Regional Wastewater Treatment Facility. Getting around the site, which spans more than 20 acres, was previously done using pickup trucks.

The plant now has 26 electric service carts that staff members use for 70 percent of the work projects around the plant. An additional electric cart is used at the 14-acre site for the Livermore Amador Valley Water Management Agency that pumps treated wastewater up and over the hill to a deepwater outfall in the San Francisco Bay.

The plant has a solar charging system dedicated to the carts, and solar charging makes up about 80 percent of the power they use. Staff's access to carts also makes for faster and easier access to all areas of the plant, increasing efficiency.

In 2020, the District plans to add a hybrid electric vehicle to the Field Operations Division to be used for daily rounds of the water system throughout DSRSD's service area.





Electrician II Brian Johnson installs a power distribution circuit breaker into an energized 480V distribution switchgear.

STAFF RETROFITS SPARE CIRCUIT BREAKER FOR COGENERATION ENGINES

The ingenuity of District staff helped save \$38,000 in equipment costs on a new spare circuit breaker for the cogeneration system at the Regional Wastewater Treatment Facility.

The treatment process for wastewater solids produces biogas, which helps fuel the three cogeneration engines, along with natural gas, to provide electricity and recapture heat for operating the plant and supporting infrastructure. This system helps provide about two-thirds of the annual average power used at the facility.

Following a power outage that caused issues with reconnecting a circuit breaker, staff decided having a spare breaker would be beneficial in case of unexpected circumstances such as power outages or in the event of another circuit breaker failure. A new 480 volt, 2,000 amp breaker that connects the cogeneration units to the plant's power system was estimated at \$40,000. Just as the District was prepared to purchase a new one, staff had the idea to retrofit another spare breaker.

In early 2019, staff in the Instrumentation, Controls, and Electrical Division were able to complete the project for \$2,000 (including parts and labor) by retrofitting the existing spare breaker to work for multiple locations.

Increasing **EFFICIENCY**

RELIABLE INFRASTRUCTURE EQUALS LOW WATER LOSS

All water utilities experience a certain amount of system water loss due to “real” losses such as leaks and “apparent” losses such as theft or inaccurate meters.

The District reports its water loss each year to the Department of Water Resources by calculating how much water was purchased from wholesaler Zone 7 Water Agency and how much was provided to customers. Water used for firefighting and flushing water lines is considered unbilled authorized consumption, or non-revenue water, and is not categorized as water loss.

DSRSD's 2018 average water loss of 6 percent is significantly below the national average, which ranges from 10 percent to 30 percent. Over the last decade, the District's water loss ranged from 4.3 percent to 6 percent.

As a relatively young District, founded in 1953, DSRSD has newer infrastructure that limits leaks. Most leaks within the District occur from small lateral pipes, typically $\frac{3}{4}$ to 1 inch in diameter, that run from the street to customers' homes. Property owners are responsible for the water service line between their house and water meter, which is usually located in the front yard near the sidewalk; DSRSD is responsible for the pipe between the meter and water main line. Field Operations staff monitor for and respond to leaks in a timely manner, which also improves water loss.

TIMING REPAIRS FOR MAXIMUM RECYCLED WATER DELIVERY

In April 2019, the connection between the transformer and the motor control center at the Jeffrey G. Hansen Water Recycling Plant that supplies power to its sand filtration system failed, significantly reducing the facility's ability to produce recycled water. To ensure the plant would be able to continue providing recycled water to customers, a declaration of emergency was issued and a large generator was brought on site until repairs could be completed two or three months later.

DSRSD and the East Bay Municipal Utility District (EBMUD) manage the San Ramon Valley Recycled Water Program, with the City of Pleasanton as a customer. For the repairs on the west side of the water recycling plant, the three agencies shared the \$329,000 repair costs, which included rental of the emergency generator.



A contractor prepares the feeder cables for the emergency generator that temporarily powered the west end of the water recycling plant from mid-April to mid-June 2019.



An irrigation technician repairs a break in a recycled water line during a DSRSD site inspection.

This incident on the west side of the plant caused staff to examine the transformer on the east side of the plant, which supplies power to distribution pumps and the microfiltration system. Staff determined the east transformer had a similar vulnerability, and if there was a failure, the water recycling plant would not be able to supply any recycled water since this side is currently not set up to connect to an emergency generator.

An inspection determined the east side transformer was in safe condition to operate through the high-demand hot weather season to make sure recycled water customers have full access. A two to three week shutdown is planned for November 2019 when demand for recycled water is lower. Bypass cables will provide the east side power during this time. Repair costs for this transformer are estimated at \$213,000.

AQUAHAWK HELPS CUSTOMERS TAKE CONTROL OF THEIR WATER USE

The AquaHawk customer portal gives DSRSD customers 24/7 computer access to their water account, which includes viewing their hour-by-hour water use.

As of mid-2019, 57 percent of District customers were signed up for AquaHawk. This system helps stop leaks in their tracks with a new feature that sends customers automatic alerts to their smart phone or email when abnormal water use is detected.

Customer Service and Billing staff also keep an eye on AquaHawk and contact customers who may not be signed up yet—especially when a leak is indicated on their water use. This approach is saving water, saving customers money by being able to fix leaks sooner, and encouraging people to change their water use habits in general.

AquaHawk also saves the District time and resources, since leaks can be observed from a computer instead of sending staff to check in person. Fewer billing adjustments are also needed since repairs can be performed earlier. Sign up for AquaHawk at www.dsrsd.com.

In a two-month period during summer 2019, AquaHawk sent leak alerts to more than 700 customers showing unusually high water use. Catching leaks early supports DSRSD's water conservation efforts.

ONLINE REPORTING STREAMLINES MONITORING FOR RECYCLED WATER USERS

Supervisors who oversee landscapes irrigated with recycled water are required to submit semi-annual self-monitoring reports to DSRSD, as the use of recycled water is highly regulated.

In October 2018, the District launched a new electronic form that can be filled out online and automatically populates a table with the collected data.

The form requests information such as if there is any runoff or ponding of recycled water, if they have or need proper signs stating recycled water is used on site, if there could be any overspray in areas where people may be eating, and if there is any odor. This data helps the District conduct inspections and follow up with potential violations.

Having this online form automatically fill information into a table streamlines the process and makes the information easier for DSRSD to analyze. The information collected from self-monitoring reports is also summarized in the Recycled Water Use Annual Report that the District submits to the Regional Water Quality Control Board.

An added benefit of the semi-annual, self-monitoring report is that the District is able to keep updated on each site's point of contact. Site supervisors change often, and this keeps the information up-to-date for inspections.

BUDGET in brief



Primary sedimentation tank demolition and expansion.

The District provides water, wastewater, and recycled water services to 188,000 people. In fiscal year ending 2020, the District expects to collect \$94 million in revenue and spend \$71 million on daily operations and \$25 million on capital improvements.

OPERATIONS

The annual Operating Budget forecasts revenue and spending for daily operations.

WHERE THE MONEY COMES FROM

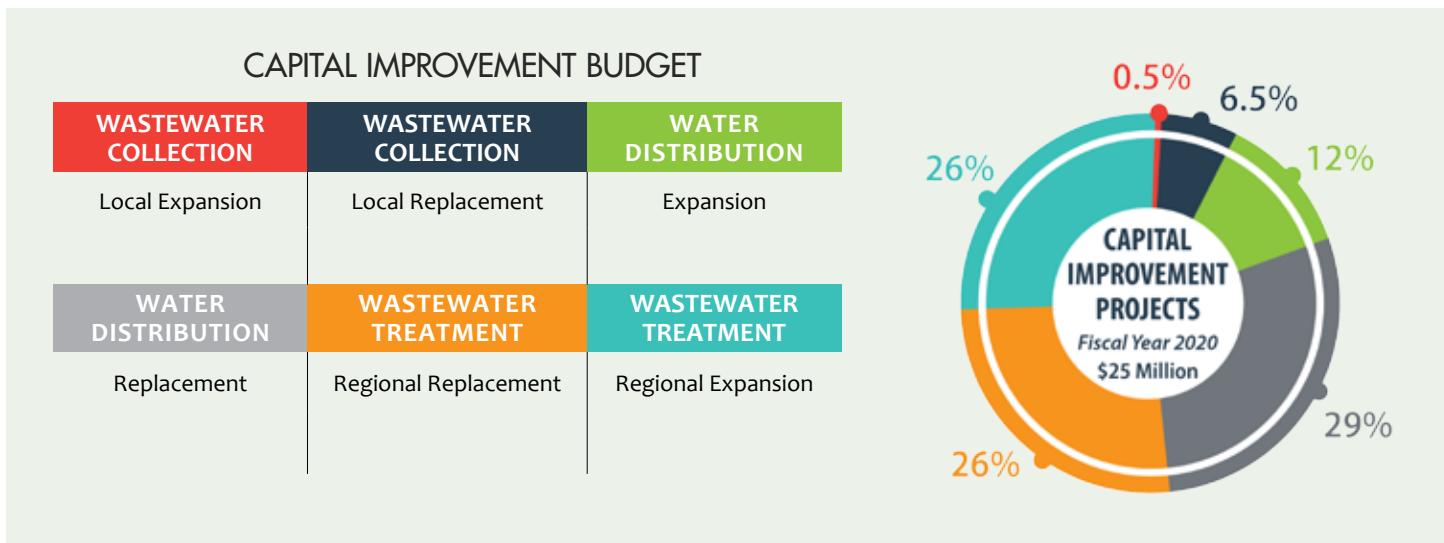
INTEREST	BUSINESSES	DEVELOPERS	CUSTOMERS
... earned on DSRSD investment accounts	... pay fees for planning, permits, inspections, and other additional services	... build homes and businesses that will need DSRSD services—pay their share of current and future infrastructure costs	... pay the cost of services they receive



WHERE THE MONEY GOES

PARTNERSHIPS	CHEMICALS, UTILITIES, CAPITAL OUTLAY & OTHERS	CONTRACTS
... payments for DSRSD's share of costs to produce and distribute recycled water and pump the treated wastewater that isn't recycled into the San Francisco Bay	... purchases (vehicles, equipment, software), materials, and others	... with outside experts such as lawyers, auditors, specialty repair contractors, and engineering firms
DEBT	WATER PURCHASES	WAGES AND BENEFITS
...on major infrastructure	... from our wholesale supplier, Zone 7 Water Agency, a cost passed on to water customers	... for our 128 employees who deliver services and operate facilities 24/7, plus all costs related to retiree benefits





THE CAPITAL IMPROVEMENT BUDGET

The 2 year capital improvement budget authorizes replacement and expansion projects based on a 10 year plan.

Expand and Improve

- \$7.75 million to construct Reservoir 20B. Work is expected to be completed in fall 2022. This 1.3 million gallon reservoir will provide water storage capacity for eastern Dublin and potable water for Dougherty Valley.
- \$3 million to add permanent generators to several critical water pump stations to improve reliability in the event of a power outage.
- \$19 million to construct one new primary sedimentation tank and partially demolish and replace one of the existing tanks to add treatment for current and buildout flows.

Repair

- \$738,000 to rehabilitate 670 feet of an existing 36 inch reinforced concrete pipe of the East Dublin trunk line. The pipe was installed in 1960 and has some visible corrosion and significant spalling (chips in the concrete). Work is expected to be completed in FY 2020.
- \$3 million to repair and replace line and blowoff valves throughout the water distribution system. Some valves will be replaced with larger valves to improve flushing velocity and efficiency, thus maintaining water quality.

Replace

- \$2.97 million to upgrade the wastewater treatment plant Supervisory Control and Data Acquisition (SCADA) communication network, replace the programmable logic controllers, replace the servers, install a new database repository for historical data, and acquire a web portal to view SCADA data.
- \$1.5 million to procure and implement a new computer software financial management system that includes billing, accounting, budgeting, and personnel management.

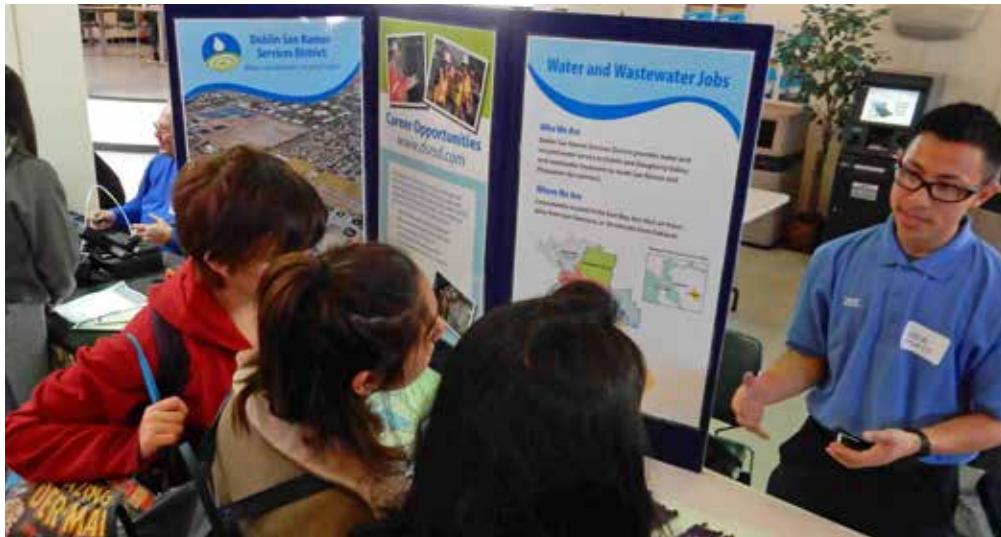
Want to know more?

For in-depth information, find these documents in the Library at www.dsrsd.com.

- *Operating Budget* – forecasts revenues and day-to-day operating expenses over the next two fiscal years
- *Capital Improvement Program (CIP) 10 Year Plan and 2 Year Budget* – identifies, prioritizes, and schedules capital improvement projects for the next 10 years, outlines a plan for generating the financial resources needed to complete them, and authorizes projects for the next 2 years

increasing **SAVINGS**

Left: Senior Wastewater Treatment Plant Operator III Sinzee Tran talks about DSRSD career opportunities in water and wastewater. Right: A chemical transport driver delivers ferrous chloride to the Regional Wastewater Treatment Facility.



PAPERLESS BILLING SAVES PRINTING AND MAILING COSTS

Paperless billing not only saves trees, but it also saves the District money on printing, envelopes, and postage costs.

Out of more than 25,000 active accounts, 34 percent are receiving their bimonthly water bills via email instead of in the mail.

Because more than 8,000 customers are participating in paperless billing, the District is saving approximately \$7,000 annually that would otherwise be spent on data processing, printing, envelopes, quality control, and postage.

DSRSD began offering a paperless billing option about 10 years ago. When new customers call to set up an account, Utility Billing and Customer Service staff offer them a paperless billing option as well as autopay.

All paper bills mailed to customers include an option to switch to paperless billing. Current customers can call (925) 828-8524 or sign up through the AquaHawk customer portal at www.dsrsd.com.

TEAMING UP TO TRAIN NEW OPERATORS

Across the country, the water and wastewater industry is experiencing the silver tsunami of operator retirements, and DSRSD is eager to help train the next generation of employees.

The District is one of 22 agencies that formed the Bay Area Consortium for Water and Wastewater Education (BACWWE). The consortium partners with Solano Community College and Gavilan College to offer free college level classes for those interested in a career in water or wastewater operations.

Since BACWWE's inception in 2007, the program has hosted from two to six classes each semester in wastewater treatment, water treatment, and water distribution. Some classes are held on site at local utilities, making them more accessible to interested students. Wastewater professionals from several Bay Area utilities serve as instructors in the program. DSRSD Wastewater Treatment Operations Supervisor Levi Fuller serves as a BACWWE instructor, and the District hosts some classes at its Regional Wastewater Treatment Facility in Pleasanton. For the fall 2019 semester, Fuller is teaching a Wastewater Treatment I course.

Currently half of DSRSD's wastewater treatment operators are former BACWWE students, and two-thirds of Bay Area agencies have at least one former BACWWE student in their operations department. Many students in the program are looking to transition to a new career, so the program offers evening classes to make it easier for them to participate.

The District is sharing the BACWWE concept with other agencies throughout the state and nation. In 2019, Fuller spoke about BACWWE at an Association of California Water Agencies conference and at a Water Environment Federation conference. Those interested can learn more at www.bacwwe.org.

COLLABORATING FOR BULK CHEMICAL BUYING

DSRSD reduces its expenses by teaming up with water and wastewater agencies throughout the Bay Area, plus Sacramento and the Central Valley, to cooperatively purchase chemicals used in various operations.

In 2010, the District took the lead in creating the Bay Area Chemical Consortium, an informal cooperative that seeks competitive bids for chemical contracts. These savings are passed along to water and wastewater customers.

There are currently about 60 participating agencies from the greater Bay Area. Some years have upward of 70 agencies participating, with the number fluctuating each year depending on agency needs.

Participating agencies save about 20 percent or more by coordinating to have chemicals delivered in bulk to individual regions. DSRSD alone has saved more than \$1 million on chemicals since the consortium's inception.

DSRSD has been administering the program on behalf of all the agencies. The District is transitioning program administration to the joint powers Bay Area Clean Water Agencies.