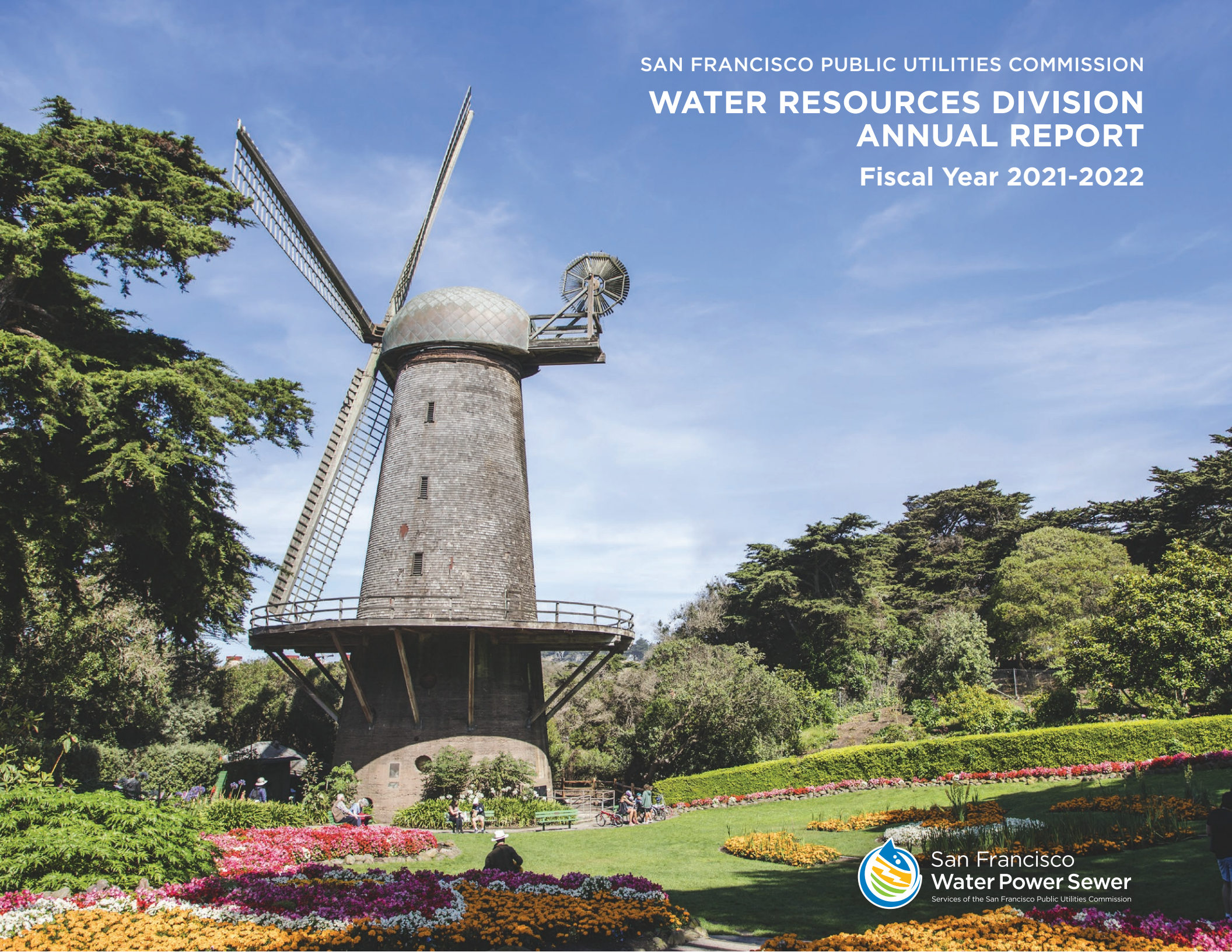


SAN FRANCISCO PUBLIC UTILITIES COMMISSION
WATER RESOURCES DIVISION
ANNUAL REPORT
Fiscal Year 2021-2022



San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission



Services of the San Francisco Public Utilities Commission

Dear Partners, Customers, and Stakeholders:

California is experiencing a new climate reality. Climate scientists have noted that the warmer weather is having accelerated impacts on diminishing water supplies. The good news is that the SFPUC has a long history of preparing for and adapting to change. Our robust conservation program includes rebates, tools, and resources to help customers use water wisely. At the same time, we continue to invest in diversifying and expanding our water supplies. Finding new sources of water is incredibly challenging in the Bay Area and it can take decades to implement water supply projects. Proactive planning, steady measured progress, and dedicated staff have helped us successfully bring new water supply resources online – such as groundwater, recycled water, and onsite reuse – that help us better prepare for a changing climate.

We know we are fortunate to have the Regional Water System, which gives us the ability to store and deliver our high-quality water, but we also know that water in California will always be precious and our work to conserve this resource is never done. Our commitment to conservation is one of the reasons why water use in San Francisco has declined by 30% since 2005, despite population growth. We are now at an average residential usage of about 42 gallons per person per day, which is among the lowest in the state. We will continue to work with our customers on innovative ways we can maximize water efficiency – to not only help during this current drought, but to be better prepared for the next one.

We will continue to protect and sustain our water resources with the help of the communities we serve. By implementing new technology, relying on regional partnerships, and leveraging the innovation of the Bay Area, we are in a strong position to tackle the climate change challenges and other uncertainties that lie ahead.

Thank you,



Paula Kehoe, Director of Water Resources

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WATER RESOURCES DIVISION HIGHLIGHTS



Water Conservation Program Activity Since 2009

INCENTIVES

-
- 190,463** Devices Distributed¹
 - 55,953** Showerheads
 - 49,183** Toilets
 - 29,096** Clothes Washers
 - 1,862** Urinals
 - 2,205** Rain Barrels, Cisterns, and Graywater Kits²
 - 396** Landscape³
 - 9** Commercial Equipment Grants⁴

WATER-WISE EVALUATIONS

48,961
Evaluations Performed: in person and over the phone

OUTREACH & EDUCATION

-
- 19,857** Conservation Info Line Calls⁵
 - 18,766** Top User Letters²
 - 3,028** Waste of Water Alerts²
 - 1,306** Presentations & Field Trips

WATER MANAGEMENT TOOLS

97,486 MyAccount REGISTRATIONS²

108,517 LEAK ALERTS²

1 Aerators, toilet flappers, fill valves, pre-rinse spray valves, nozzles, soil moisture meters

2 Tracking of participation in measure started later than 2009

3 Landscape includes Water Efficient Irrigation Ordinance projects, landscape audits, community irrigation grants and rebates

4 Includes ice machines, industrial dishwashers, sterilization equipment

5 Does not include calls to the SFPUC's General Call Center regarding conservation

DROUGHT RESPONSE

In response to severe and intensifying drought statewide, the Governor issued drought emergency proclamations calling upon all Californians to reduce water use. He also directed the State Water Resources Control Board to issue a temporary ban on the irrigation of non-functional, non-residential turf with potable water, among other water waste restrictions.

We quickly adopted local directives to implement the Governor's orders to reduce demand. In November 2021, we declared a Level 1 water shortage emergency and called for a 10% voluntary systemwide reduction in water use. The emergency declaration also approved charging retail customers a temporary 5% drought surcharge and issuing wholesale customers monthly water budget reports. In May 2022, we moved to a Level 2 water shortage emergency and increased the systemwide reduction to 11%.

To help us reach our reduction goals, we launched a multi-lingual regional drought outreach campaign, "We're in a drought, cut waste out" to highlight the drought and appeal to customers to take simple actions to reduce outdoor use and cut water waste. We increased our direct outreach to retail customers via bill messaging, newsletters, doorhangers, bill inserts, emails, and letters to top users. We launched ads on radio and television, search engine marketing, social media, billboards, and regional transit corridors in English, Spanish, Chinese, and Filipino. We fostered key partnerships with community organizations, including the San Francisco Giants, the San Francisco Apartment Association, and the Golden Gate Restaurant Association.



SFPUC staff Alina Checuti and JP Streater at an outreach event at Oracle Park



DROUGHT RESPONSE

Customers have responded to our call for conservation as reflected by lower water use, and increased participation in our conservation assistance programs. Summertime water use across the region remained relatively flat and avoided the typical summertime peak. Since expanding drought outreach to emphasize the urgent need to reduce summertime use, systemwide water use decreased over 10% through the summer and early fall, a time when we normally see a marked increase in usage.

For more detailed information on our approach and procedures for handling water shortages during drought, see our [Urban Water Management Plan \(UWMP\)](#).



SFPUC GM Dennis Herrera at the Save Our Water press event

Our [Water Conservation Plan](#) describes our retail water conservation programs, estimated water savings and their effect on customer demand, and where we anticipate continued and future water savings.

While we anticipate another dry year ahead, we are confident that our combined commitment to water conservation will help us stretch our water supplies. We are thankful to all of our customers for their dedication to making water conservation a way of life.



Julie Ortiz, SFPUC Water Conservation Manager, being interviewed by the media

We are in
a severe
drought.
**Cut water
waste out.**

Small actions can turn your water use from wasteful to waterwise.

Fix leaks promptly. Limit irrigation.

We are here to help with **rebates, tips, and resources.**

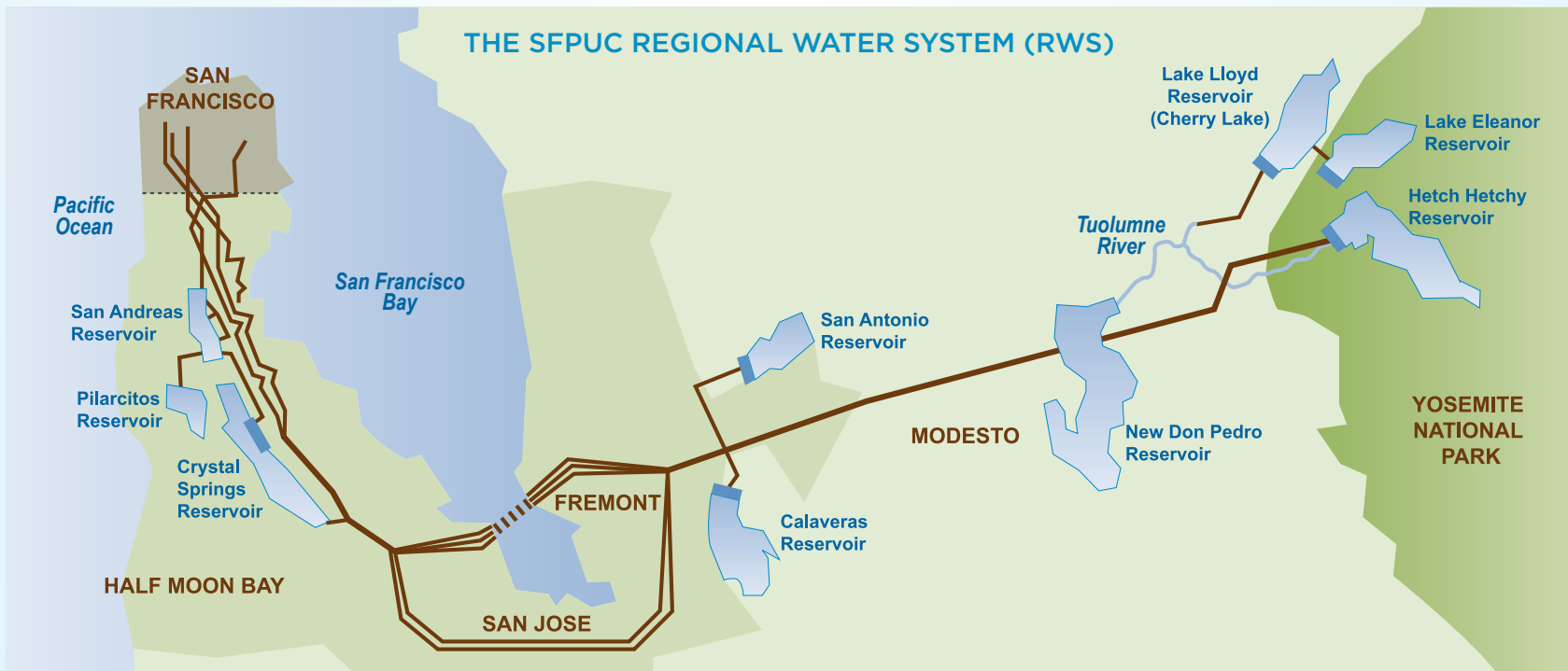
Visit us online at sfpub.org/SaveWaterNow or reach us at waterconservation@sfgwater.org.



OUR WATER SOURCES

The SFPUC Regional Water System (RWS) is a public asset that delivers high-quality drinking water to 2.7 million residents and businesses in the Bay Area. The system collects water from the Tuolumne River in the Sierra Nevada, from protected local watersheds in the East Bay and on the Peninsula, and groundwater stored in a deep aquifer located in San Francisco and San Mateo counties. The SFPUC delivers water to 26 wholesale customers in Alameda, Santa Clara, and San Mateo counties and provides direct retail water service to customers in San Francisco and some customers outside of San Francisco. [The Bay Area Water Supply & Conservation Agency](#) (BAWSCA) represents the wholesale customers and coordinates their water conservation activities.

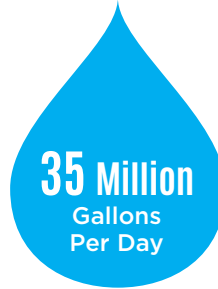
By relying on multiple sources of water supply, we help protect our customers from potential disruptions from emergencies or natural disasters. A diverse mix of water sources also helps us be more resilient to long-term water vulnerabilities such as global climate change, regulatory changes that reduce the amount of water we can use from creeks and rivers, and population growth. By choosing the right water source for its best use, we are ensuring the reliability of our water supply for today and future generations.



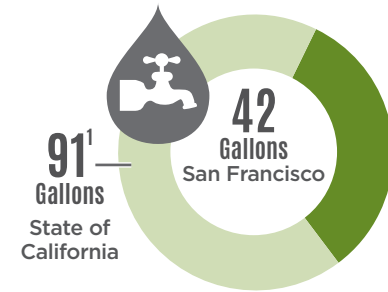
FY 2021-2022 San Francisco Residential Water Use



**SAN FRANCISCO
POPULATION**

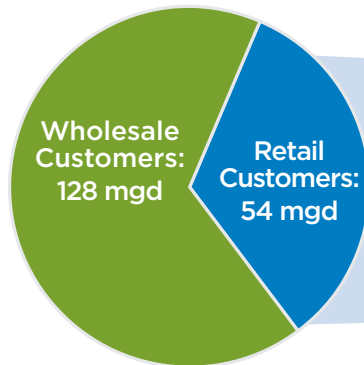


**WATER USED BY SAN FRANCISCO
RESIDENTIAL CUSTOMERS**

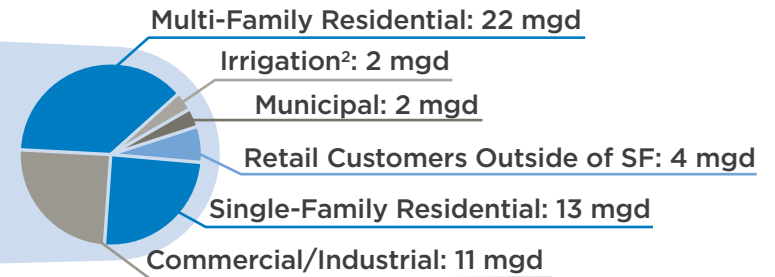


**RESIDENTIAL WATER USE
PER PERSON, PER DAY**

FY 2021-2022 Regional Water System Deliveries and Retail Water Use



**REGIONAL WATER
SYSTEM DELIVERIES²**



RETAIL WATER USE³

- 1 From the State Water Resources Control Board average monthly residential R-GPCD for all hydrologic regions for 2021.
- 2 These data are from dedicated irrigation accounts only, and do not include irrigation use from water accounts that jointly serve both indoor and outdoor demands.
- 3 The Retail Water Use chart does not reflect water used for pipe flushing, firefighting, street cleaning, and water loss from supply-side main and pipe breaks.

OUR WATER SOURCES

Groundwater Program

Groundwater is an essential part of the state and national drinking water supply. Eighty percent of Californians depend on groundwater for all or part of their drinking water supply as they have for generations.

The SFPUC's groundwater supply comes from the 40-square-mile Westside Basin, an aquifer extending from Golden Gate Park in San Francisco southward through Millbrae. The depths of production wells installed by the SFPUC range from 270 to 750 feet below ground. Our customers benefit from the storage, reliable yield, and consistent quality of water provided by this local resource.

The groundwater basin is a vital local drinking water resource for San Francisco and neighboring communities in San Mateo County. To enable the responsible and sustainable management and protection of the Westside Basin, the SFPUC conducts groundwater level and quality monitoring as one of its top priorities. Our monitoring network has expanded to 101 wells since the first wells were installed in 1989. We collect data from these wells to assess the quality of the water and how the groundwater basin responds to our operations. This allows us to adapt our groundwater pumping in response to changes in the aquifer so we can sustain this important resource.

SAN FRANCISCO GROUNDWATER SUPPLY PROJECT

The San Francisco Groundwater Supply Project allows us to supplement our drinking water sources by blending a small amount of groundwater with water from the Regional Water System. We have begun ramping up production to blend an average of up to 1 mgd of groundwater to our water supply. Over the next several years, we will incrementally build up to an average of 4 mgd of groundwater production in San Francisco.

For more information about groundwater, or to view our water quality reports, visit sfpuc.org/programs/water-supply/groundwater.



Golden Gate Park Central groundwater well station site



West Sunset Groundwater well station site

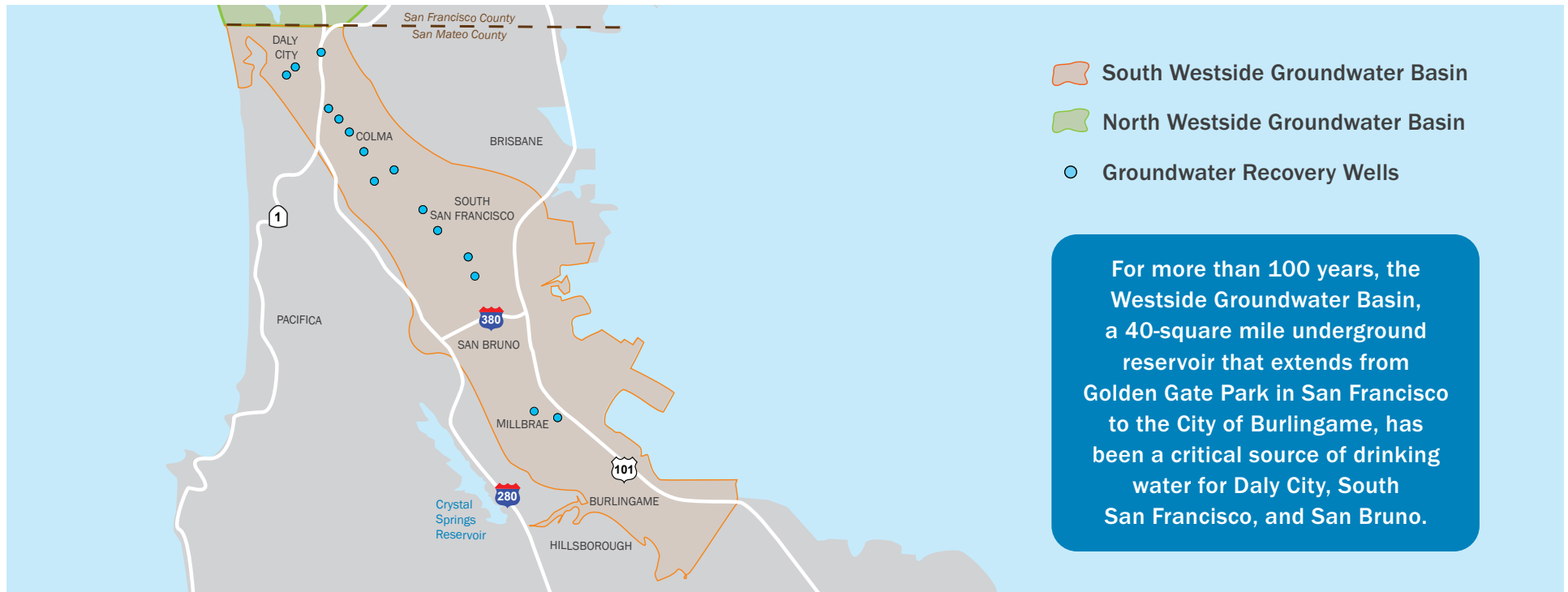
OUR WATER SOURCES

Groundwater Program

REGIONAL GROUNDWATER STORAGE AND RECOVERY PROJECT

The Regional Groundwater Storage and Recovery Project is a partnership among the SFPUC, the California Water Service Company (serving South San Francisco and Colma), the City of Daly City, and the City of San Bruno. This project is a sustainable, conjunctive use project that has storage and recovery components. During years of normal or heavy rainfall, the SFPUC provides additional surface water from the Regional Water System to the partner agencies to reduce the amount of groundwater pumped from the South Westside Groundwater Basin.

Over time, the reduced groundwater pumping will result in increased storage of up to 20 billion gallons from recharge. The stored water will serve as an additional water supply during drought. The project consists of 13 production wells, 12 of which were completed as of 2020. The project was in a storage phase from May 2016 through June 2021 during which the SFPUC accumulated nearly 10 billion gallons of groundwater storage (approximately 30,400 acre-feet).

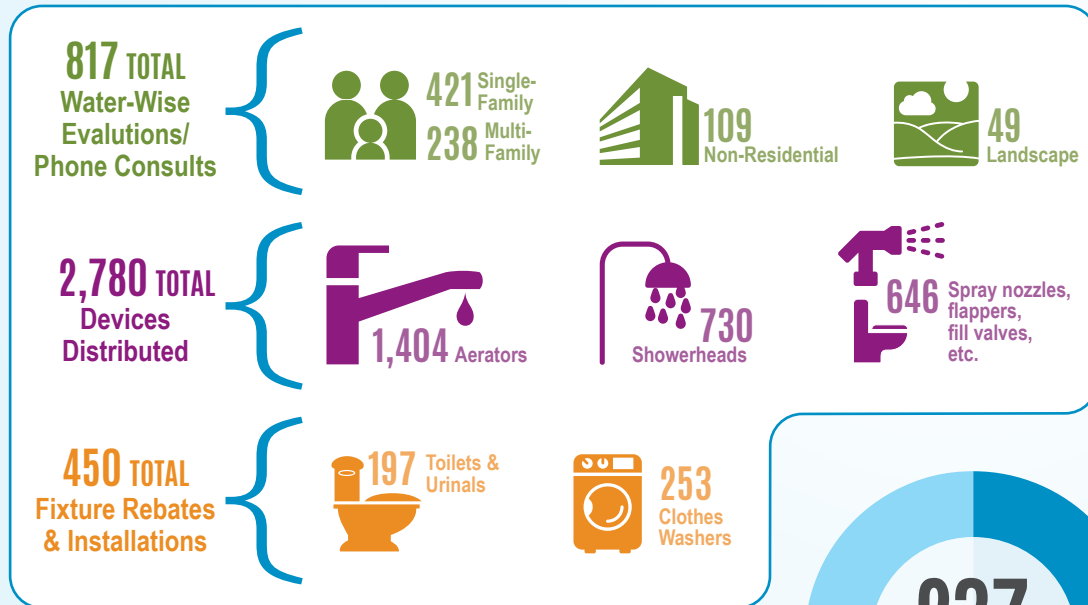


WATER CONSERVATION PROGRAM

Rain or shine, we provide a comprehensive water conservation program for residents and businesses in San Francisco and our retail service area outside of the City. Our program offers a variety of incentives, services, and tools to improve water efficiency and reduce waste. In addition, the SFPUC has helped develop and implement local requirements that mandate water efficiency.

This year, the Water Conservation Program staff continued to provide a wide array of water-savings assistance, launched a new hot water recirculating pump rebate program, and expanded its role as a leader among water agencies in the use of automated meter data to detect and notify customers about potential leaks and problems. The SFPUC also provides leadership in sponsoring, organizing, and speaking at some of California's leading water conservation forums, including the CalWEP Peer to Peer conference and the Water Conservation Showcase. For more information on current incentives, visit sfpuc.org/savewater.

CONSERVATION (FY 2021-2022)



OUTREACH & EDUCATION (FY 2021-2022)



LANDSCAPE PROGRAMS (FY 2021-2022)



FY 2021-2022 water conservation program activities are estimated to have a potential 30-year water savings of 237 million gallons.

WATER CONSERVATION PROGRAM

Virtual and Onsite Water-Wise Evaluations

We conducted 817 evaluations for residential and commercial properties. Outdoor evaluations helped identify irrigation efficiency improvements and plant recommendations for customers looking to improve water efficiency and reduce irrigation runoff. Field inspection staff manually ran irrigation systems, observed operation, flagged areas needing repairs, reconnected loose drip irrigation fittings and showed customers their sprinkler timer programming features. Our water-wise evaluations also helped customers identify old plumbing fixtures that qualify for financial replacement incentives and provided free water-efficient plumbing devices, including showerheads, aerators, and toilet leak repair parts.

Free High-Efficiency Plumbing Devices

We provided 2,780 water-efficient showerheads, faucet aerators, garden spray hose nozzles, soil moisture meters, and toilet leak repair parts to help residential and commercial properties achieve immediate water savings. All retail customers are eligible to receive free plumbing devices after they complete a free phone consultation to determine their eligibility.

NEW! Hot Water Recirculation Pump Rebate

Hot water recirculation pumps reduce wait times for hot water to arrive at showerheads and taps, saving water and money. The pumps pull hot water from a water heater, while simultaneously sending cool water from the hot water lines back to the water heater to be reheated and reused. Pumps are either installed at water heaters or under kitchen or bathroom sinks that have electrical outlets. This new program will also help us measure the impact of these pumps on water usage as we will conduct a study after the first year of the program is completed.



Our free water-wise evaluations and free devices are our most popular offerings.



Hot water recirculation pump

WATER CONSERVATION PROGRAM

Plumbing Fixture Replacement Program (PREP)

To help accelerate the replacement of old, water-wasting fixtures, we continued the Plumbing Fixture Replacement Program (PREP), a toilet and urinal replacement program to help customers retrofit some of the last inefficient fixtures in our retail service area. During this fiscal year, 197 efficient toilets were installed through the PREP program, bringing the overall program total to over 5,000 efficient toilets and urinals since the program launched in 2016.

Commercial Equipment Retrofit Rebate Program

The Commercial Equipment Retrofit Rebate Program provides funding for businesses to implement equipment efficiency upgrades. Businesses can receive rebates for medical equipment, restaurant equipment, commercial laundry retrofits, and custom site-specific equipment retrofits. This year, the American Linen & Supply Company (ALSCO) partnered with us to increase the water efficiency of their washing machine water use by installing an ultrapure wastewater treatment and recycling system. The system is engineered specifically for graywater treatment and energy recovery and reduces water consumption by up to 55%. This project is estimated to save more than 35 million gallons over the next 10 years.

Clothes Washer Rebates

We provide rebates of \$100 per washer for the purchase and installation of qualifying residential ENERGYSTAR efficient clothes washers in our retail service areas, and rebates of \$500 per washer to customers installing qualifying coin-operated, high-efficiency, commercial-style clothes washers. In FY 2021-2022, 253 rebates were processed.

Ultra-Pure Water Process Equipment at ALSCO



ALSCO | SAN FRANCISCO, CA

WATER CONSERVATION PROGRAM

Qualified Water Efficient Landscaper (QWEL) Training and Certification Program

The QWEL program is an opportunity for landscape contractors, gardeners, and building maintenance staff to learn advanced skills in designing and maintaining water-efficient irrigation systems and landscapes. The coursework covers sustainable landscaping, irrigation system maintenance and troubleshooting, soils, and irrigation scheduling. This year, a total of 34 students attended our virtual QWEL training. The QWEL program is unique in that it is taught by certified professionals, provides direct landscape experience for California's drought prone environment, and culminates in an examination and certification process.

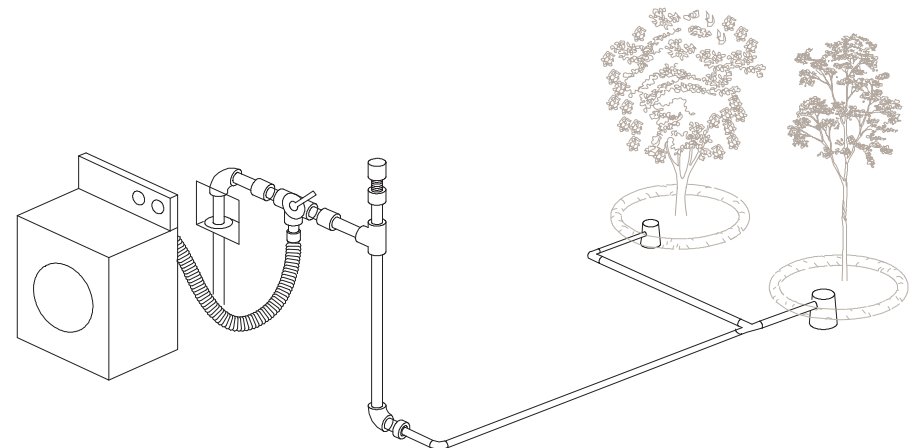


Rainwater Harvesting Program

Capturing rainwater at homes and businesses can reduce potable water used for irrigation and reduce flows to the SFPUC's combined sewer system during storm events. Our Rainwater Harvesting Program provides rebates for rain barrels and cisterns. Eligible customers can receive a \$100 rebate for up to two rain barrels or a \$350 rebate for one cistern. The SFPUC's Rainwater Harvesting Program provided residents and businesses with 37 rain barrels and 2 cisterns this year.

Laundry-To-Landscape Program

We launched our new in-house Laundry-to-Landscape (L2L) Program in FY 2021-2022, which offers residents a \$100 rebate on essential laundry-to-landscape components installed in a simple graywater system. This year, 7 L2L rebates were provided to customers. Program participants received virtual webinar trainings, access to a free installation tool kit, and virtual technical assistance to help design, install, and maintain their graywater systems.



WATER CONSERVATION PROGRAM

Large Landscape Grant Program & Community Garden Assistance

The Large Landscape Grant Program provides assistance to customers with landscapes over 10,000 square feet who implement irrigation and planting improvements that reduce water use. To date, 12 completed projects have received funding through this program, representing about 63 acres of land.

We help to administer San Francisco's Water Efficient Irrigation Ordinance that requires landscapes to meet water-efficient standards. New landscape projects calculate their annual total water usage and ensure it is lower than the total allowed water budget set by San Francisco. In FY 2021-2022, plans for 20 projects representing over 7 acres of landscape were approved. Since the ordinance's passage in 2009, 284 projects have been reviewed.

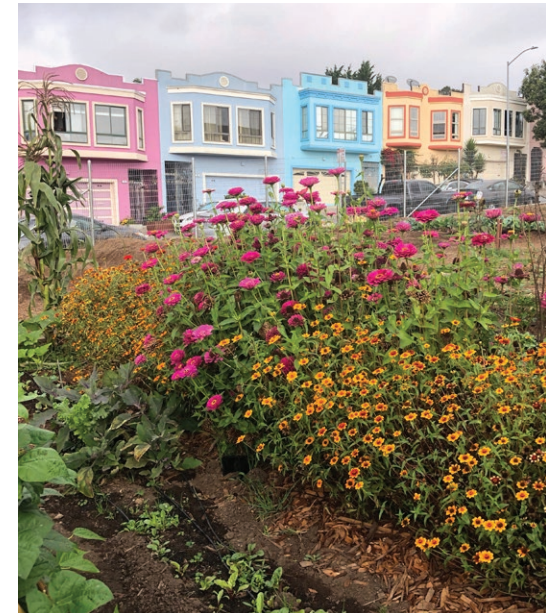
The Community Garden Grant Program waives the cost of irrigation meters to help customers better monitor and efficiently manage water use. We continued to issue monthly informational water use reports to 9 sites that participated in our Community Garden Grant Program.

Water Conservation in Schools and Gardens

We are committed to fostering the next generation of environmental stewards by providing the communities we serve with educational resources. In FY 2021-2022, we sponsored 22 field trips to our water-wise demonstration garden and 22 presentations for San Francisco students, all designed to teach students how they can help protect our natural resources and prevent pollution.



Students at Daniel Webster Elementary School learn how to garden



Florence Fang Community Farm



Garden for the Environment Garden Educator Hana Park works with a volunteer to repair irrigation

WATER CONSERVATION PROGRAM

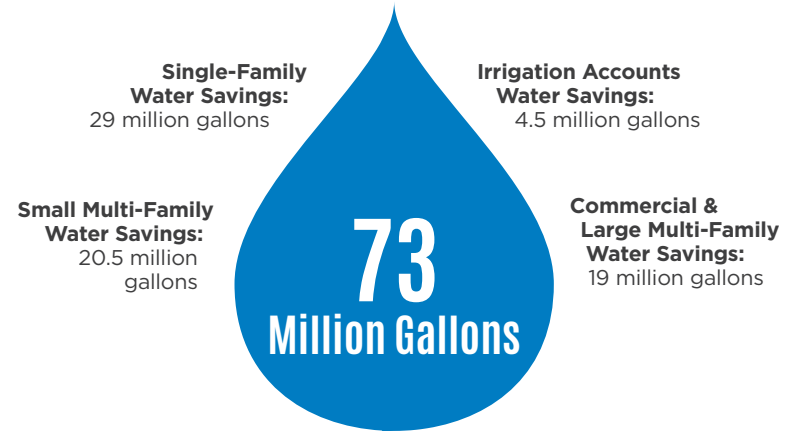
Leak Alert Program

Customers have shared their appreciation for our Leak Alert Program because it notifies them of continuous water consumption at their property, helping them to fix costly leaks quickly. Utilizing our automated meter infrastructure, we send alerts to customers with two days of constant use by phone, text message, email, letter, and door hangers. This year, the SFPUC led the way among water utilities in leak alert efforts by expanding the program to include alerts to commercial and large multi-family accounts (6+ units) with three days of continuous consumption and a significant increase in late night water use. In FY 2021-2022, over 14,000 leak alert notifications were issued.

Props to @MySPUC who sent me a text alerting me about water use change that was, yep, a leaking (in the tank, so we had no idea!) flap. Literally doubled our water usage!!! Plumber's bill paid for in three months of saved water/sewage cost!!!!

This year, we conducted a rigorous analysis of the water savings of new large multi-family and commercial customer alerts. This analysis reviewed water use trends from 2020-2022 and the effect of the leak alert notifications on leak duration. This analysis demonstrated a water savings of over 19 million gallons per year. This is in addition to the 54 million gallons saved per year through single-family, small multi-family, and irrigation alerts and brings the overall program water savings to 73 million gallons per year. The SFPUC also continued working with the Alliance for Water Efficiency by participating in the AMI-Enabled Leak Notification Study. This study will promote leak detection on a national level and share our findings to help other utilities develop similar programs.

Estimated Leak Alert Program Water Savings in FY 2021-2022



My Account Customer Portal

The SFPUC's My Account web portal helps customers easily pay and view their water bills online and see their hourly, daily, weekly, and monthly water use, which can help identify water use patterns and unusual spikes in water use. Since its launch in 2014, registration for My Account has steadily increased to 97,486 users. Residential My Account users can also track how their water use aligns with a conservation target of daily use under 50 gallons per person per day. Account holders can register at myaccount.sfwater.org.

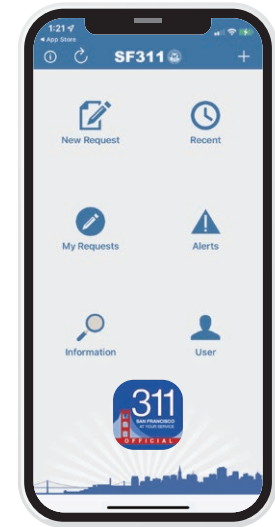


WATER CONSERVATION PROGRAM

Waste of Water Program and Top User Outreach

We administer water waste restrictions come rain or shine. Residents can report water waste through San Francisco's 311 system. We partner with reported properties to provide tips and best practices to maximize their water efficiency and reduce water waste. This year, in addition to emailing 267 waste of water courtesy notifications, our staff has been able to visit sites and help residents and businesses identify irrigation leaks that can waste thousands of gallons per day.

During the drought emergency, the SFPUC increased its frequency of Top User Notifications. These courtesy notifications inform customers that they are using the most water in their customer class and offer conservation assistance to help them save water.



Free Water-Wise evaluations can help find leaks that can waste thousands of gallons per day.



RECYCLED WATER PROGRAM

Water is too precious a resource to use just once. Using recycled water for non-drinking purposes such as landscape irrigation, toilet flushing, street cleaning, and cooling helps preserve drinking water supplies, especially during droughts. We continued to work with our partners at Harding Park, Fleming, and Sharp Park Golf Courses so that we can provide recycled water for irrigation.

In San Francisco, construction is almost complete at the Westside Enhanced Water Recycling Project. The project includes a new recycled water treatment facility, storage reservoirs, and pump stations to deliver recycled water. Construction has been completed on approximately 8 miles of recycled water pipelines. The irrigation system retrofits are wrapping up at Golden Gate Park and Lincoln Park Golf Course with recycled water deliveries expected in summer 2023. This project will save approximately 2 million gallons of potable water every day. Water produced by this project will be used primarily to irrigate Golden Gate Park and Lincoln Park Golf Course, and for future uses at the San Francisco Zoo. For more information about the Recycled Water Program, visit sfpuc.org/programs/water-supply/recycled-water.

Westside Recycled Water Treatment Facility



ONSITE WATER REUSE PROGRAM

Led by the efforts of the SFPUC, San Francisco became the first municipality in the country to adopt a groundbreaking program in 2012 that encourages buildings to collect, treat, and reuse water onsite to meet non-potable demands such as toilet flushing and irrigation. San Francisco's Onsite Water Reuse Program established a streamlined process for allowing alternate water sources, such as rainwater, stormwater, foundation drainage, graywater, and blackwater, to be reused in commercial, mixed-use, and residential buildings. In 2015, the Non-potable Water Ordinance started to require onsite water systems in buildings. Now it is mandatory for new development projects of 100,000 square feet or more to install and operate an onsite non-potable water system.



The Living Machine™ at the SFPUC Headquarters

Over the past year, we received 3 applications to install onsite water systems. This brings the total number of water budget applications to 119 projects. There is a total of 48 operating onsite water systems to-date. By 2040, the total potable water offset for the Onsite Water Reuse Program will be approximately 1.3 million gallons per day. Additionally, we published the Onsite Water Recycling E-Book, which highlights the benefits and drivers behind onsite non-potable reuse, provides best practices, and includes case studies of onsite water systems around the world. We also published the Guidebook for Commissioning an Onsite Water Treatment System, which provides information on how to start up the operation of an onsite water system. For more information, visit sfpub.org/npo.

We are on the forefront of innovation in advancing onsite water reuse in North America. As chair of the National Blue Ribbon Commission for Onsite Non-potable Water Systems, we are leading a national collaborative of municipalities, water utilities, and public health agencies from 12 states, the District of Columbia, US EPA, and US Army Corps of Engineers Research and Development Center, the city of Vancouver, and the city of Toronto. The National Blue Ribbon Commission is focused on addressing key institutional and regulatory barriers to widespread adoption of onsite non-potable water systems. Efforts have included developing a risk-based water quality framework for onsite water reuse and establishing model policies for municipalities that support local implementation of onsite water reuse. For more information about the National Blue Ribbon Commission, visit www.watereuse.org/nbrc.

ONSITE WATER REUSE PROGRAM



Rainwater harvesting at Exploratorium
Photo credit: Fabrice Florin from Mill Valley, USA /CC BY-SA



Salesforce Building



UN Plaza Foundation Drainage Project

EXPLORATORIUM

The Exploratorium is a 21st century learning laboratory, equipped with oceanographic equipment, which measures the height and direction of tides, a rainwater harvesting cistern, and a unique Bay water heating and cooling system. Built to achieve LEED Platinum designation, the Exploratorium captures rainwater from the roof for toilet flushing purposes, and uses high-efficiency dual-flush toilets, waterless urinals, and low-flow faucets. Its innovative Bay water system eliminates the need for a cooling tower, thereby saving 2 million gallons of water annually.

SALESFORCE TOWER

The Salesforce Tower is a commercial office building located at First and Mission streets. To leverage the building's existing dual plumbing for non-potable uses, the building installed an onsite water reuse system. The building's blackwater treatment system captures all of the building's wastewater, then treats and reuses it for toilet flushing and drip irrigation. The system is estimated to save 8 million gallons of potable water per year.

UN PLAZA FOUNDATION DRAINAGE PROJECT

The UN Plaza in San Francisco's Civic Center neighborhood is a publicly owned Plaza. It was built in 1975 over an underground branch of Hayes Creek and, as a result, construction led to foundation drainage issues. Recognizing foundation drainage as a valuable alternate water source, San Francisco Public Works implemented a system which uses multiple step media filtration and disinfection to treat the water for reuse for municipal street sweeping, fountain make-up water, and irrigation. It was supported by a grant from the SFPUC.

ALTERNATIVE WATER SUPPLY PROGRAM

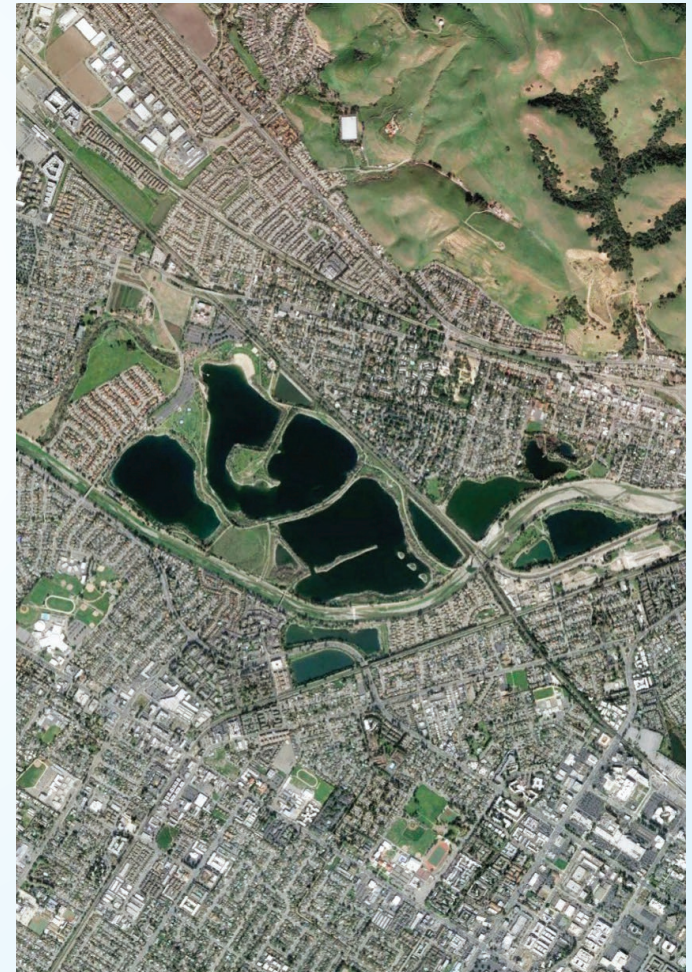
The Regional Water System (RWS) has served the San Francisco Bay Area for almost 100 years and will continue to be the cornerstone of our water supply for San Francisco as well as our suburban retail and wholesale customers in the region. But issues such as climate variability, droughts, earthquakes, regulatory changes, and population growth require that we consider new water supplies and creative solutions to plan for our future needs. These new water supply options such as expanding storage, groundwater banking, transfers from other agencies, purified water, and desalination are being evaluated as part of the Alternative Water Supply Program that was established under the Water Resources Division in 2020.

Daly City Recycled Water Expansion

This project has been designed to produce up to 3 million gallons per day of tertiary-treated recycled water during the irrigation season (roughly 7 months). On an average annual basis, this is equivalent to 1.25 million gallons per day or 1,400 acre-feet per year. The project is envisioned to provide recycled water to cemeteries and other smaller irrigation customers, offsetting existing groundwater pumping from the South Westside Groundwater Basin, thereby increasing groundwater storage. The project is a regional partnership among the SFPUC, the City of Daly City, and the California Water Service Company. SFPUC customers will benefit from the increased reliability of the South Westside Basin for additional drinking water supply during droughts.

ACWD-USD Purified Water Partnership

This project could provide a new purified water supply utilizing Union Sanitary District's (USD) treated effluent, which is currently discharged to the Bay. Purified water produced by advanced water treatment at USD in the East Bay could be transmitted to the Quarry Lakes Groundwater Recharge Area to supplement recharge into the Niles Cone Groundwater Basin as part of an indirect potable reuse project. Alternatively, purified water could be delivered to the SFPUC RWS through a new intertie with Alameda County Water District (ACWD).



Google Earth image of Quarry Lakes

ALTERNATIVE WATER SUPPLY PROGRAM



Lower Crystal Springs Reservoir

SF-Peninsula Regional PureWater

This project is a purified water project (potable reuse) that could provide between 6 and 12 million gallons of water supply per day through reservoir augmentation at Crystal Springs Reservoir, which is a facility of the RWS, or directly into regional and local distribution systems. Treated effluent from Silicon Valley Clean Water and/or the City of San Mateo would flow through an advanced water treatment plant to produce purified water that meets state and federal drinking water quality standards. The purified water would then be blended with regional surface water supplies.

Los Vaqueros Reservoir Expansion

The Los Vaqueros Reservoir Expansion (LVE) Project is a multi-agency storage project that will enlarge the existing reservoir located in northeastern Contra Costa County from 160,000 acre-feet to 275,000 acre-feet. While the existing reservoir is owned and operated by Contra Costa Water District (CCWD), the expanded reservoir will have regional benefits for numerous water agencies and their customers. The project is being managed by a Joint Powers Authority (JPA) that was set up this year. The SFPUC is a member of the JPA and is represented on its Board. Meanwhile, CCWD is leading the planning, design, and environmental review efforts. The additional storage capacity from the LVE Project would provide a dry year water supply benefit to the SFPUC when paired with a water supply source to fill the storage and conveyance to deliver water from LVE to SFPUC's service area.

ALTERNATIVE WATER SUPPLY PROGRAM



Suisun Bay, Benicia, CA

Conveyance Alternatives

We are considering two main pathways to move water from storage in a prospective LVE Project to the SFPUC's service area: either directly to RWS facilities or indirectly via an exchange with partner agencies. We are evaluating the preferred conveyance pathways, capital requirements, and capacity to support deliveries from the LVE project.

Bay Area Brackish Water Desalination

The Bay Area Brackish Water Desalination Project is a partnership with CCWD, East Bay Municipal Utility District (EBMUD), Valley Water, and Zone 7 Water Agency. ACWD and Marin Municipal Water District (MMWD) may also participate in the project. The project could treat brackish water from CCWD's existing Mallard Slough intake in Contra Costa County. Currently, the SFPUC is considering it as a source of supply for storage in LVE. While the allocations remain to be determined among partners, the SFPUC is considering an allocation of up to 5 mgd to combine with storage at LVE as a dry year supply source.

ALTERNATIVE WATER SUPPLY PROGRAM



Calaveras Reservoir

Calaveras Reservoir Expansion

This storage project envisions the expansion of the existing Calaveras Reservoir to create up to 289,000 acre-feet of additional capacity to store excess RWS supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities. Unlike the other regional projects under review in this program, no external partners are anticipated for this project. We have conducted a preliminary analysis reviewing potential dam raise scenarios, which indicated that an expansion of the dam at various elevations is technically feasible. Conveyance constraints are currently being evaluated.

Bay Area Regional Reliability Partnership

We are part of the Bay Area Regional Reliability (BARR) Partnership which is looking for ways to collaborate to secure regional reliability especially during droughts. Through BARR, we are working with ACWD, BAWSCA, CCWD, EBMUD, MMWD, Valley Water, and Zone 7 Water Agency to identify and develop opportunities for collaboration to improve water supply reliability throughout the region. With grant support from the US Bureau of Reclamation, we are engaged in a pilot study called the Shared Water Access Program (BARR SWAP) to evaluate opportunities to share and convey water supplies among partners. The partner agencies have completed three separate pilot projects between 2020 and 2022 through BARR SWAP to test conveyance pathways and identify potential hurdles to better prepare for sharing water during a future drought or emergency. A strategy report identifying opportunities and considerations will document and reflect these pilot projects and will be completed in the coming year.

INNOVATIONS PROGRAM

In 2016, OneWaterSF formalized a new way of thinking, adopting a truly innovative approach to making the most of our limited resources. The term “one water” is an integrated planning and implementation approach to managing finite water resources for long-term resiliency and reliability, meeting both community and ecosystem need.

The OneWaterSF approach encourages working across traditional silos to create additional benefits and efficiencies. We define resources broadly to include water, energy, financial, human, community partnerships, and natural resources. Our focus has been on a cultural shift in our approach to resource management that embraces collaboration, innovation, and technology.

The Innovations Program promotes exploration of new ways we can conserve and reuse water, recover resources, and diversify our water supply. The Program facilitates testing of forward-thinking ideas, technologies, and research to help meet San Francisco’s long-term potable and non-potable water needs. It is also an opportunity to develop partnerships with the community, industry, developers, technology vendors, and others to ensure long-term water resources sustainability in San Francisco. Through the Innovations Program, we continue to explore several cutting-edge ideas.

SFPUC Wins Recycled Water Agency of the Year

In September 2022, the WaterReuse Association (WRA) of California recognized the SFPUC’s innovative strategies by honoring us with the Recycled Water Agency of the Year Award. Sustainable water management has always been at the forefront of the SFPUC’s mission, while we also lead the utility industry in finding solutions to the challenges our water supply faces. The WRA applauded our innovation in testing atmospheric water generation and creating funding for onsite water recycling facilities at Anchor Brewing Company in San Francisco.



Fan Lau, Senobar Lanigan, Taylor Nokhoudian, Paula Kehoe, Barbara Palacios, YinLan Zhang, Annahita Fallah

INNOVATIONS PROGRAM

Atmospheric Water Generation

We are piloting an atmospheric water generation (AWG) project in San Francisco. AWG is the process of extracting water from ambient air. The goals for our AWG project include testing the ability to produce water for irrigation purposes in a community garden setting, testing the ability to produce water that meets drinking water standards, engaging the community about water, and understanding the value of AWG for our future water supply portfolio. Two AWG hydro panels were installed at the SF Botanical Garden and Hummingbird Farm in Fall 2021 to begin collecting water quality data and information on the quantity of water produced.



Solar-powered panel capable of harvesting 4 to 5 liters of water per day from the air at the Hummingbird Farm Community Garden

Wastewater Heat Recovery

We offer grants through our Onsite Water Reuse Grant Program to encourage retail water users to reduce water supply usage by collecting, treating, and reusing water onsite. We modified the program to incorporate a wastewater heat recovery component. Wastewater heat recovery refers to the extraction of thermal energy from warm wastewater, or treated non-potable water, and subsequent beneficial use of this energy to offset existing energy requirements. Integrating wastewater heat recovery with onsite water reuse can offset some or all the energy needed for onsite wastewater treatment.

Supply-Side Water Loss Prevention

Through our City Distribution Division, we implement a supply-side Water Loss Reduction Program to monitor, analyze and reduce water lost from pipe and main breaks in our infrastructure. The program evaluates detailed annual water loss audits and determines the best mix of cost-effective water loss reduction measures. Staff continued to implement preventative water loss actions, including pressure management and proactive leak detection technologies using acoustic-based systems and satellite imagery. We continued our main replacement program which replaced on average approximately 9 miles of pipe per year in the last 10 years. When leaks and breaks occur, our repair teams respond quickly. Staff continued to prepare for new statewide water loss standards that will become effective in 2024.

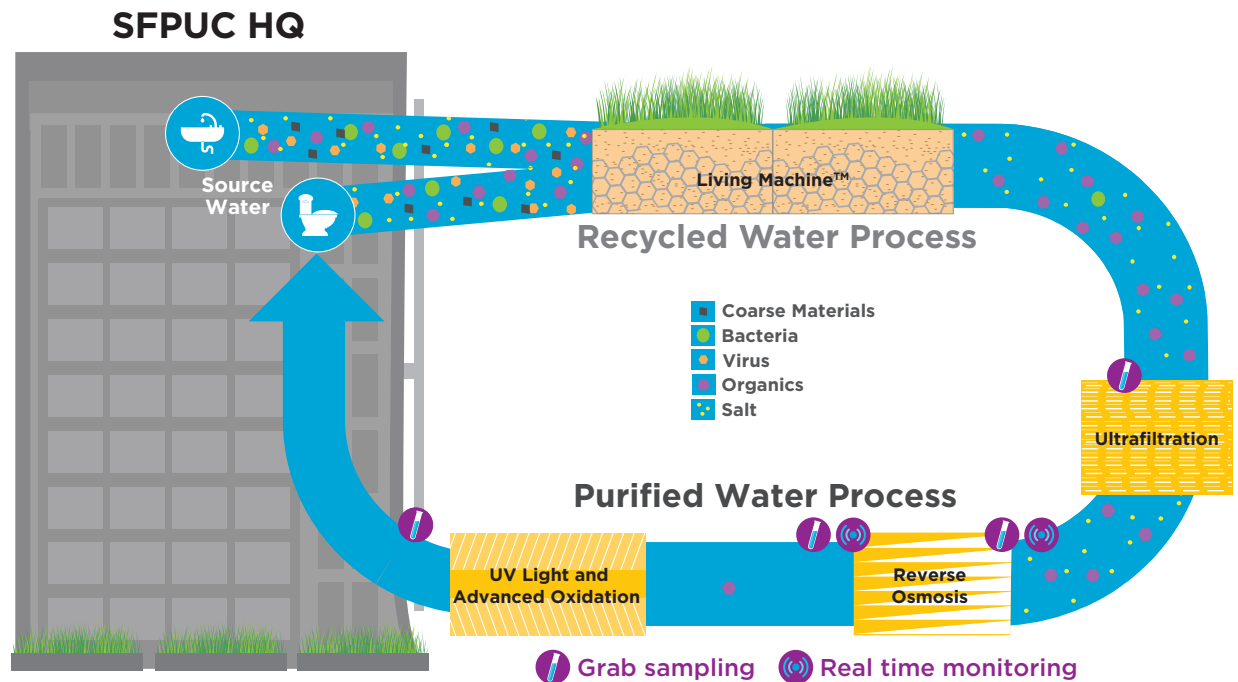
INNOVATIONS PROGRAM

Purified Water Program

We installed a temporary treatment system at the end of the water recycling system at our headquarters to operate and test a purified water system. The treatment included ultrafiltration, reverse osmosis, disinfection with ultraviolet light, and advanced oxidation. The PureWaterSF research project produced thousands of data points analyzed by third-party laboratories to look at a wide range of water quality parameters. The research also compared purified water to drinking water standards and concluded that advanced water treatment produces consistently high-quality water, even at the building scale. The research marked the beginning of our investigation of purified water as a water supply solution in San Francisco. PureWaterSF also provided us with the opportunity to engage operators, staff, and our local communities on purified water as part of a future water supply. This year, we completed a thorough review of the opportunities and challenges for purified water in San Francisco. We are moving aggressively to make purified water a reality throughout our service area.



The SFPUC PureWater System



LOOKING AHEAD

Lake Merced

Lake Merced is made up of four interconnected lakes and provides a vital link for wildlife, particularly migrating birds. The lake also provides a regional recreational venue offering fishing, boating, bicycling, and wildlife viewing. In an emergency, Lake Merced water can also be used for firefighting or sanitation purposes if no other sources of water are available. The SFPUC aims to maintain water levels in the lake to support various recreational activities and provide a reliable non-potable water supply for emergencies.



From 1934 to 2015, the Pacific Rod and Gun Club operated skeet and trap shooting facilities at Lake Merced. This resulted in lead shotgun pellets and other debris falling onto the site and into the lake. The SFPUC conducted an initial site remediation to address elevated levels of lead and polycyclic aromatic hydrocarbons in the soil as a result of historical club activities. San Francisco's Recreation and Parks Department (SFRPD) published the Draft Environmental Impact Report (EIR) in December 2021 to facilitate recreational redevelopment of the site. After the final EIR is certified, demolition and final remediation is scheduled for 2023.

When the final site cleanup is completed, SFRPD will implement an open bid solicitation process to facilitate site redevelopment for recreational use. The proposed project would be to create a recreational facility that can be used flexibly and that is respectful of the site's past while serving the needs of the local community for a facility offering a wide variety of outdoor recreational activities, including picnic areas, playgrounds, boat docks, a ropes course, a skateboarding park, birdwatching benches, basketball, and multipurpose sports courts.

LOOKING AHEAD

Lake Merced

LAKE MERCED CONCEPTUAL SITE PLAN



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sfpuc.org/programs/water-supply

sfpuc.org/savewater

November 2022



San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission