SAN FRANCISCO PUBLIC UTILITIES COMMISSION

WATER RESOURCES DIVISION ANNUAL REPORT

Fiscal Year 2022-2023

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

Dear Partners, Customers, and Stakeholders:

San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

Last year most of California was still experiencing severe drought. Thanks to a series of atmospheric rivers through the winter and early spring, the state eased drought restrictions and shifted to emergency response efforts due to severe floods. In April 2023, the SFPUC rescinded its local water shortage emergency.

By the end of the drought, the SFPUC's systemwide reduction in water use exceeded 12 percent, making it clear that our customers remain committed to water conservation. Rain or shine, the SFPUC will always prioritize and incentivize conservation as a way of life in California. With each drought, we continue to learn more about how to better support our customers in achieving our collective water efficiency goals.

We are always working to make the most of our water supplies, especially during dry years. This year, we are working with the Pacific Institute to conduct a review of our existing water efficiency and local supply programs to see where we can do even more. As an independent, global think tank, the Pacific Institute combines science-based thought leadership with active outreach to create and advance solutions to water challenges. We will consider their findings as we continue to evaluate ways to improve our water supply and conservation programs and prepare for our 2025 Urban Water Management Plan and 2025 Conservation Plan.

The SFPUC continues to advance the Alternative Water Supply Program to meet future water supply challenges and vulnerabilities that could result from climate change, natural disasters, emergencies, population growth, and regulatory changes. Through this work, the SFPUC is leveraging regional partnerships to consider a suite of non-traditional water supplies that will help meet our future water needs.

We also partnered with the San Francisco Department of the Environment (SFE) to add a Water Supply Addendum to the City's Climate Action Plan. This added a critical seventh sector to the City's ground-breaking plan to achieve net zero carbon emissions by 2040. The new chapter encompasses key strategies and supporting actions for water resilience against the threat of a warming climate.

At the same time, we continue to foster innovation in the water sector. This year, the SFPUC completed our 2-year pilot Atmospheric Water Generation (AWG) project in San Francisco. AWG is the process of extracting water from the air that is fit for irrigation and drinking. Our pilot project hydropanels produced water for some of the irrigation needs at Hummingbird Farm and the San Francisco Botanical Garden, while also serving as an outreach and education tool to engage the public. The SFPUC is planning to expand the AWG program next year to learn more about potential scalability.

California's new climate reality is accelerating our water challenges, but the SFPUC is prepared to meet those challenges head on. When we lead with innovation and combine our tried and true conservation approaches with proactive planning to meet future water demands, we will continue to ensure our high-quality water will be available for generations to come.

Thank you,

Paula Kehoe

Paula Kehoe,
Director of Water Resources

Water Resources Staff Retreat

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WATER RESOURCES DIVISION HIGHLIGHTS

48 Operating Onsite Water Systems

49.2 MILLION GALLONS Recycled Water Used for Irrigation

35 MILLION GALLONS PER DAY OF Additional Dry Year Supplies Being Planned

Water Conservation Program Activity Since 2009

INCENTIVES

191,616 Devices Distributed[1]

56,593 Showerheads

49,503 Toilets

29,332 Clothes Washers

1,862 Urinals

2,226 Rain Barrels, Cisterns, and Graywater Kits[2]

396 Landscape[3]

10 Commercial Equipment Grants[4]

WATER-WISE EVALUATIONS

48,960 **Evaluations Performed:** in person and over the phone

OUTREACH & EDUCATION

21,014 Conservation Info Line Calls[5]

19,619 Top User Letters[2]

3,287 Waste of Water Alerts[2]

1,375 Presentations & Field Trips

WATER MANAGEMENT TOOLS

101,586 **MyAccount REGISTRATIONS[2]**

123,765 **LEAK ALERTS[2]**

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 AND RECOVERY

Due to severe statewide drought, we began FY 2022-2023 in a Level 2 water shortage emergency, seeking a systemwide water use reduction of 11 percent and imposing drought surcharges on retail customers and water budgets on our wholesale customers. To meet our target, we expanded outreach across our region by encouraging homes and businesses to cut water waste and reduce peak summertime use. We used multiple outreach channels, including a campaign with the San Francisco Giants, social media and transit ads, newsletters, and community partnerships. Customers responded, and by fall 2022 our systemwide demand had dropped 12 percent. We are thankful to our customers for their commitment to conserving water.

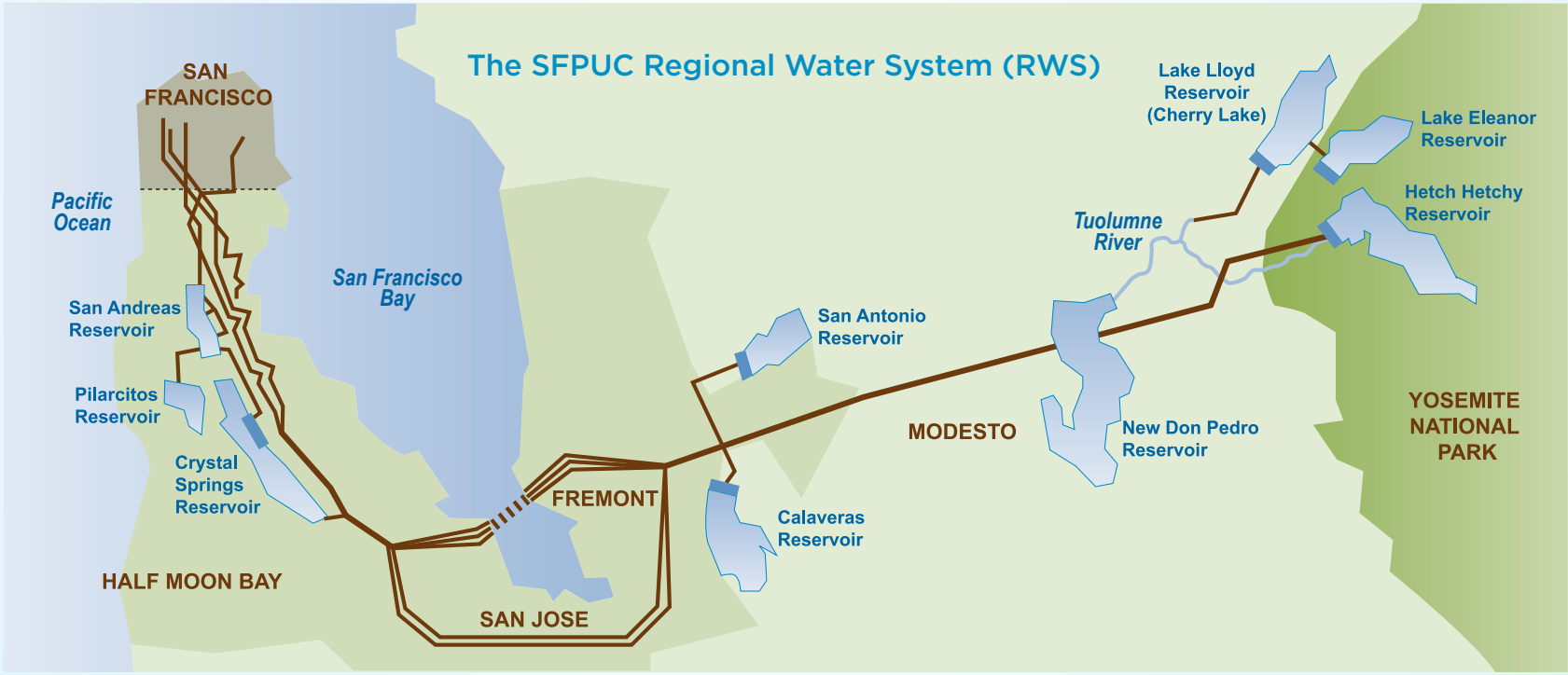
One of several emergency water use restrictions the state enacted and the SFPUC adopted during the recent drought is a ban on irrigation of non-functional, non-residential turf with potable water. With California facing a hotter, drier future and the need to seek greater, more permanent water savings, the Governor approved legislation to permanently restrict potable water irrigation of decorative grass at non-residential sites.

The State also enacted new requirements to help increase drought resilience and communication about water shortage response actions. In response, the SFPUC submitted our first annual Water Supply, Demand Assessment, and Shortage Report to the Department of Water Resources in July 2022.

OUR WATER SOURCES

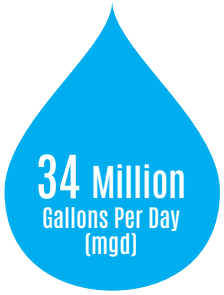
The SFPUC Regional Water System (RWS) is a public asset that delivers high-quality drinking water to 2.7 million residents and businesses in the Bay Area. The system collects water from the Tuolumne River in the Sierra Nevada, from protected local watersheds in the East Bay and on the Peninsula, and groundwater stored in a deep aquifer located in San Francisco and San Mateo counties. The SFPUC delivers water to 27 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 26 of 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 increases our resilience 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 2022-2023 San Francisco Residential Water Use

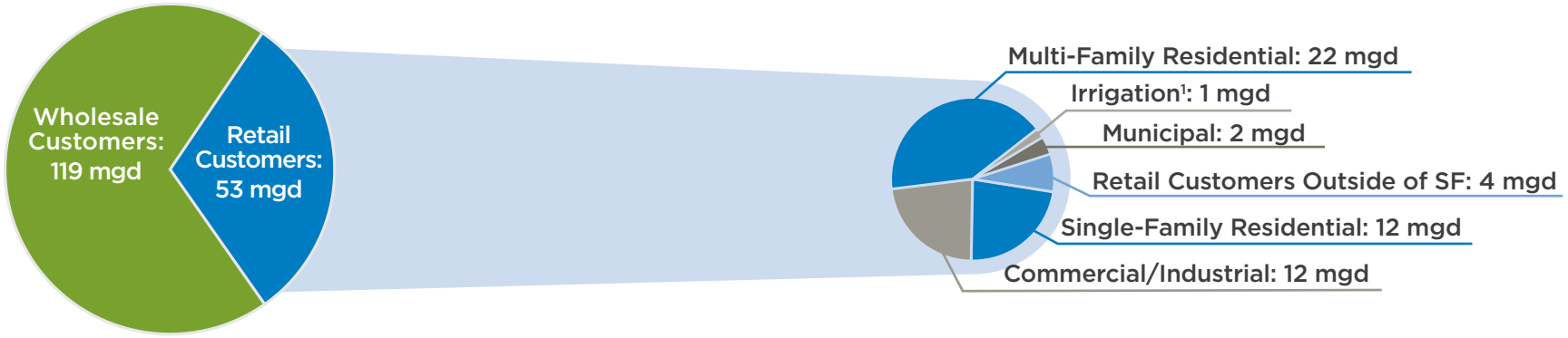
SAN FRANCISCO POPULATION



WATER USED BY SAN FRANCISCO RESIDENTIAL CUSTOMERS

RESIDENTIAL WATER USE PER PERSON, PER DAY

FY 2022-2023 Regional Water System Deliveries and Retail Water Use



REGIONAL WATER SYSTEM DELIVERIES[2]

RETAIL WATER USE[2]

1 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.

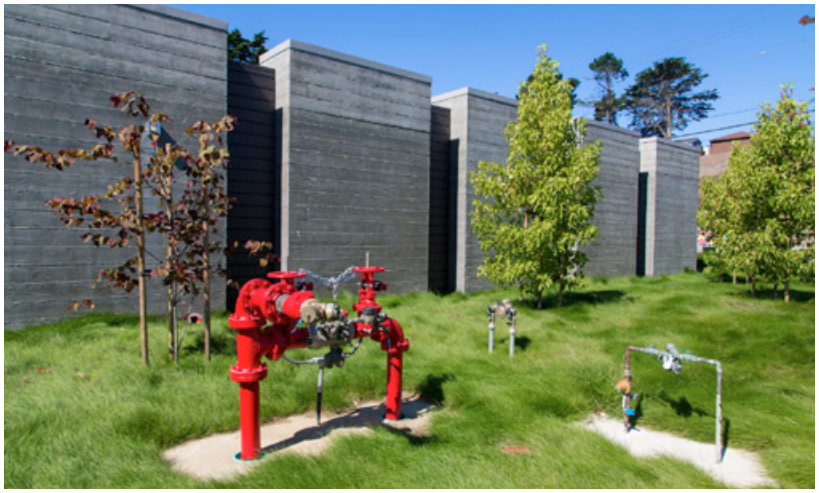
2 The Retail Water Use chart does not reflect water used for pipe flushing, firefighting, street cleaning, and water loss from supply-side main and pipe breaks.

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 Westside 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 groundwater 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.



Hickey Boulevard & Camaritas Avenue Pump Site

Golden Gate Park Central Groundwater Well Station

SAN FRANCISCO GROUNDWATER SUPPLY PROJECT

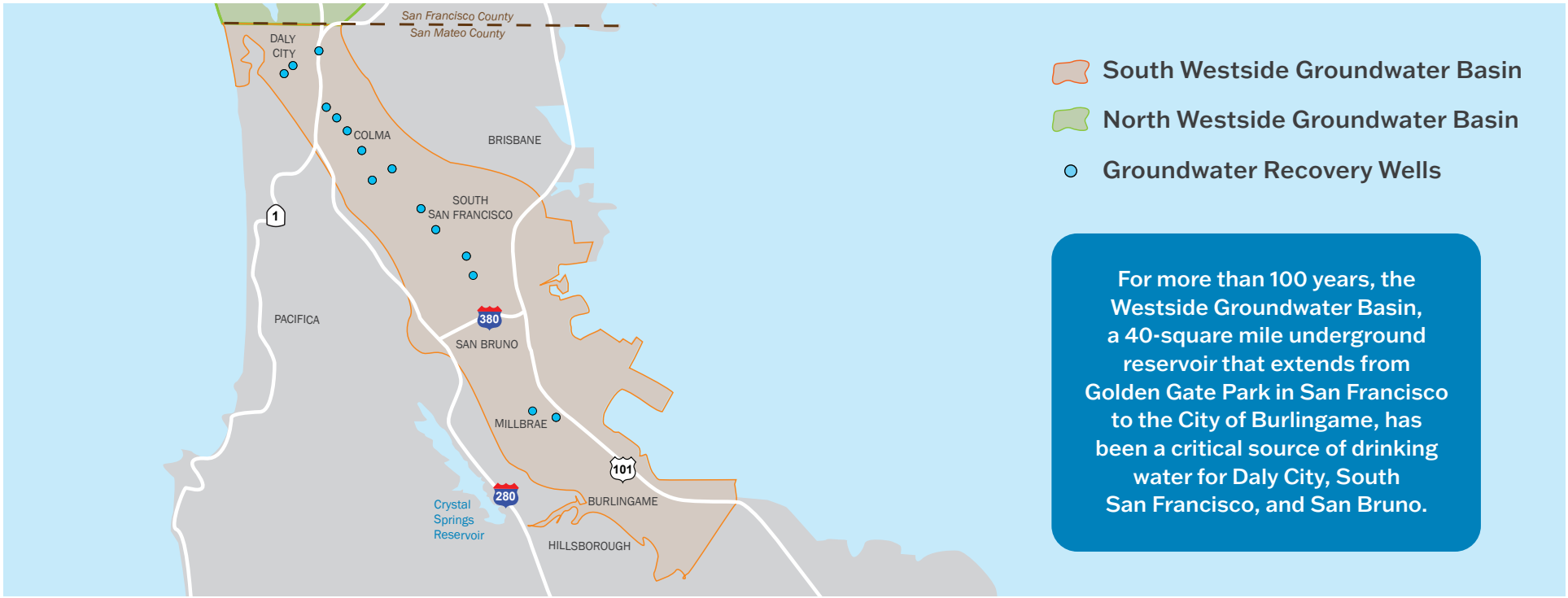
The San Francisco Groundwater Supply Project has allowed us to supplement our drinking water sources by blending a small amount of groundwater with water from the Regional Water System since 2017. We have begun ramping up production to blend an average of up to 1 mgd of groundwater to our water supply. Over the next several years, we will incrementally build up to an average of 4 mgd of groundwater production in San Francisco.

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 serves 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 August 2023 during which the groundwater basin accumulated nearly 10 billion gallons of groundwater storage (approximately 31,200 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 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.

CONSERVATION (FY 2022-2023)

- **767** Water-Wise Evaluations/ Phone Consults
  - 267 Single-Family
  - 308 Multi-Family
  - 124 Non-Residential
  - 68 Landscape
- **1,793** Devices Distributed
  - 866 Aerators
  - 640 Showerheads
  - 287 Spray nozzles, flappers, fill valves, etc.
- **576** Fixture Rebates & Installations
  - 320 Toilets & Urinals
  - 236 Clothes Washers
  - 20 Hot Water Pumps

OUTREACH & EDUCATION (FY 2022-2023)

- 15,248 Leak Alert Notifications
- 1,157 Conservation Phone Calls
- 259 Water Waste Investigations and Reports
- 69 Class Presentations and Field Trips

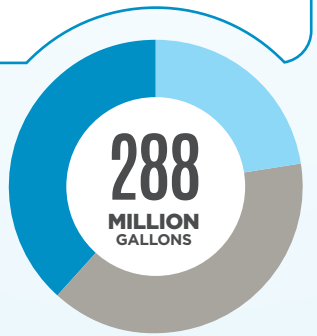
GRAYWATER PROGRAMS (FY 2022-2023)

- 19 Rain Barrels
- 2 Cisterns

Water Conservation Savings Achieved by Sector

Millions of Gallons

- 65 Single-Family
- 113 Multi-Family
- 110 Non-Residential



FY 2022-2023 water conservation program activities are estimated to have a potential 30-year water savings of 288 million gallons.

WATER CONSERVATION PROGRAM

Virtual and Onsite Water-Wise Evaluations

We conducted 767 water-wise evaluations for residential and commercial properties. Some of our participating commercial properties included restaurants, office buildings, hotels, laundromats, museums, schools, and colleges. Our outdoor evaluations consist of identifying 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 system operations, flagged areas needing repairs, reconnected loose drip irrigation fittings and showed customers their sprinkler timer programming features. These outdoor landscapes were in residential yards, multi-family buildings with perimeter and rooftop gardens, and homeowner association common areas. 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 1,793 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.

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 year, the program issued 20 rebates.

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

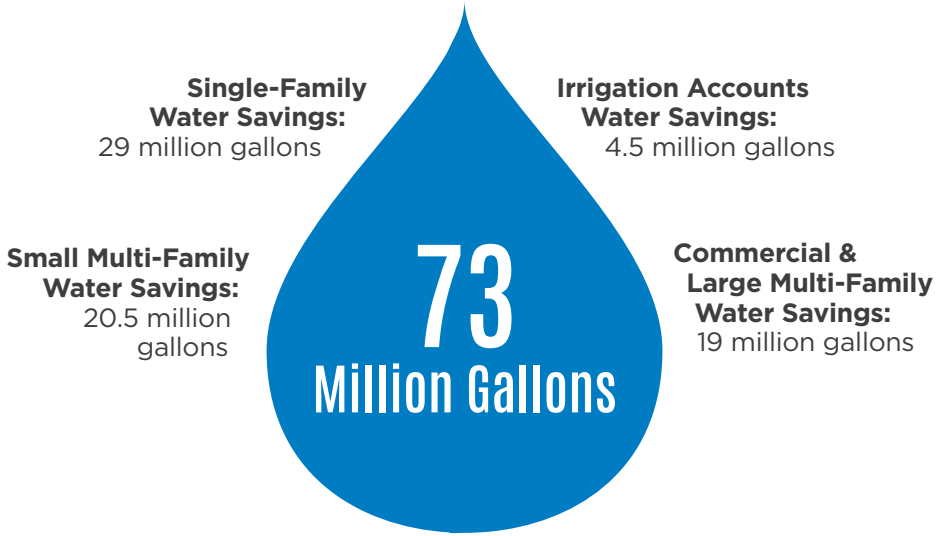
The SFPUC provided 1,793 free high-efficiency plumbing devices to SFPUC customers.

WATER CONSERVATION PROGRAM

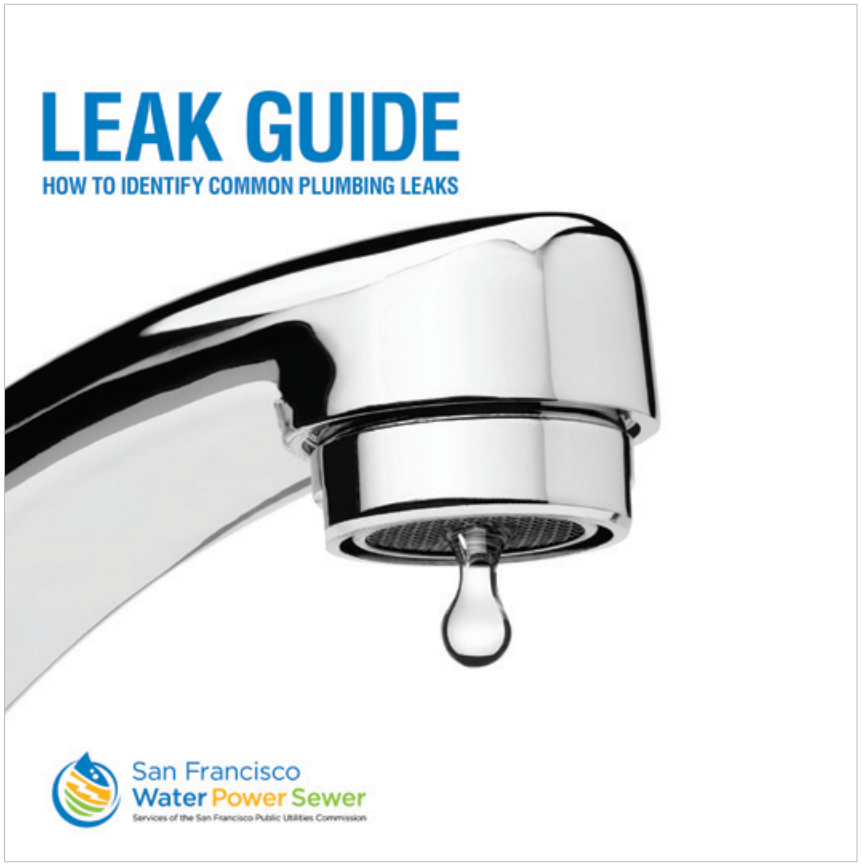
Leak Alert Program

This program notifies customers when they have constant and unusual water use at their property, which can help them find and fix potentially costly leaks quickly. Using our automated meter infrastructure that gives us hourly water use data, we send alerts to customers by phone, text message, email, letter, and door hangers. Currently, all customer types are receiving automated leak alerts including single-family, multi-family, irrigation, commercial, and municipal customers. In FY 2022-2023, we issued over 15,000 leak notifications. Many customers who received alerts also took advantage of one or more of the SFPUC's ongoing leak repair resources, including free evaluations by conservation or customer service inspectors, free leak repair guides, old toilet replacements, and bill adjustments upon leak repair.

Estimated Leak Alert Program Water Savings in FY 2022-2023



Water-Wise Evaluations are free for SFPUC customers.



WATER CONSERVATION PROGRAM

Plumbing Fixture Replacement Program (PREP)

The SFPUC's decades of toilet replacement incentives removed many high-flow toilets in our service area. To help accelerate the replacement of any remaining old, water-wasting toilets and urinals, we launched the Plumbing Fixture Replacement Program (PREP) in 2016. In the continued pursuit of more water savings, the program now includes replacement of 1.6-gallon flush toilets with efficient models that use a gallon or less. This year, 320 ultra-efficient toilets were installed through the PREP program, bringing the current program total to over 5,300 efficient toilets and urinals.

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. To support access to public laundry facilities for San Francisco neighborhoods that rely on them, the SFPUC increased its commercial washer rebate to up to $5000 per washer for customers installing qualifying coin-operated, high-efficiency, commercial-style clothes washers. In FY 2022-2023, 236 rebates were processed.

Commercial Equipment Retrofit Rebate Program

The Commercial Equipment Retrofit Rebate Program provides funding for businesses to replace inefficient water using equipment with efficient upgrades. Businesses can receive rebates for medical equipment, restaurant equipment, commercial laundry retrofits, and custom site-specific equipment retrofits or can participate in the custom rebate where they can define their own water saving project. This year, the program requirements were amended so that any deemed rebate could have the option of metering their water savings and receiving a custom rebate. To date, 10 projects have completed the program which has provided funding for the installation of water efficient ice machines, steam sterilizers, dish machines, dry vacuum pumps, refrigeration efficiency, and industrial washer water treatment and reuse.

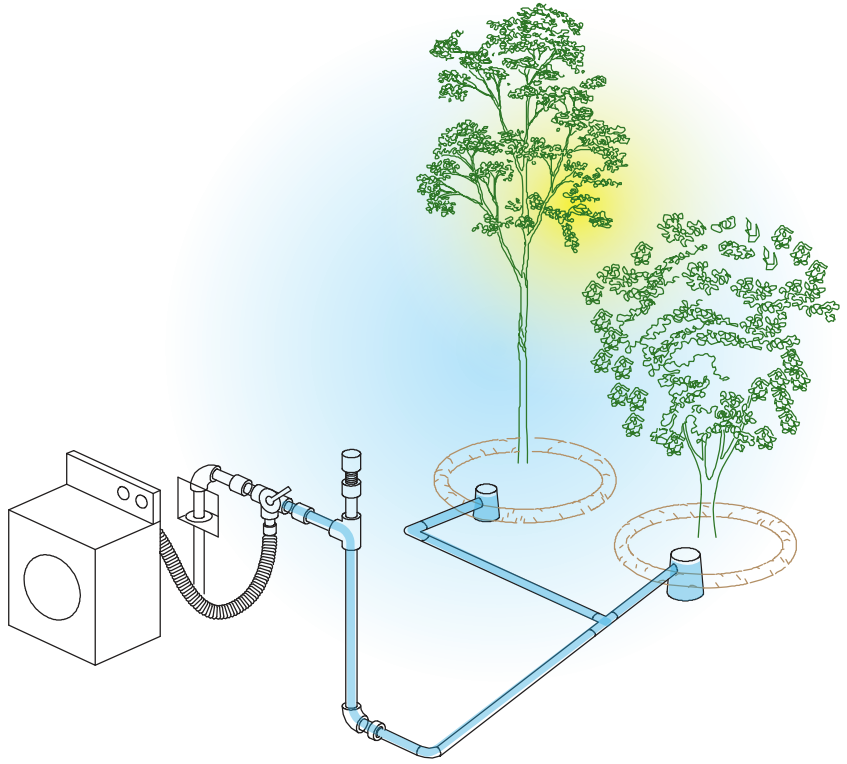
WATER CONSERVATION PROGRAM

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 19 rain barrels and 2 cisterns this year.

Laundry-To-Landscape Program

Our Laundry-to-Landscape Rebate Program offers single-family and small multi-family properties a $100 rebate on essential laundry-to-landscape components for installing simple systems to use graywater to provide sub-surface irrigation. Program participants receive virtual webinar trainings, access to a free installation tool kit, and virtual technical assistance to help design, install, and maintain their graywater systems. The SFPUC continues to provide an extensive "do it yourself" guide to planning, installing, and maintaining simple graywater systems, **available on our website.**



WATER CONSERVATION PROGRAM

Large Landscape Grant Program and Community Garden Assistance

The Large Landscape Grant Program provides assistance to customers with irrigated 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.

The SFPUC also administers 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 remains below the water budget set by San Francisco. In FY 2022-2023, plans for 18 projects representing over 119 acres of landscape were submitted for review. Since the ordinance passed in 2009, 303 projects representing over 250 acres have been reviewed and approved for compliance.

The Community Garden Grant Program waives the cost of irrigation meters to help customers better monitor and efficiently manage water use. In FY 2022-2023 we received three applications for new gardens in the City. We continued to issue monthly informational water use reports to all sites that received irrigation meters through our 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 2022-2023, we sponsored 40 field trips to our water-wise demonstration garden and 29 presentations for San Francisco students, all designed to teach students how they can help protect our natural resources and prevent pollution.

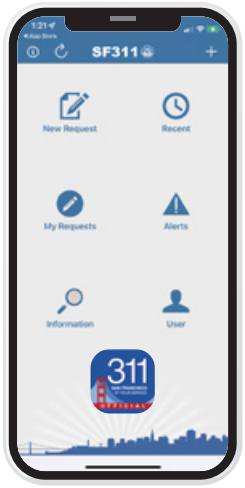
College Hill Learning Garden

San Francisco Botanical Garden - Children's Learning Garden

WATER CONSERVATION PROGRAM

Waste of Water Program

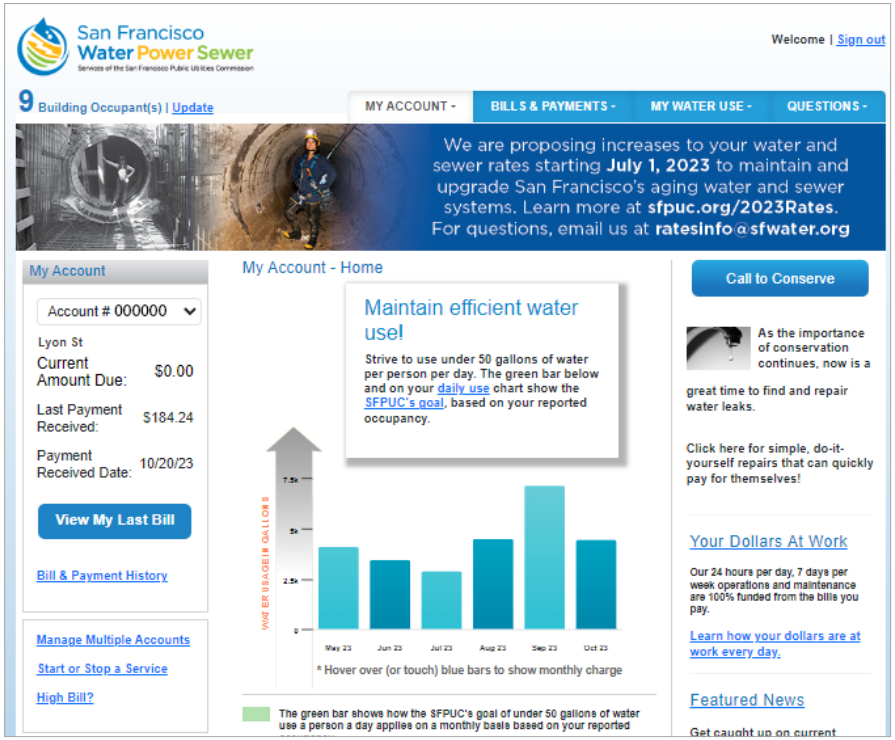
Residents can report water waste through San Francisco's 311 system. We partner with reported properties to provide guidance, resources, and best practices to improve their water efficiency and reduce water waste. This year, in addition to investigating and responding to 259 waste of water reports, our staff visited sites and helped residents and businesses identify irrigation leaks that can waste thousands of gallons per day.



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

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. 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.



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 for 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 complete at Golden Gate Park, the Panhandle, and Lincoln Park Golf Course with recycled water deliveries expected in late 2025. 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, the Panhandle, and Lincoln Park Golf Course, and for future uses at the San Francisco Zoo. For more information about our Recycled Water Program, visit **sfpuc.org/programs/water-supply/recycled-water**.

Harding Park Golf Course Irrigation using Recycled Water

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 began requiring 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.

Over the past year, we received 7 applications to install onsite water systems. This brings the total number of water budget applications to 126 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 1.5 million gallons per day. For more information, visit **sfpuc.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 15 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**.

Flow Through Plaza in Hayes Valley, San Francisco

ONSITE WATER REUSE PROGRAM

Image courtesy of SOM

SAN FRANCISCO PERMIT CENTER

The Permit Center at 49 S. Van Ness Ave. is a 16-story office space that consolidates numerous City permitting agencies into one space, housing hundreds of City employees and seeing thousands of members of the public every year. Graywater is collected from shower heads and lavatory faucets, while rainwater is collected from the roof. Treated water is used to supply toilets and urinals. The system is expected to save 400,000 gallons annually.

Image courtesy of Related California

FIFTEEN-FIFTY

1550 Mission Street is a 40-floor mixed-used residential building located at 1550 Mission Street at Van Ness. Graywater is collected from 438 residential room washer machines and showers. Rainwater is also collected from the roof and pre-filtered before combining with graywater for treatment. Treated water is used to flush toilets and urinals, as well as provide for irrigation needs. The system is expected to save 2.5 million gallons annually.

Image courtesy of Brookfield Properties

THE GEORGE

The George at 434 Minna Street is a 20-story residential apartment building that is part of the 5M development project located between SOMA and Mid-Market districts. Graywater is collected from showers and bathtubs in the residential units. Rainwater is collected from the roof and combined with graywater for treatment. Treated water is used to supply both toilet and irrigation needs. The system is expected to save 1.4 million gallons annually.

ALTERNATIVE WATER SUPPLY PROGRAM

The Regional Water System 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. This year, a Draft Alternative Water Supply Plan laid out key program and project priorities and was made available for public comment at the end of June 2023.

Daly City Recycled Water Expansion

This project has been designed to produce up to 3 mgd of tertiary-treated recycled water during the irrigation season (roughly 7 months). 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 by 0.7 million gallons per day. 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 future droughts. This project supports the Regional Groundwater Storage & Recovery Project.

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 Regional Water System through a new intertie with Alameda County Water District (ACWD). A feasibility study for this project was completed this year and the project will seek federal funding support as planning continues. The first phase of this project could produce up to 5.4 million gallons per day of drinking water.

Google Earth Image of Quarry Lakes

ALTERNATIVE WATER SUPPLY PROGRAM

Crystal Springs Reservoir

SF-Peninsula Regional PureWater

This project is a purified water project (potable reuse) that could provide up to 12 million gallons of water supply per day either through reservoir augmentation at Crystal Springs Reservoir, direct distribution through the SFPUC and neighboring transmission system, or both. Treated effluent from Silicon Valley Clean Water and 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.

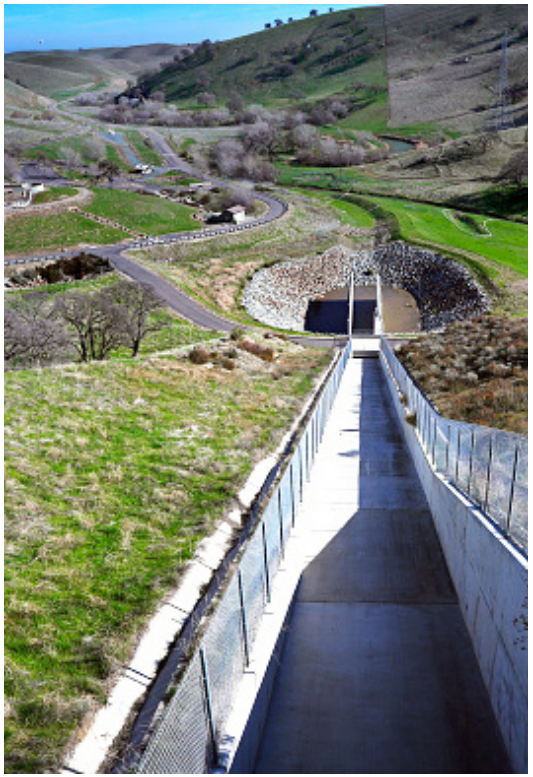
South Bay Purified Water

This project is another purified water project that could provide up to 10 million gallons of water supply per day, of which 6.5 million gallons per day would be served directly to customers in the cities of San Jose and Santa Clara in all years and 3.5 million gallons per day would be delivered to the Regional Water System in dry years. Treated effluent from the San Jose-Santa Clara Regional Wastewater Facility would flow through an advanced water treatment plant to produce purified water that meets state and federal drinking water quality standards. This project is linked to the policy decision before the SFPUC of whether to make San Jose and Santa Clara permanent customers (they are currently interruptible customers without guaranteed supply beyond ten years). The regional benefit of this project would likely be realized only if San Jose and Santa Clara are made permanent customers of the SFPUC, a decision which the SFPUC must make by 2028.

ALTERNATIVE WATER SUPPLY PROGRAM

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 water agencies and their customers in the Bay Area and Central Valley. The project is being managed by a Joint Powers Authority (JPA) that was set up in 2021. The SFPUC is a member of the JPA and is represented on its Board. Because the SFPUC's system is not hydraulically connected to the Los Vaqueros Reservoir, the SFPUC's participation in this project would also necessitate implementation of the companion projects for LVE Supply Alternatives and LVE Conveyance Alternatives, which are in the early planning stages of development.



Spillway at Los Vaqueros Reservoir

STORAGE

While the allocation of storage to project partners has not been finalized, this project can provide up to 40,000 acre-feet of additional storage for the SFPUC in a strategic location west of the Sacramento–San Joaquin River Delta. Environmental review and design of the dam for the storage project are complete, and conditional funding for the project has been approved by the State. Additional federal loans and grants are likely to become available.

WATER SUPPLY ALTERNATIVES

Water Resources staff are pursuing both short- and long-term water transfer opportunities, and simultaneously assessing opportunities to develop a new water supply project, such as the Bay Area Brackish Water Desalination, for storage in the expanded reservoir. A water supply strategy will be presented to the SFPUC Commission in early 2024, prior to seeking commitment to participate in the project.

CONVEYANCE ALTERNATIVES

There are two main pathways to move water from storage in a prospective LVE Project to the SFPUC's service area: either directly to the Regional Water System at San Antonio Reservoir or indirectly via an exchange with partner agencies. Both pathways require the use of the state-owned South Bay Aqueduct. Based on early modeling, dry-year conveyance capacity in the South Bay Aqueduct is expected to be sufficient to accommodate SFPUC deliveries. We continue to evaluate the preferred conveyance pathways, capital requirements, and capacity to support deliveries from the LVE project.

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 supplies from the Regional Water System or another 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 the Alternative Water Supply 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 needs.

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.

Atmospheric Water Generation

The SFPUC completed its 2-year atmospheric water generation (AWG) pilot project in San Francisco. AWG is the process of extracting water from ambient air. The goals for our AWG project included 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.

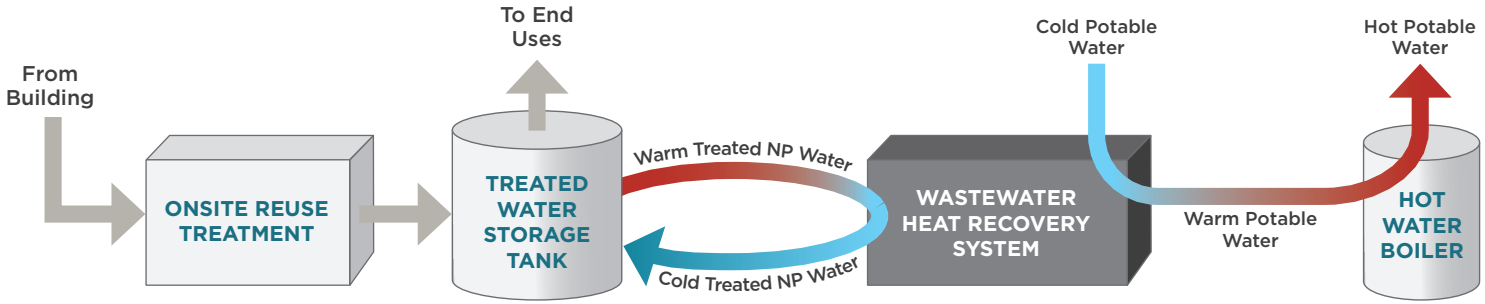
The pilot project yielded water for some of the irrigation needs at both locations. In addition, there was interest from the community about the concept of AWG and scalability of the technology. The hydropanels were used as teaching tools and spurred conversations with the community about water conservation, where water comes from, and why water is important. The SFPUC is planning to expand the AWG program next year to continue to learn about the scalability of AWG and the best deployment locations in San Francisco.

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

INNOVATIONS PROGRAM

Wastewater Heat Recovery

We offer grants through our Onsite Water Reuse Grant Program to encourage retail water users to reduce water supply use by collecting, treating, and reusing water onsite. We recently 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.



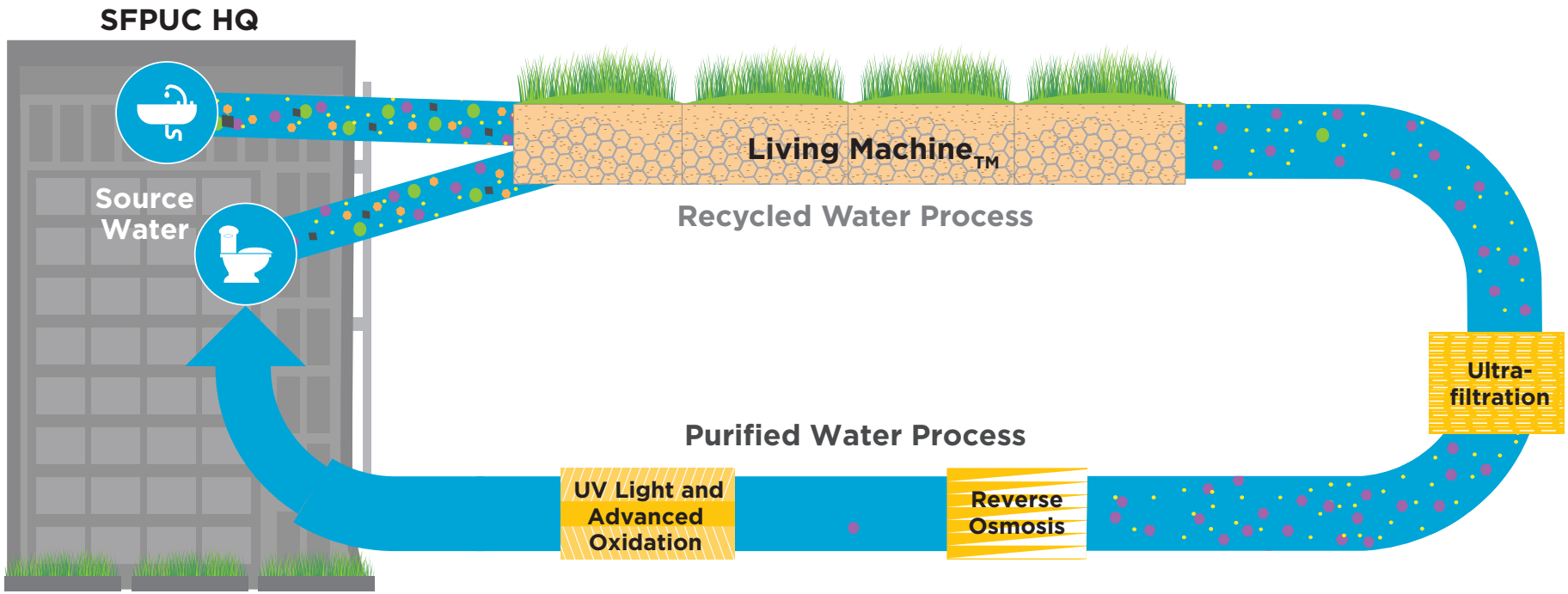
Supply-Side Water Loss Prevention

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.

22nd Street at Mission Street: 10-Inch Water Pipe Installation

Purified Water Program

The PureWaterSF research project included the installation and operation of advanced treatment at the end of an onsite water recycling system at our headquarters from 2018-2020. It produced thousands of data points analyzed by third-party laboratories to look at a wide range of water quality parameters, concluding 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. Last year, we completed a thorough review of the opportunities and challenges for purified water in San Francisco. Building on the initial investigations, we are now focused on developing an outreach plan, with the first step being the completion of three focus groups with SFPUC staff to test messages for public engagement. Planning is underway for an updated non-potable system at our headquarters that will also include demonstration-scale advanced water treatment. Having a permanent advanced treatment system will help lay the groundwork for future potable reuse planning in San Francisco.



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.

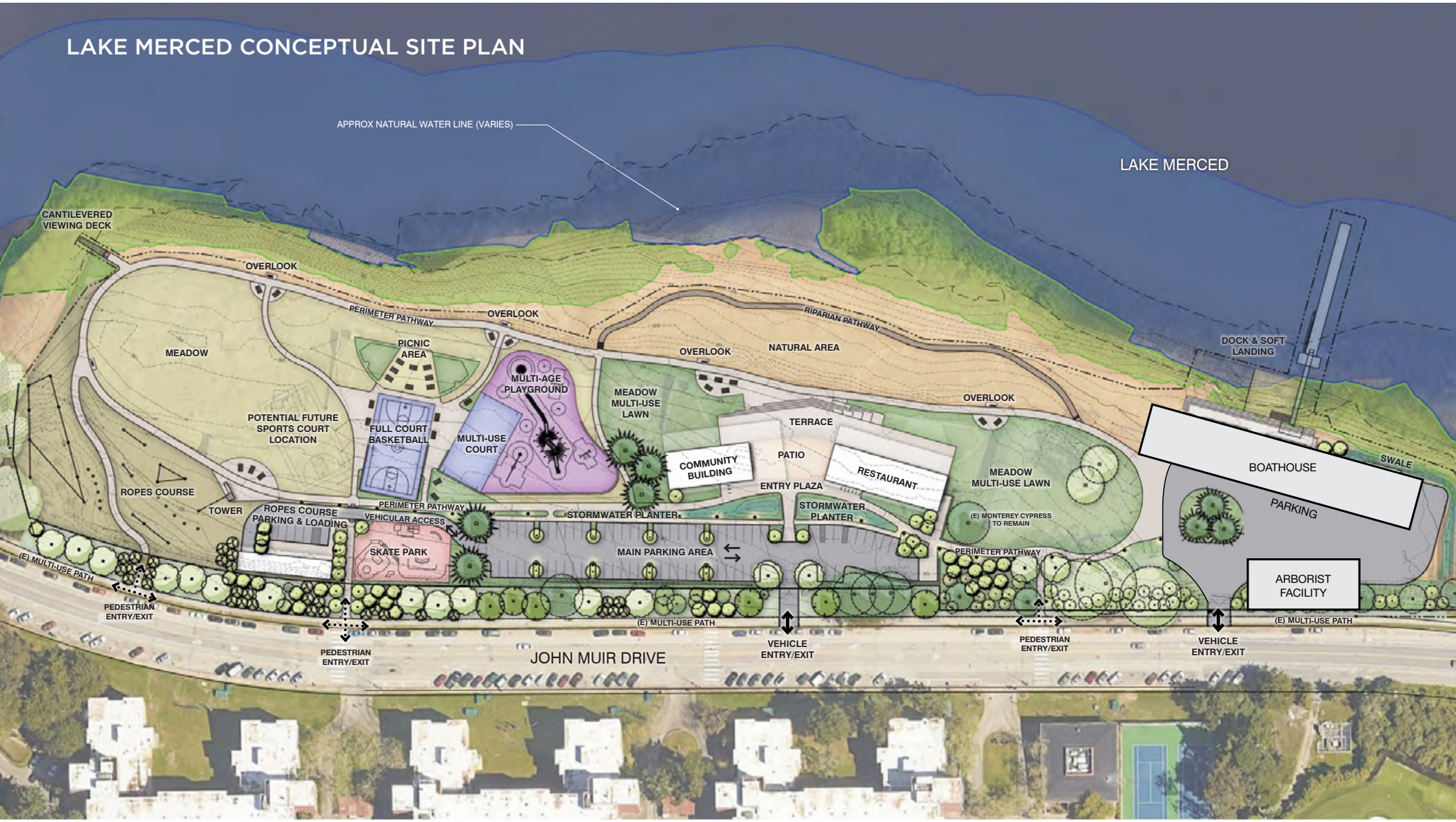
From 1934 to 2015, the Pacific Rod and Gun Club operated skeet and trap shooting facilities at Lake Merced. This resulted in lead shotgun pellets and other debris falling onto the site and into the lake. The SFPUC conducted an initial site remediation to address elevated levels of lead and polyaromatic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

The SFPUC is currently working to finalize design documents and expects to go out to bid in summer 2024, with work anticipating being completed by early 2025. 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 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.

The four interconnected lakes at Lake Merced offer ample opportunity for regional recreation.

LOOKING AHEAD

Lake Merced



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November 2023

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