

LOCAL Water Program

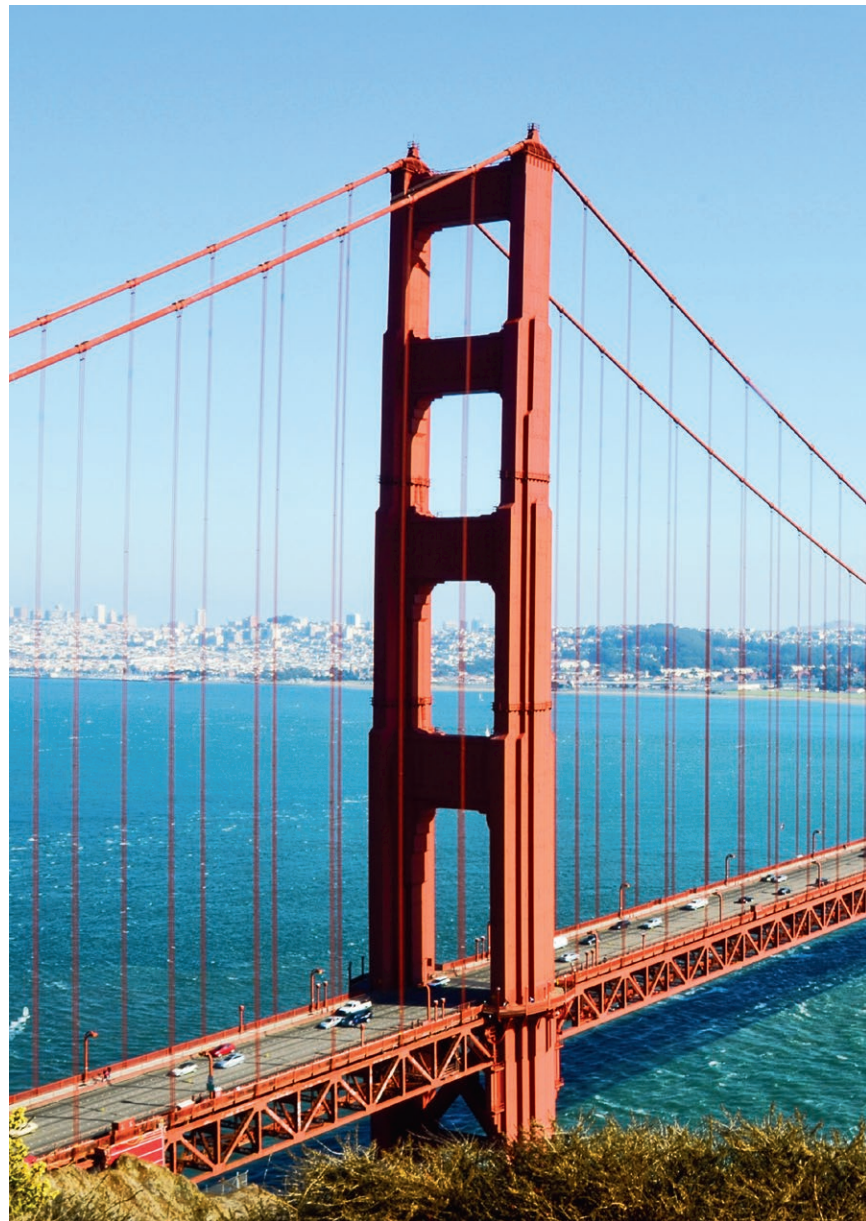


San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

San Franciscans are fortunate to have access to the Regional Water System. This system forms the backbone of our water supply and delivers high quality drinking water from the Tuolumne River watershed in Yosemite National Park, and five Bay Area reservoirs located in Alameda and San Mateo counties. When this system was envisioned and built almost 100 years ago, it demonstrated the ingenuity and ambition of the time. An engineering marvel, it was designed to capture high quality water, efficiently deliver water by gravity, and produce hydroelectric power. Since operation of the full Regional Water System began in 1934, it has reliably delivered drinking water to meet the needs of 2.7 million Bay Area residents, including the City of San Francisco.

Why Local Water?

A lot has changed since the Regional Water System was constructed. In addition to the challenges we have always faced – such as earthquakes and drought – we must now also grapple with new challenges, including growing population pressures and climate and regulatory changes. To address these challenges, the SFPUC is planning and implementing new water supply projects that will complement our Regional Water System and ensure resilient water sources for the next century. This effort has resulted in development of the Local Water Program that provides conservation assistance, promotes recycled water to meet the City's most significant irrigation needs, mandates use of onsite water reuse to use non-potable supplies for toilet flushing in new large buildings, and develops local groundwater to enhance the City's drinking water supply. The SFPUC's mission is to provide high-quality and reliable water service to our customers while protecting the resources entrusted to our care. Diversifying our water supply portfolio through implementation of the Local Water Program is a critical element of meeting this important responsibility now and in the future.



OneWaterSF

The SFPUC has adopted OneWaterSF, an integrated approach to water management. The Local Water Program and its projects embody OneWaterSF by prioritizing opportunities across the utility for resource and energy recovery in our water and wastewater systems and matching the right water for the right use.

The OneWaterSF approach has allowed us to think differently about resource management. Our Local Water Program looks to supplement water supplied from outside the City with recycled water and local groundwater in order to make our supplies more resilient. Resource recovery projects have the potential to capture wastewater so that we can utilize it to supplement energy requirements. Implementing a holistic approach to stormwater management allows us to use the latest water treatment technology to utilize this source of water as an alternative supply for such uses as irrigation or toilet flushing.

One of the biggest successes of implementing OneWaterSF has been fostering a culture at the SFPUC that embraces collaboration - both internally, and externally with our partners and community - to implement innovative projects and programs that help us manage our water and energy resources in more sustainable ways.



Groundwater Management Program

Groundwater is an important natural resource that is stored in aquifers, underground reservoirs naturally replenished by rainfall. Groundwater serves as a significant source of drinking water throughout the State and locally in the Bay Area. San Francisco's groundwater supply comes from the 45-square mile Westside Basin, which extends from Golden Gate Park southward through San Bruno. Before San Francisco had a supply of water delivered by the Regional Water System, the City relied in part on groundwater from the Westside Basin as a drinking water supply. For decades and continuing today, the Basin serves as a vital water supply for nearby communities in San Mateo County.

Groundwater helps the City and the region meet its long-term water supply needs and diversify our supply under the Local Water Program in many ways: it is a drinking water supply, it is local, and it can be sustainably managed. Our Groundwater Program includes both the San Francisco Groundwater Supply Project and the Regional Groundwater Storage and Recovery Project.

San Francisco Groundwater Supply Project

The San Francisco Groundwater Supply Project supplements our drinking water supply by blending a small amount of groundwater from the Westside Basin with water from the Regional Water System. Groundwater is pumped from depths of 120 to 460 feet below the ground and blended with supplies from our Regional Water System before it is delivered to customers. Starting in 2017, the SFPUC began ramping up toward blending 1 million gallons a day (mgd) of groundwater to our water supply. Over the next several years, the project will incrementally build up to deliver an average of 4 mgd of groundwater in San Francisco.

Regional Groundwater Storage and Recovery Project

The Regional Groundwater Storage and Recovery Project provides the region with an additional new water supply during drought. The project is a partnership between the SFPUC, the California Water Service Company (serving Colma and South San Francisco), and the cities of Daly City and San Bruno. The project is structured as a conjunctive use project that has groundwater storage and pumping components. During years of normal or heavy rainfall, the SFPUC provides additional surface water from the Regional Water System to the partner agencies so they reduce the amount of groundwater they pump from the Westside Basin. Over time, the reduced pumping leaves more groundwater in the Basin, resulting in natural recharge and increased storage of up to 20 billion gallons of groundwater. The stored groundwater can then be pumped as an additional new water supply during drought, when less surface water supplies are available.



Garden for the Environment, San Francisco



Golden Gate Park



Water Conservation Program

For decades, the SFPUC has provided a comprehensive water conservation program for San Francisco residents, businesses, and other retail water customers in and outside the City. Efforts implemented under this program helped to make San Francisco's residential per capita water usage (in gallons) stay in the low 40's, one of the lowest in California. Water conservation services provided by the SFPUC include Water-Wise Evaluations, incentives for replacement of old plumbing fixtures and appliances, distribution of free water-efficient plumbing devices, landscape efficiency programs, tools to monitor water use, public outreach such as gardening classes and presentations, and discounts for residential laundry to landscape graywater systems, rain barrels, and cisterns.

Replacing old, water-wasting plumbing fixtures with new efficient models is one of the most significant ways to reduce water use in buildings. Since 2005, the SFPUC's toilet and urinal incentive programs have replaced over 62,000 inefficient fixtures, resulting in an estimated 7.5 billion gallons of water that will be saved through the year 2035.

Water-Wise Evaluations are one of our most popular conservation programs, providing a free on-site consultation from a trained water efficiency expert. During each visit, the SFPUC's conservation expert provides information on where water is used, how much is used, and identifies inefficient plumbing fixtures and leaks that cause high water bills. As part of the evaluation, customers are provided information about water efficient fixture rebates, and given free water-efficient plumbing devices including showerheads, aerators, and toilet leak repair parts.

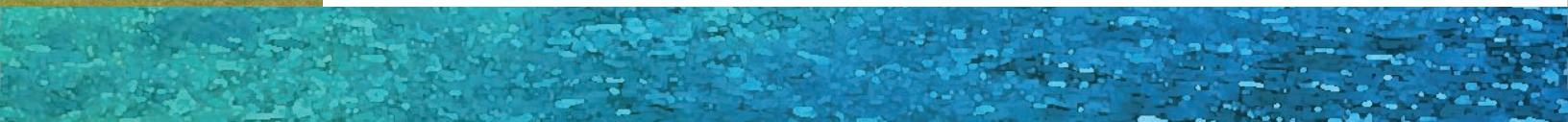


Recycled Water Program

Water is too precious a resource to use just once. Consistent with our philosophy of matching the right resource to the right use, recycled water use allows us to meet non-drinking demands such as irrigation, while conserving drinking water supplies.

Under the Local Water Program, we are implementing projects that will use recycled water for irrigation of large parks and golf courses located in the City. Through our long-standing partnership with Daly City, we have been delivering recycled water to Harding Park and Jack Fleming golf courses, for irrigation since 2012. In partnership with North Coast County Water District, in 2014, we completed a project to use recycled water to irrigate a portion of Sharp Park Golf Course in Pacifica and other nearby landscaped areas.

To continue expanding the use of recycled water on the west side of San Francisco, work is underway on the Westside Enhanced Water Recycling Project. This project will save approximately 2 mgd of drinkable water currently used for non-drinking purposes such as lake filling and irrigation. Recycled water from a new recycled water treatment facility at the Oceanside Water Pollution Control Plant will be delivered to Golden Gate Park, the San Francisco Zoo, the Presidio, and Lincoln Park Golf Course.





Onsite Water Reuse Program

While recycled water is being used to serve irrigation demands in large parks and golf courses primarily located on the west side of San Francisco, the SFPUC has been developing innovative ways to reduce the use of drinking water to serve non-potable demands, such as toilet flushing, that exist on the east side of San Francisco. With the denser, more urban landscape found on the east side of the City, large new buildings provide opportunities to implement onsite reuse systems that utilize alternate water sources such as graywater, blackwater, rainwater, and stormwater, to meet toilet flushing, cooling, and other non-potable building demands. The use of onsite alternate water sources is a key strategy for expanding potable water savings on the east side of the City, where large irrigation demands are minimal.

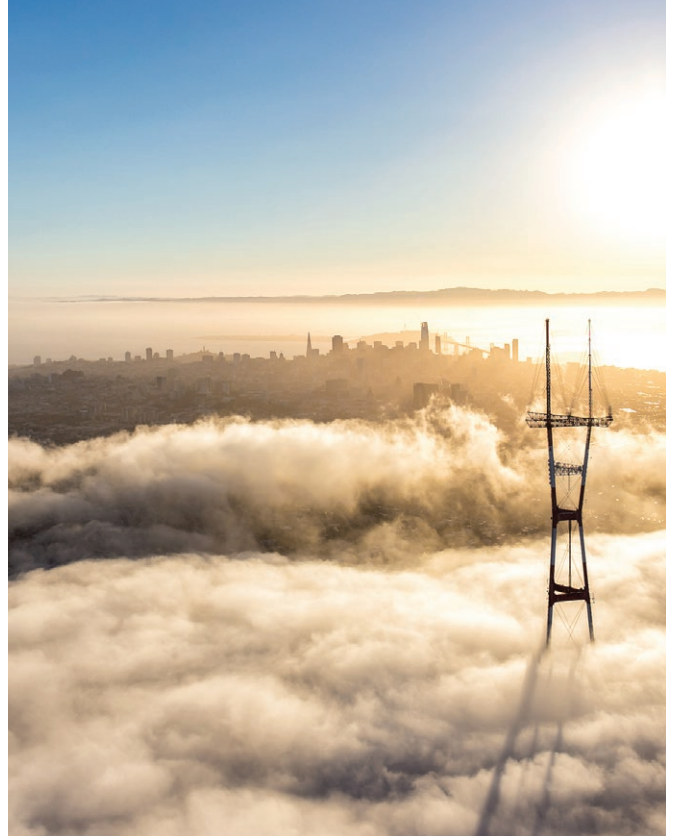
The SFPUC first piloted onsite water reuse by installing a reuse system at the utility's headquarters in 2012 for toilet and urinal flushing. The onsite water treatment system is reducing potable water consumption by 60% and has led to the nation's most cutting-edge onsite water reuse program. The Onsite Water Reuse Program, established in 2012 through the Non-potable Water Ordinance, allows for the collection, treatment and use of alternate water sources for non-potable applications. In 2015, it became a mandatory requirement for all new developments of 250,000 square feet or greater to treat and reuse available onsite water sources for irrigation and toilet and urinal flushing.

The Onsite Water Reuse Program is expected to save approximately 2 million gallons of potable water each day in San Francisco. The SFPUC is proud to partner with our community on large onsite reuse projects in many prominent new developments including the Salesforce Tower, one of the largest commercial high-rise buildings in the United States, and the Chase Center, the sports and entertainment complex in Mission Bay and home of the Golden State Warriors. At the Salesforce Tower, the onsite system will collect and treat blackwater from sources such as showers, sinks, and urinals to be reused for irrigation and toilet flushing. The Salesforce Tower system will reduce the use of potable water by over 75%.

SFPUC Innovations Program

The SFPUC Innovations Program builds upon our efforts to develop local water, while also encouraging innovation and exploration of new ways to conserve and reuse water, recover resources, and diversify our water supply by testing forward-thinking ideas that can 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 other stakeholders who play key roles in ensuring the long-term sustainability of San Francisco. Through this Program, we are implementing and exploring several innovative efforts, including:

- **PureWaterSF:** Researching how we can reliably treat wastewater generated onsite at the SFPUC headquarters to produce purified water. This grant funded pilot program collects water quality data on the purified water before returning the water to our non-potable system for use. By purifying recycled water to levels that can be compared to drinking water standards, we are exploring the opportunity to develop a future resource that is local, drought resistant, and can be used for many of our diverse needs.
- **Expanded Leak Detection:** Exploring new technologies to detect leaks in our system and reduce loss of potable water from our pipeline distribution system.
- **Brewery Process Water Reuse:** Providing grant funds to breweries to treat and reuse process water generated onsite to significantly reduce the use of potable water, as breweries rely on large quantities of water for cleaning tanks, bottles, and equipment. Brewery process water reuse is also an opportunity for energy recovery, an excellent example of an innovative, multi-benefit project.
- **Atmospheric Water Generation:** Extracting water from ambient air to produce water fit for irrigation and drinking can be accomplished passively, using methods like fog catchers, or actively, fueled by renewable energy sources like solar panels and biogas.



Be a Partner

From conservation to purified water, a number of our successful programs rely on partnerships with other utilities, industry organizations, scientists, academics, and of course our communities. If you have a well-defined technology solution that supports our mission, reach out and be a partner! Contact us at localwater@sfgwater.org.

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+ LOCAL WATER
Better together.

