

San Francisco Public Utilities Commission

Embracing a One Water Approach

Project at a Glance

Utility Overview

- Utility: San Francisco Public Utilities Commission
- Location: San Francisco, CA
- Population served: 2.7 million

Challenges

- Drought
- Population growth
- Rapid new development
- Resilience to climate change and natural disasters

Costs and Funding Sources

- Conservation Assistance Programs: \$5 million
- Non-potable Grant Program: \$1 million
- Staffing: 25 FTE
- Funding source: Operating Budget and Capital Budget

Solutions

- Diversifying San Francisco's water supply portfolio through its Local Water Program, which includes water conservation, recycled water, groundwater, onsite water reuse, and a new innovations program that encourages testing of forward-thinking ideas that can help meet San Francisco's long-term potable and non-potable water needs.
- Implementing a streamlined process that requires the use of onsite water reuse systems to meet non-potable demands for toilet flushing and irrigation in new large public and private developments.
- Providing a comprehensive conservation program that includes free indoor and outdoor water audits, incentives, free water efficient devices, tools to monitor water usage, and educational assistance to encourage water use efficiency.

Benefits



Increased water supply reliability and resiliency



Reducing stormwater flows to the combined sewer system



Maintained average residential per capita water use of 42 gpcd



Providing the ability to reduce water use in a building by 25% to 75%



Savings of 2 million gallons per day of drinking water



Matching the right resource to the right use



Conservation program will achieve an estimated water savings of 20 mgd by 2040



Contributing to a healthy and beautiful built environment

BACKGROUND

The San Francisco Bay Area is located in Northern California and surrounds the San Francisco, San Pablo, and Suisun Bays. With a temperate climate the greater Bay Area is home to approximately 7 million residents and about 850,000 within the City of San Francisco. The San Francisco Public Utilities Commission (SFPUC) provides retail drinking water & wastewater services to the City of San Francisco, wholesale water to three Bay Area counties, green hydroelectric & solar power to Hetch Hetchy electricity customers, and power to the residents & businesses of San Francisco through the CleanPowerSF program.

CHALLENGE

Increasing water demand and greater variability of water supplies resulting from climate change, population growth, and other stressors led the SFPUC to diversify its water supply portfolio and adopt a OneWaterSF approach. The concept of OneWaterSF began when California was in the midst of one of the hottest and driest periods in the state's history. In addressing the challenges that the drought posed, it became apparent that taking a holistic approach, collaborating across the organization, and embracing new technologies was more crucial than ever. The goal is to implement an integrated approach to resource management that recognized the importance of actively working across the utility to identify synergies across water, wastewater, and energy boundaries and put the right resource to the right use.

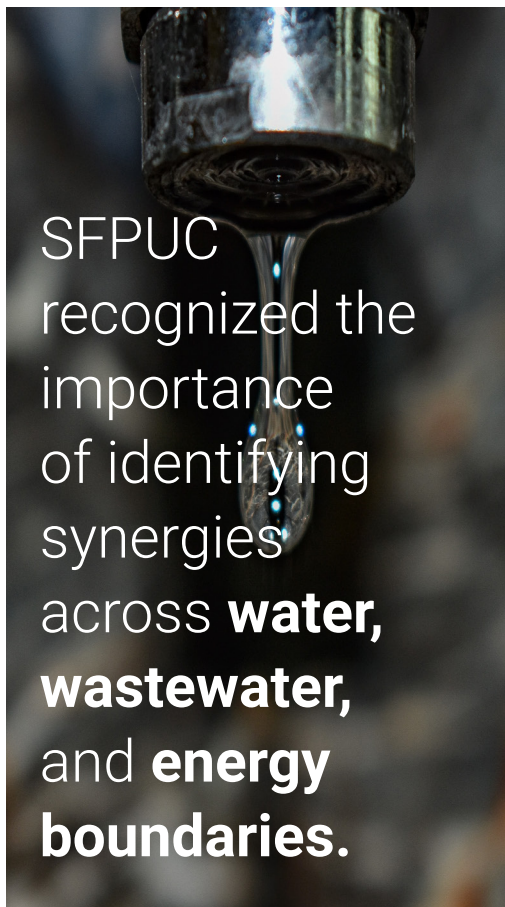
SFPUC's programs were also driven by the utility's understanding of the importance of local water supply reliability that includes the development of local water supplies, including conservation, groundwater, recycled water, and onsite water reuse.

SOLUTION

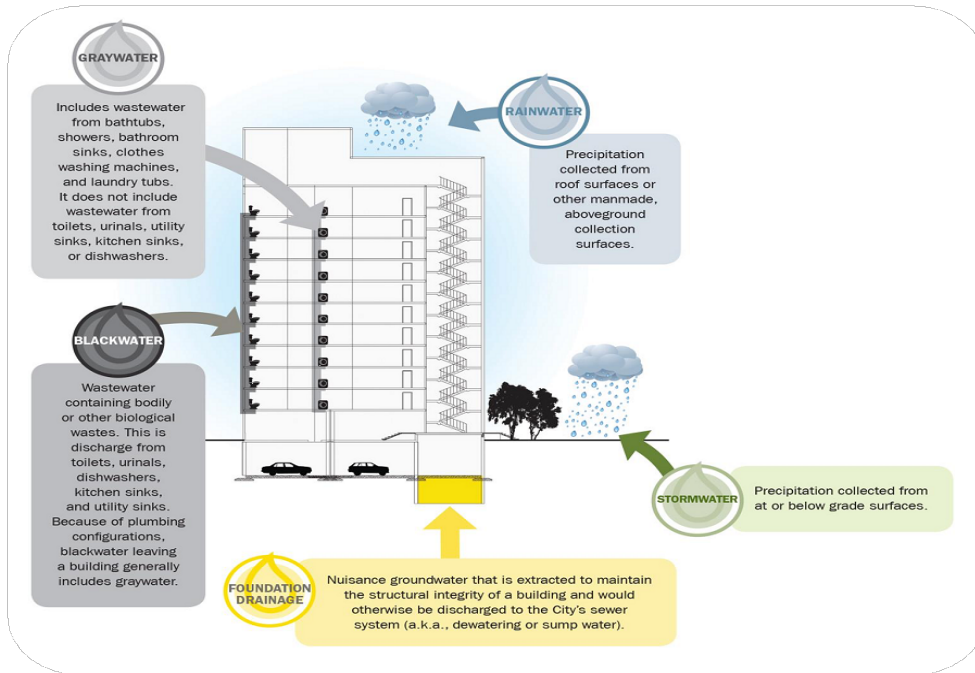
Matching the right resource to the right use is a critical OneWater principle that guides the SFPUC's implementation of its Local Water Program. Through OneWaterSF, the SFPUC is embracing water supply diversification and a new way of managing water to enhance water security and resiliency. The SFPUC's primary strategy involves implementation of water conservation, recycled water, groundwater, onsite water reuse, and a newly established innovations programs that encourages testing of forward-thinking ideas that can help meet San Francisco's long-term potable and non-potable water needs.

San Francisco's Onsite Water Reuse Program

Led by the efforts of the SFPUC, San Francisco became the first municipality in California to adopt a groundbreaking program that encourages buildings and industrial customers to collect, treat,



and use non-potable water to meet demands such as toilet flushing, irrigation, and industrial processes. San Francisco's Non-potable Water Program established a streamlined process for allowing water sources like stormwater, rainwater, graywater, blackwater, and foundation drainage to be reused in commercial, mixed-use, and residential buildings and for industrial applications. The first of its kind in California and the U.S., the program also established local oversight and management to ensure the protection of public health. Implemented by four city departments, the Non-potable Water Program is a successful example of investing in collaboration and eliminating barriers to using water more efficiently.



Conservation

The SFPUC provides a comprehensive water conservation program open to all San Francisco residents and businesses. Core services include:

- Indoor and outdoor Water-Wise Evaluations
- Incentives for replacement of old plumbing fixtures
- Fee water-efficient plumbing devices
- Landscape efficiency programs
- Tools to monitor water use
- Public outreach such as gardening classes and presentation

Innovations Program

The SFPUC's Innovations Program promotes exploration of new ways in which the utility can conserve and reuse water, recover resources, and diversify its water supply. The Innovations Program encourages testing of 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.

The Program is implementing and exploring several innovative efforts, including:

Effort	Description
PureWaterSF	Researching how to reliably treat wastewater generated onsite at the SFPUC headquarters to produce purified water (before it is returned for use in the buildings onsite water reuse system).
Expanded leak detection	Exploring new technologies to detect leaks and reduce loss of potable water from the SFPUC pipeline distribution system.
Brewery process water reuse	Providing grant funds to breweries to collect, treat, and reuse process water generated onsite.
Heat exchangers	Encouraging the integration of heat exchangers in onsite water reuse systems can reduce building energy consumption, operating costs, and greenhouse gas emissions.
Atmospheric water generation	Extracting water from ambient air to produce water fit for irrigation and drinking can be accomplished passively using methods such as fog catchers, or actively, fueled by renewable energy sources such as solar panels and biogas.

RESULTS

Water Resource Benefits

The SFPUC's Water Conservation Program has resulted in achieving an average residential per capita water use of 42 gpcd, approximately half of the state's average. The Conservation Program will achieve an estimated 20 mgd of active and passive water savings by 2040. In addition, the Onsite Water Reuse Program provides a pathway for buildings to reduce potable water use by approximately 25% in residential buildings, and up to 75% in commercial buildings and will achieve an estimated savings of 2 million gallons per day of drinking water through onsite water reuse projects.

Environmental Benefits

Diversifying San Francisco's water supply through programs such as the Onsite Water Reuse Program add value in urban settings above and beyond water savings, including reduced stormwater flows to the combined sewer system and contributing to a health and beautiful urban environment.

Sources

[SFPUC's Mission](#)
[OneWaterSF](#)
[SFPUC's Local Water Program](#)