



San Francisco's Non-potable Water Ordinance Updates

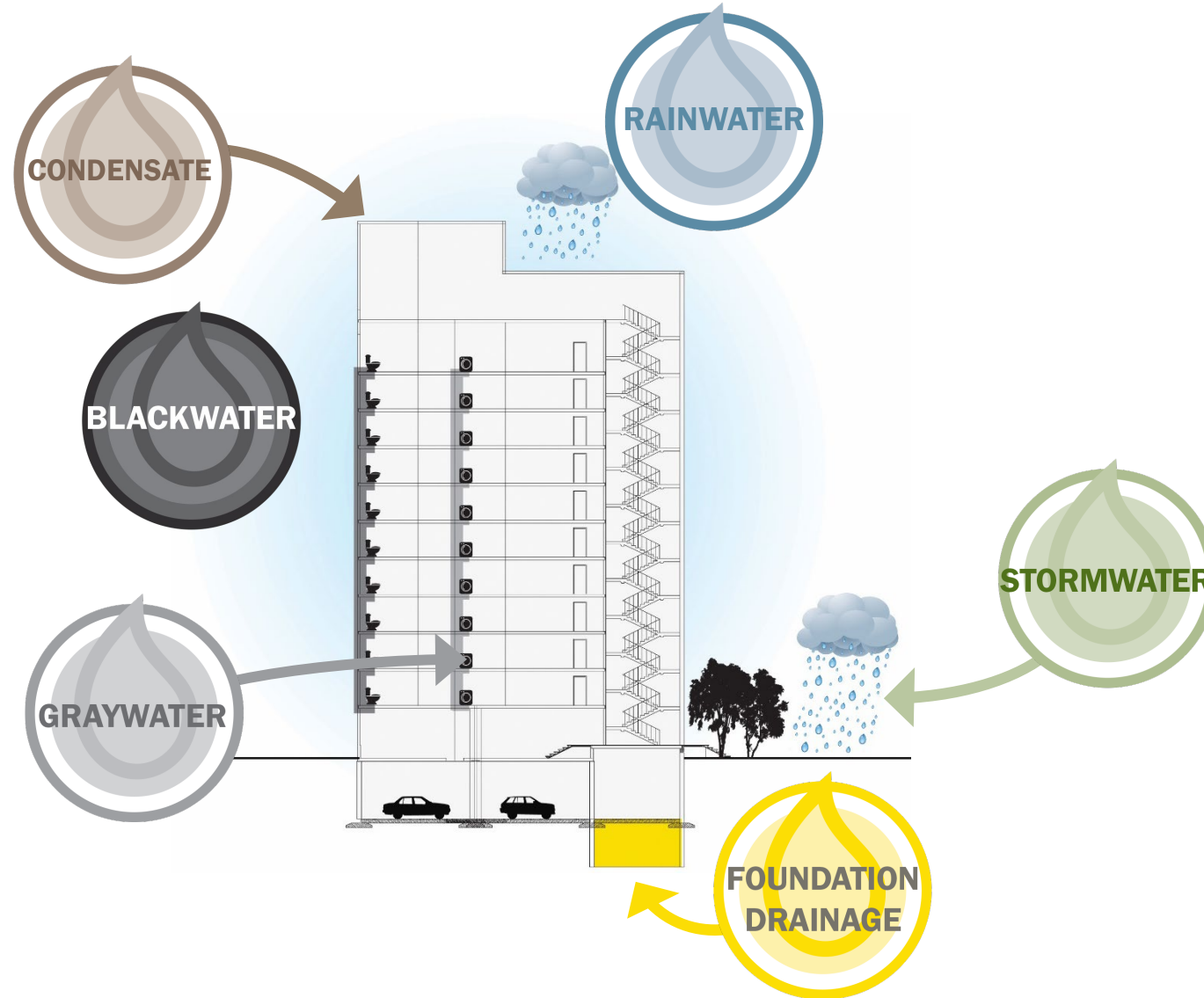
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San Francisco Public Utilities Commission
January 18, 2022

Diversifying San Francisco's Water Supplies



Conservation
Groundwater
Recycled Water
Onsite Water Reuse
Innovations

Buildings Generate Resources



Pilot Onsite Water Reuse at SFPUC Headquarters

Rainwater Harvesting System

- 25,000 gallon cistern
- Reuse for irrigation

Wetland Treatment System

- Collects and treats building's wastewater
- Reuse for toilet flushing
- 5,000 gpd capacity



Meeting Private Sector Interest in Onsite Reuse



Non-potable Ordinance Requires City Family Coordination

SFPUC	SFDPH-EH	SFDBI	SFPW
Program Administration and Cross-Connection Control	Environmental Health	Construction	Right of Way and Mapping
<p>Review onsite non-potable water supplies & demands</p> <p>Administer citywide project tracking & annual potable offset achieved</p> <p>Provide technical support & outreach to developers</p> <p>Manages Cross-Connection Control Program</p>	<p>Issue water quality & monitoring requirements</p> <p>Review and approve non-potable engineering report</p> <p>Issue permit to operate onsite systems</p> <p>Review water quality reporting</p>	<p>Conduct Plumbing Plan check and issue Plumbing Permit</p> <p>Inspect and approve system installations</p>	<p>Issue Encroachment Permits as needed for infrastructure in the Right-of-Way (if needed)</p> <p>Includes condition on a subdivision map or a parcel map requiring compliance with the Non-potable Ordinance prior to approval and issuance of said map (if applicable)</p>

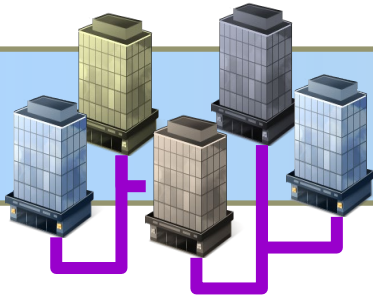
San Francisco's Evolving Onsite Water Reuse Program

2012



***Single
Building***

2013



***District-
Scale***

2015



***Mandatory for \geq
250,000 gsf***

2019

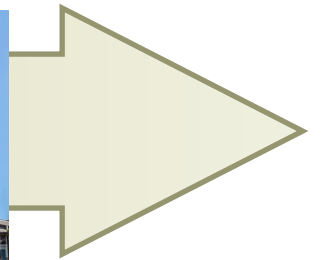


***Innovations: Brewery
Process Water Reuse***

2021



***New
Requirements!!***

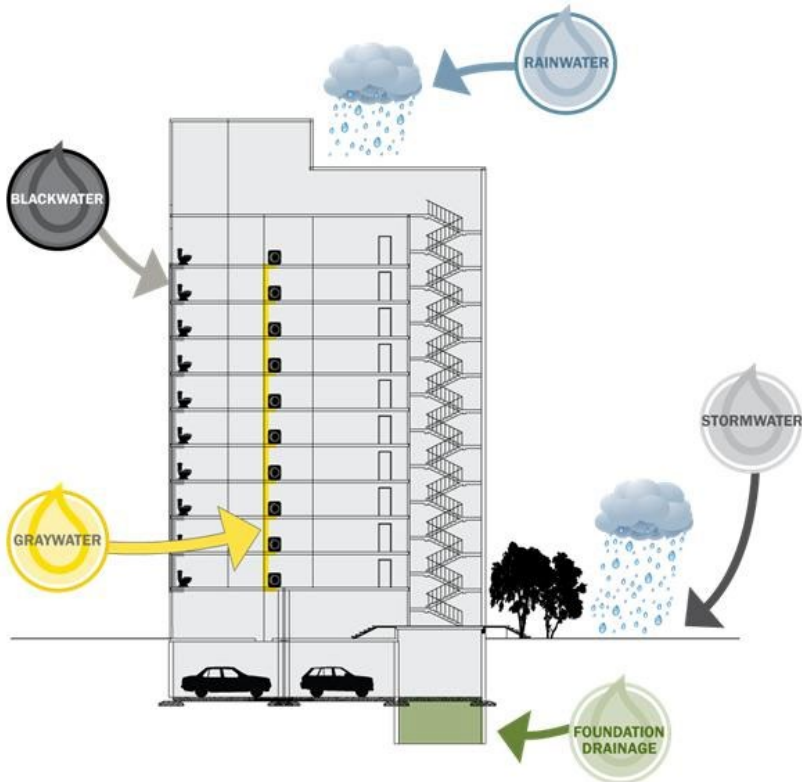


2021 Non-potable Ordinance Amendments



- Opportunity to further increase potable water offsets from new buildings and development projects
- Analysis of NPO program resulting in streamlined ordinance requirements
- Increased opportunities for cost-effective systems

2021 Non-potable Water Ordinance Amendments



- Applies to new buildings and development projects 100,000 gsf or greater
- Buildings that are 100% commercial to reuse all wastewater, not just graywater, onsite
- Multi-family residential and mixed-use residential buildings to meet clothes washing demands in addition to toilet flushing and irrigation demand

Additional Non-potable Ordinance Amendments

- Exempt:
 - 100% affordable housing and homeless supportive housing
 - Hospital, health service, and institutional health care facilities
 - Facilities zoned for Production, Distribution, Repair (PDR) and industrial use
- Require A/C condensate to be reused
- Require projects to reuse water onsite for drain trap priming
- Collection and reuse of rainwater will be allowed not required
- Modify SFDPH penalty structure to improve enforcement and increase SFDPH application fee to cover oversight

San Francisco's 10 Step Permitting Process

10 Steps for Successful Implementation of an Onsite Water Reuse System

- 1** Submit a Water Budget Application to SFPUC-WRD
- 2** Submit a Non-potable Implementation Plan to SFPUC-WRD (district-scale projects only)
- 3** Submit Application for Permit to Operate to SFDPH-EH
- 4** Obtain Encroachment Permit from SFPW (if applicable)
- 5** Obtain Plan Check Approval from SFDBI-PID and SFDPH-EH and Complete System Construction
- 6** Conduct a Cross-Connection Test with SFPUC-WQD and Complete Post-Construction Inspection
- 7** Submit Documentation for a Permit to Operate from SFDPH-EH
- 8** Obtain a Permit to Operate from SFDPH-EH
- 9** Operate in Conditional Startup Mode
- 10** Operate in Final Use Mode with SFDPH-EH Approval



B. COMMERCIAL SUPPLY

Supply available for reuse is the water demand calculated on Tab 2. Indoor Water Demand minus the Treatment Losses from Part 1.

Fixture Type	Graywater & Blackwater Supplies				
	Annual Supply (gpy)				Total Daily Supply (gpd)
	Site 1	Site 2	Site 3	Total Project	
Showerhead	0	0	0	0	0
Lavatory Faucet	0	0	0	0	0
Commercial Laundry	0	0	0	0	0
Total Graywater Supply	0	0	0	0	0
Urinal	0	0	0	0	0
Toilet (Water Closet)	0	0	0	0	0
Kitchen Faucet	0	0	0	0	0
Dishwasher	0	0	0	0	0
Commercial Kitchen	0	0	0	0	0
Subtotal Additional Blackwater Supply	0	0	0	0	0
Total Blackwater Supply	0	0	0	0	0

Examples of Mandatory NPO Projects



Mission Rock



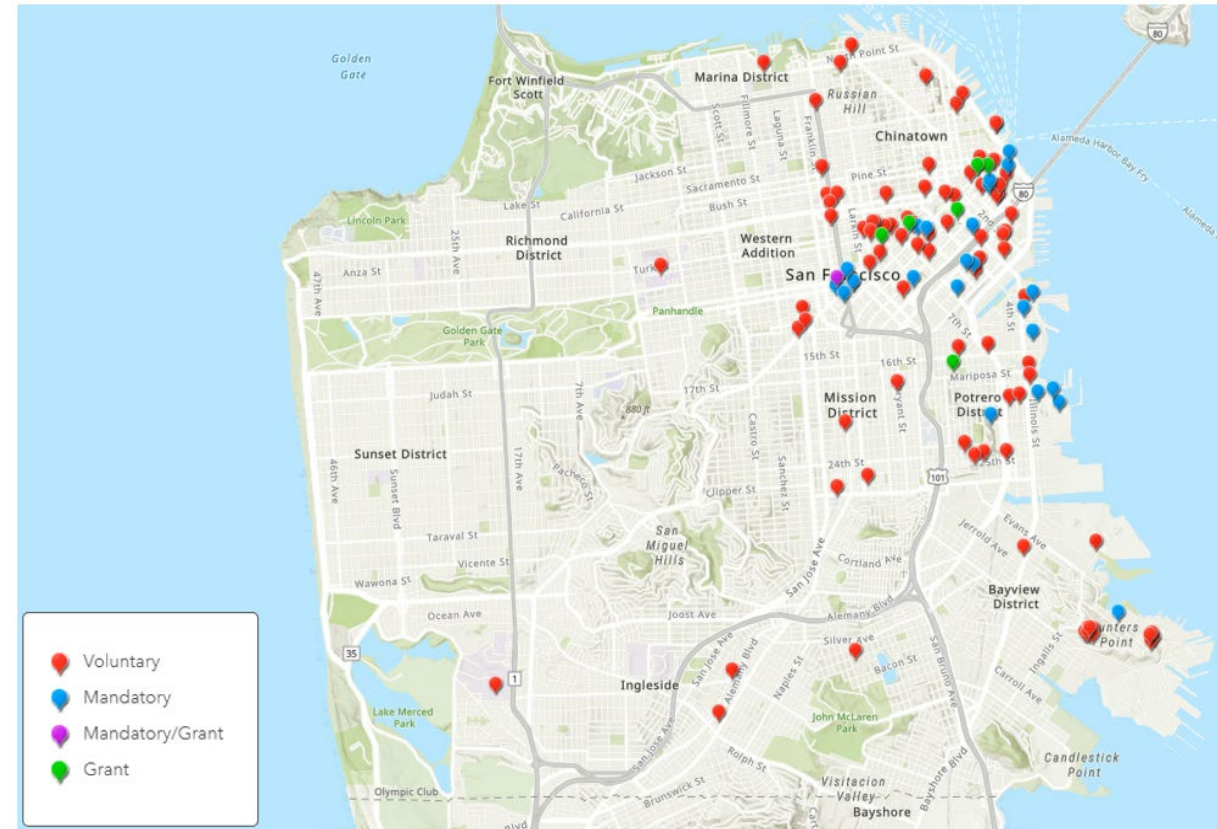
Fifteen Fifty Mission



Chase Center

Summary of Onsite Water Reuse Projects in SF

- 79 stormwater or rainwater harvesting systems complying with the Stormwater Management Ordinance
- 25 mandatory NPO graywater projects
- 6 blackwater systems
- 4 voluntary graywater systems
- 3 foundation drainage systems
- 1 brewery process water reuse system



Total of 118 projects

Water Savings From Non-potable Ordinance

- By 2040, mandatory NPO projects can achieve water savings equivalent to 26,200 SF residents daily water use

	Actual ^a	Projected ^b				
	2020	2025	2030	2035	2040	2045
Onsite Water Reuse Savings	0.1	0.3	0.5	0.9	1.3	1.3
<p>a Actual onsite water reuse potable offsets are obtained from existing onsite water reuse projects water budget applications.</p> <p>b Projected potable offsets are based on water budget applications submitted to the SFPUC, as well as assumptions about future projects that have not yet submitted water budget applications but are known to need to comply with the Non-Potable Water Ordinance.</p>						

- 2021 Ordinance amendments can achieve additional water savings up to 1.5 mgd, which is an increased savings equivalent to 5,500 SF residents daily water use



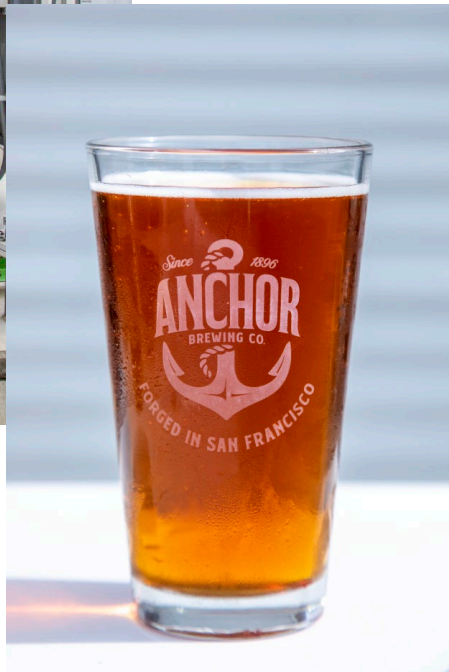
Onsite Water Reuse Grant Program Eligibility and Benefits

Estimated SFPUC Water Offset (gallons per year for 10 years)	Grant Funding Available
$\geq 450,000^1$	Up to \$200,000
$\geq 1,000,000^1$	Up to \$500,000
$\geq 3,000,000^1$	Up to \$1,000,000

¹ For Above and Beyond Projects, the estimated SFPUC Water Offset must be achieved above and beyond Baseline NPO Compliance to be eligible for grant funding.

- 5 grants executed to-date
- Total of \$2.25 million to be awarded
- Estimated to achieve water savings equivalent to about 3,400 SF residents daily residential water use

Innovations in Breweries



- In 2018 SFPUC developed chemical and pathogen control strategy for reusing brewery process water
- Anchor Brewing Company treating and reusing brewery process water onsite for cleaning tanks, rinsing bottles, floor washdown
- Capacity to save 20 million gallons of drinking water annually
- Received \$1 million grant from SFPUC
- Project paving way for state and national standards for brewery process water reuse

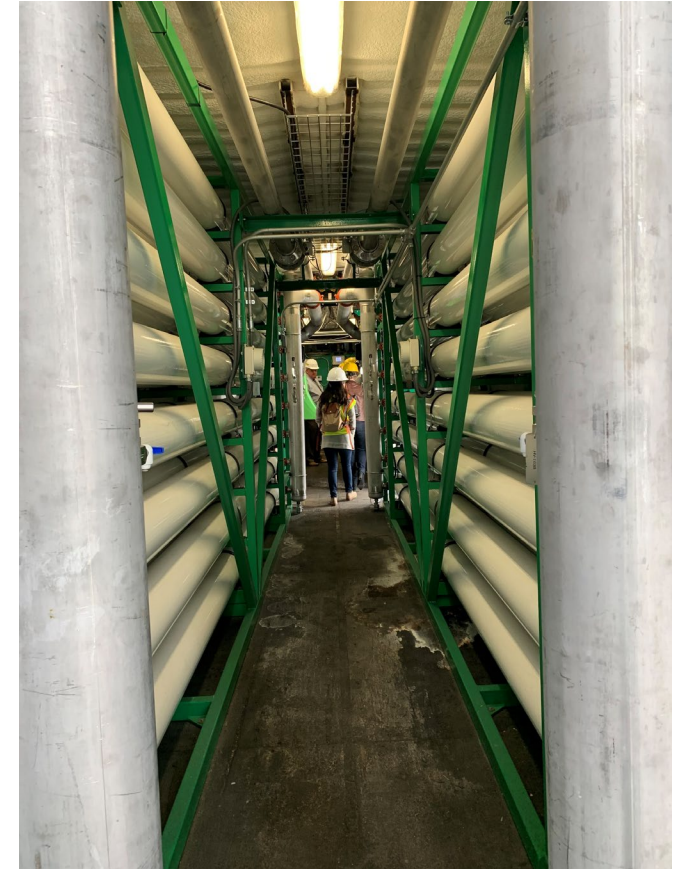
Additional Examples of Non-Mandatory Grant Projects



Moscone Center



UN Plaza Foundation
Drainage Project



ECSF-BART
Foundation
Drainage Reuse

California SB 966

- State is developing onsite water reuse regulations based on risk-based log reduction targets (LRTs)
- State engaged with expert panel to review recent pathogen occurrence literature and evaluate existing LRTs



National Blue Ribbon Commission for Onsite Non-Potable Water Systems

- Create Consistent Water Quality Standards From State to State
- Promote Risk-Based Water Quality Standards
- Encourage Local Oversight and Management Programs
- Forum for Peer to Peer Learning



**National Blue Ribbon
Commission
for Onsite Non-potable
Water Systems**

Thank you!

Questions?

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<https://sfpuc.org/construction-contracts/design-guidelines-standards/onsite-water-reuse>