



Onsite Water Reuse and Dual Plumbing Study

Results and Preliminary Staff Recommendations

Background

- On June 1, 2021, City Council adopted Resolution No. 2021-0166 directing staff to evaluate water conservation policies that could conserve water while promoting green job opportunities
- Part of the Climate Implementation Work Plan
- Study initiated in January 2022

Onsite Water Reuse and Dual Plumbing

2022

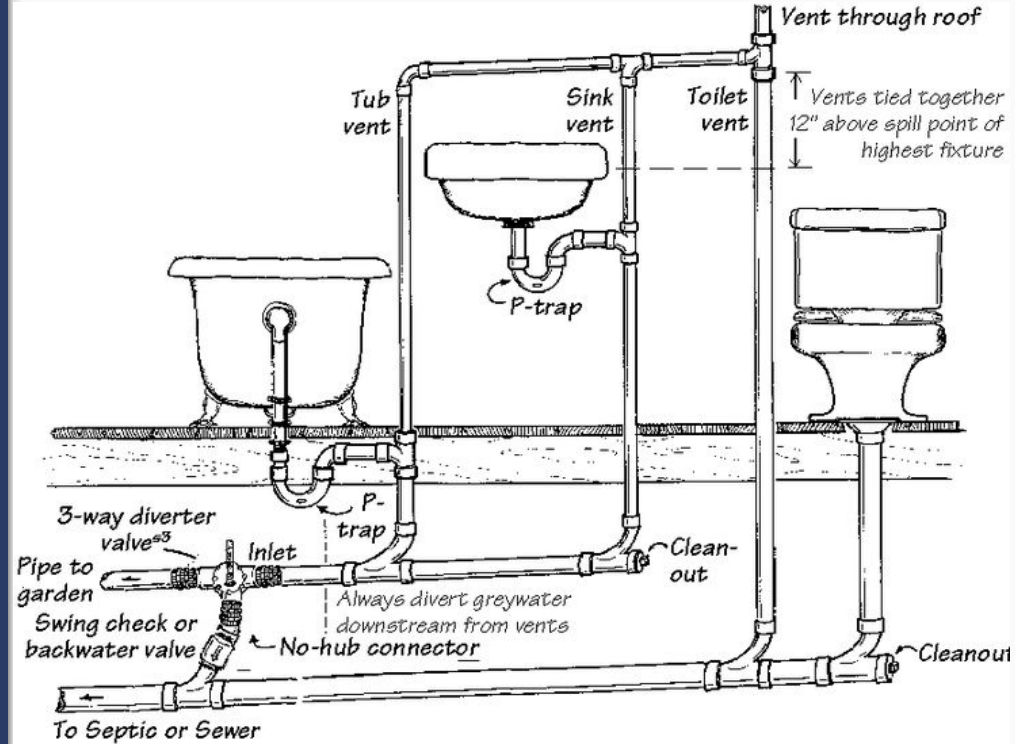
Dual Plumbing Feasibility
Study and Dual Plumbing
Ordinance Recommendations

2023-2024

Onsite Water Reuse
Treatment Feasibility Study

Dual Plumbing

- System of plumbing installation to supply both potable and non-potable water to a building
- Indoor and/or outdoor end uses
- Onsite treatment required for indoor end uses of greywater and all end uses of blackwater.



Dual Plumbing

- Dual plumbing can be used to capture and reuse greywater, rainwater and/or blackwater.



Study Considerations

The focus of the study was the feasibility of dual plumbing in commercial (non-residential) buildings of 100,000 sq ft or larger.

Economic

- Costs for dual plumbing and treatment
- Costs to administer the program

Regulatory

- Existing & Upcoming codes and regulations

Technical

- Requirements for treatment, testing, and inspection

Market Assessment

- Reviewed the number of buildings (100,000sqft) built and planned in Sacramento

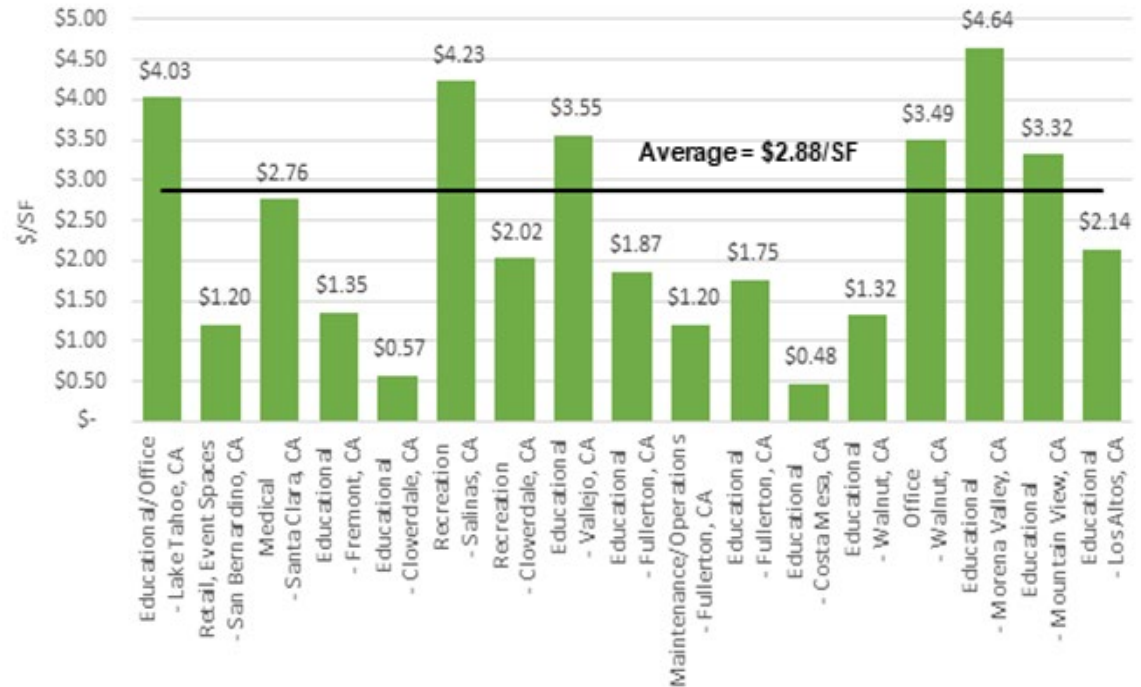
Reviewed 3 Cases Studies

Key Findings

Dual Plumbing Installation Costs

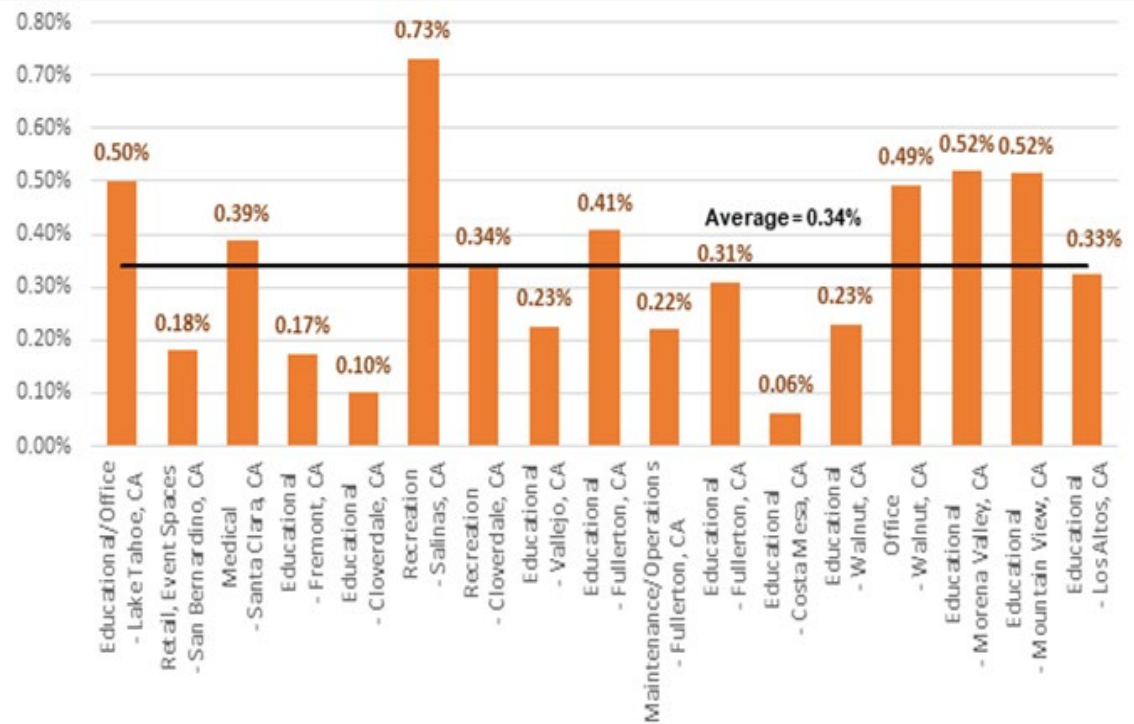
- Cost model based on 17 commercial buildings constructed in California within the last five years

Cost per area (\$/sf) to add dual plumbing to commercial buildings



Dual Plumbing Installation Costs

Percent increase to total project cost to add dual plumbing to commercial buildings



Treatment and Operation

- Treatment requirements and costs are highly variable depending on source water and end use



Program Administration

- Additional staffing resources may be needed for DOU for initial set up and ongoing admin of the program.
- Plan check and cross connection inspections can likely be absorbed within existing staffing.

Table 5-1: Initial ONWS Program Coordination Matrix

City of Sacramento – Department of Utilities <i>Program Administration</i>	Sacramento County Environmental Management Department/Other Regulator* <i>Environmental Health</i>	City of Sacramento – Community Development Department <i>Construction</i>	City of Sacramento – Public Works <i>Right-of-Way and Mapping</i>	Developer <i>Comply with Ordinance</i>
Review onsite non-potable water supplies & demands (coordinate with CDD)	Issue water quality & monitoring requirements	Conduct Plumbing Plan check and issue Plumbing Permit (Building)	Issue Encroachment Permits as needed for infrastructure in the Right-of-Way (if needed).	
Administer city-wide project tracking & annual potable offset achieved	Review and approve non-potable engineering report	Inspect and approve system installations. Issue certification of occupancy (Building)	Provide technical support as needed	
Provide technical support as needed	Issue permit to operate onsite system	Outreach to developers (Planning)		
Manages Cross-Connection Control Program: Once building permit closed, ensure system remains as approved (Cross-Connection Inspections, Annual CC Survey)	Review water quality reporting	Provide technical support as needed. Provide first point of contact, direct questions to appropriate departments (Current Planning)		
Coordination w/County EMD/other Regulator	Provide technical support as needed	*Include advisory note on planning applications for applicable projects		

* Sacramento County EMD provides municipal recycled water compliance assistance and has established and enforces the rules and regulations for municipal recycled water use and distribution in the County. No entity has committed to this role for the City of Sacramento Onsite Non-Potable Water Reuse Program as of May 2022.

Regulatory Findings

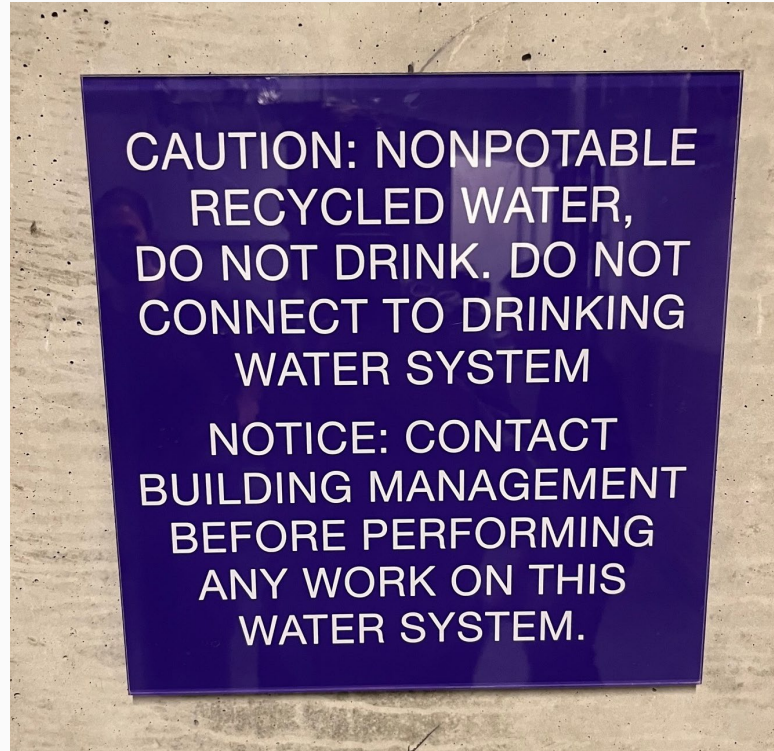
- Current plumbing code allows for the installation of rainwater and grey water reuse systems.
- SB 966 – upcoming regulations

SB 966

- Requires the State Water Board to adopt regulations for onsite treatment and reuse in buildings.
- Draft regulations are expected August 1, 2022
- Regulations are expected to be effective December 1, 2022
- Potential County of Sacramento role as permitting agency.

Testing and Inspection

- Strict public health and safety requirements
 - Regular Cross connection testing
 - Public notification
 - Ongoing Water quality testing



Sacramento's Market Assessment

2010-2022

13 Commercial Buildings Built

- 100,000 sqft or greater

Planning Entitlements

14 Commercial Buildings

- 100,000 sqft or greater

Planned Commercial Non- Residential Buildings by Building Type

Building Type	Number of Buildings 100,000 sq ft or greater
Commercial/Retail	7
Office	1
Hotel/Motel	3
Industrial	1
Warehouse	2

Case Studies

- San Francisco, Hawaii, Santa Monica

San Francisco Onsite Water Reuse Program

- 2012 – Established a voluntary onsite water reuse program
- 2016 – Required onsite water reuse for buildings of 250,000 sqft or larger
- 2021 – Required onsite water reuse for buildings of 100,000 sqft or larger
- City/County Department of Environmental Health – approves the engineering report, issues permit to operate, and oversees the water quality testing.

Preliminary Recommendations

Rationale for Recommendations



Sustainable and Resilient Water Management

- Match alternate water sources with appropriate non-potable end uses



Just Job Transition

- Alignment with New Building Electrification Ordinance



Alignment with upcoming state regulations

- State regulations are expected to be completed by December 2022.

Preliminary Recommendations

Phase 1: Dual Plumbing Ordinance:

- Amend title 15 (Buildings and Construction) of the Sacramento Code to require dual plumbing to reuse greywater in certain new buildings

Preliminary Recommendations

Building Criteria:

- New commercial non-residential buildings
- 100,000 sq ft or greater
- Specific occupancy groups (based on plumbing fixture density)

Preliminary Recommendations

Proposed Effective Date of Phase 1:

- Bring forward an Ordinance within 6 of the effective date of SB 966 (expected December 2022)

Building Types Subject to Proposed Requirements

Building Type	Number of Buildings 100,000 sq ft or greater	Subject to proposed requirements
Commercial /Retail	7	✓
Office	1	✓
Hotel/Motel	3	✓
Industrial	1	✓
Warehouse	2	

Preliminary Recommendations

Phase 2: Onsite Water Reuse Treatment for Grey and Blackwater

- Phase in potential requirements for onsite reuse of grey and blackwater after the state adopts water quality standards for onsite treatment of non-potable water (per SB 966)
- Proposed effective date of January 1, 2026, to coincide with the full implementation of the New Building Electrification Ordinance



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